August 7, 2020

Ref: 12970.00/14424.00

Sudbury Conservation Commission
275 Old Lancaster Road
Sudbury, MA 01776

Re: Supplemental Submission
Applicants' Response to Comments from July 8, 2020, Public Hearing
Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Sudbury Conservation Commission Members,

The Applicants, the Massachusetts Department of Conservation and Recreation ("DCR") and NSTAR Electric Company d/b/a Eversource Energy ("Eversource"), are providing this supplemental information in response to comments received from members of the Commission, as well as from the public, during the public hearing held for the Project on July 8, 2020. Each comment is presented in bold text, and the Applicants' response is provided in plain text.

1. **Disturbed areas associated with the work at Bridge 128 will be replanted with 85 trees and 60 shrubs. Disturbed areas associated with the work at Bridge 127 will be replanted with 78 trees and 135 shrubs. Tree species include gray birch, red maple, serviceberry, and black oak to replace primarily white pine that will be removed. The applicant should look at increasing the diversity of proposed trees which should include coniferous species to replace the primarily white pine that is proposed to be removed, that provide year- around shading for this coldwater fishery.**

   White pine has been added to the planting plans provided in the attached Eversource plan set.

2. **Disturbed areas will also be seeded with an herbaceous mix that includes eight species which are not on the Commission's approved list. Species proposed to restore jurisdictional areas should only include species on the Commission approved plant list.**

   Sudbury's Native Plant List states that it is not an all-inclusive list. Species in the herbaceous seed mix were selected based on a variety of factors including proposed site conditions, ability to provide wildlife habitat, site stabilization characteristics, and current species diversity. The Applicants have confirmed that all proposed species are native to Middlesex County, Massachusetts, using Native Plant Trust's Go Botany website. The one exception, red fescue (*Festuca rubra*), was in the original mix due to its site stabilization benefits. However, we have removed it from the seed mix and increased the percentages of Canada wild rye (*Elymus canadensis*), little bluestem (*Schizychyrium scoparium*), and upland bentgrass (*Agrostis perennans*).

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3. **The applicant has modified the proposed seed mix to include woody shrub species. The applicant should explain how seeding disturbed areas following construction substantially restores vegetation removed for construction to comply with the limited project provision, which requires that the surface vegetation and contours be substantially restored.**

   This question was addressed previously in response to Comment 7 of the Applicants' Response to Comments letter dated June 25, 2020. However, in addition, the Applicants have modified the restoration plan to include supplemental shrub plantings in 23 areas. See the response to Comment 33 below for additional information about this proposed modification.

4. **The applicant should explain how the project is in compliance with the Sudbury Wetlands Administration Bylaw, which does not allow for this limit project provision.**

   Section 5.2 of the submitted NOI demonstrates compliance with applicable sections of the Sudbury Wetlands Administration Bylaw.

5. **The applicant should provide information on how the seed mix/plantings will be watered to ensure their survival.**

   For one year following planting, the contractor will be responsible for watering during the growing season whenever natural rainfall is below one inch per week. Watering will be applied thoroughly enough to saturate the soil in seeded areas and in the root zone of each planted tree and shrub.

6. **The project proposes 248,164 s.f. of alteration to Adjacent Upland Resource Area (AURA): 94,645 s.f. permanent alteration with installation of rail trail and 153,519 s.f. of temporary impact but revegetated following construction. The expectation of the Sudbury Wetlands Administration Bylaw is the restoration of the values and functions provided by the AURA to pre-exiting conditions following construction, at a rate similar to that required for wetland replication under the Bylaw. The applicant should explain how the project meets the mitigation requirement for impacts to AURA.**

   This was addressed previously in response to Comment 16 of the Applicants' Response to Comments letter dated June 25, 2020.

7. **There is 1 Certified Vernal Pool, 12 certifiable vernal pools, and 7 presumed vernal pools within the site. Many of these vernal pools are located directly adjacent to the rail bed. The project proposes to alter 82,692 s.f. of land within 100 feet of these vernal pools: 33,139 s.f. of permanent alteration is proposed with the installation of the rail trail; 49,553 s.f. of temporary alteration which will be revegetated. The applicant should enhance proposed mitigation adjacent to vernal pools to restore the slope within the limit of work to ensure no negative impacts to the vernal pools from erosion, loss of shading, loss of food source, and/or loss of shelter.**

   The Applicants have enhanced proposed mitigation adjacent to vernal pools by adding woody species to the proposed seed mix and have identified an opportunity to plant additional woody specimens

adjacent to VP-13. Please refer to the response to Question 33 for more details regarding the analysis undertaken to add additional woody specimens within the limits of work.

8. **The applicant has obtained approval from the Natural Heritage and Endangered Species Program for the project which places conditions that need to be adhered to in order for the project to be permittable. NHESP implemented a Time of Year (TOY) Restriction from October 1 – June 30 for work within Hop Brook; and a TOY restriction for work within 450 feet a vernal pools March 1 – May 15. The applicant states that this restriction is only for construction and the applicant still plans on traversing land within 450 feet of vernal pools during this restricted time. The applicant should implement a strategy to prevent unintended casualties, besides assuming vernal pool species are not likely to be present during the day.**

   In addition to the syncopated silt fence and TOY restriction, an Environmental Monitor will conduct sweeps during the active migratory season prior to vehicles traveling down the Project Site within vernal pool buffers.

9. **Portions of the work are located with Zone II Wellhead Protection Zone. Impacts to Bank, Bordering Vegetated Wetlands, Land Under Waterways, and Riverfront Area contribute to recharge to groundwater. The project will need to ensure any impacts to these resource areas will not impact their recharge function. The Applicant needs to ensure that potential contamination from the excavation of the rail bed and potential release of contaminants will not negatively impact the Zone II Wellhead Protection Zone. The applicant should explain why they will not seek a letter from the Water District confirming they have no concerns with potential impacts the project could have to the Zone II Wellhead Protection Zone. The applicant should also explain why they are not willing to install monitoring wells to confirm the project results in no migration of contaminants during construction.**

   Compliance with the performance standards for Bank, BVW, LUWW, and RFA are discussed within Section 5 of the NOI. By complying with the performance standards, the Project demonstrates that it protects the interests of the Wetlands Protection Act and Sudbury Bylaw Regulations, including recharge. In addition, Standard 3 of the Massachusetts Stormwater Management Standards identifies environmentally sensitive site design, low impact development, and stormwater BMPs as appropriate measures for minimizing loss of annual recharge. The Project includes all of these measures and, unlike a typical development project with extensive impervious surfaces that uses structural BMPs to re-route stormwater to other areas entirely, the Project design provides for stormwater to recharge within the immediate vicinity of the bike path footprint. The stormwater will discharge to conveyances in adjacent vegetated areas where stormwater will naturally infiltrate, and although DEP's stormwater protocols currently do not provide recharge credit for this non-structural stormwater BMP, EPA's guidance recognizes the volume reductions achieved from this BMP type. This is also addressed in response to BETA's stormwater comment SW8 in the Applicants' Response to Comments letter dated July 30, 2020.

With regard to the Water District, the Applicants are aware of the District's concerns, which were stated in a letter to the EFSB dated June 27, 2017. The District asked the EFSB to take the following "concerns" into consideration when making a final siting decision: (1) that construction of the transmission main and the future use of herbicides to keep the right of way clear may contaminate the water supply, (2) potential for damage to water lines crossed by the underground transmission line, and (3) "potential use of hazardous coolant materials" for the underground transmission line. With regard to the crossing of water lines by the transmission line, Eversource will coordinate with the Water District to locate water lines within the Project's footprint prior to construction. The underground transmission line will be installed beneath water lines at road crossings and the water lines will be protected from any damage and will not be impacted by the Project. With regard to the use of hazardous coolant materials for the transmission line, the transmission line will be a cross-linked polyethylene (solid dielectric) cable and will not contain any coolant materials. With regard to herbicide use, the EFSB has precluded Eversource from using herbicides, and DCR has committed to using herbicides in accordance with Vegetation Management Plans and only as a last resort where mechanical means have not been successful in managing specific species (e.g., Japanese knotweed, bittersweet, and poison ivy) that present a threat to the bike path or bike path users. With regard to construction of the transmission line, the Applicants have demonstrated that the work involving soil excavation and groundwater dewatering along the MBTA ROW will not create any greater risk to surrounding water supplies than existing conditions.

As discussed within the response to Comments 64 and 77 in the Applicants' Response to Comments letter dated June 25, 2020 and the Soil and Groundwater Analytical Results and Subsurface Media Management Memo that was attached to the June 25, 2020 letter, impacted groundwater was not encountered and is not anticipated to be encountered during construction activities. Therefore, additional monitoring wells are not necessary.

10. **The applicant has provided two Draft Stormwater Pollution Prevention Plan (SWPPP), one for each Phase of the project. Not all sections have been completed. A fully executed SWPPP will need to be submitted prior to commencement of work.**

    A final SWPPP will be prepared and can be submitted to the Commission as a special condition prior to start of construction.

11. **The SWPPP states that the project will be discharging stormwater into the municipal system. The applicant should explain where this is occurring and what methods are implemented to ensure only clean water is being discharged to the Town system. The applicant should provide confirmation that connections to the Town stormwater system have been reviewed and approved by the Department of Public Works.**

    This was addressed previously in response to Comment 16 of the Applicants' Response to Comments letter dated June 25, 2020.There are no direct discharges to Sudbury's municipal drainage system.

12. **The SWPPP includes non-stormwater discharges including washing vehicles and pavement. The applicant should provide information on where these activities will occur.**

    If it is necessary to clean construction equipment of mud and debris before it leaves the ROW, this would be done at the construction entrance track pads adjacent to public roadways.

13. **The SWPPP states that Polyester mesh compost filter tubes are called out for erosion controls. These are not the jute or biodegradable tubes discussed in the Notice of Intent. The applicant should confirm what is being proposed for erosion controls and be consistent throughout all documents with both materials, installation instructions, and locations. Most jute or biodegradable filter tubes do not have an extended life expectancy. They are also not recommended for any steep slopes, such as those present on site. The applicant should explain the appropriateness of this erosion control barrier given the duration of the project and site conditions.**

    The SWPPP was revised to accurately state that the compost filter tubes shall be jute mesh, or another approved biodegradable material, as indicated in the Notes on sheet 124 of the Eversource NOI plans. As shown on sheet 124 of the plans, Type A erosion control is a combination of a compost filter tube and silt fence, which is appropriate for steep slopes. Compost filter tubes will not be used on steep slopes as the sole erosion control measure. An Environmental Monitor will inspect all erosion controls until the site is stabilized and any damaged or deteriorated controls will be replaced.

14. **The SWPPP calls for stabilizing stockpiles that will be present for more than 14 days, but the Final Environmental Impact Report Certificate specifies stockpiling of material within the ROW will be limited in size and duration (1 week maximum). The applicant should modify the SWPPP accordingly.**

    The SWPPP is a document that is prepared in accordance with the USEPA requirements for the Construction General Permit, which requires that stockpiles that are present for more than 14 days be stabilized. The SWPPP was revised to state that stockpiles will be stabilized if they will be present for more than one week.

15. **The Soil and Groundwater Analytical Memo states that the Final Environmental Impact Report (FEIR) addresses notification and construction protocol to be implemented if contamination is encountered at the Project Site, including identifying the parties that will be notified, potential construction-period dewatering activities and related permitting requirements. The Conservation Commission should also be included in the contact list, should contaminated soils be encountered that require additional evaluation or special handling.**

    The Conservation Commission will be added to the list for notification if contaminated soils that require additional evaluation or special handling are encountered within areas of the Commission's jurisdiction.

16. **Excess soil not reused within the Project Site will be stockpiled temporarily at laydown areas outside of the ROW and the Conservation Commission jurisdictional areas. The applicant should identify where materials will be taken to. The applicant should also confirm that only soils removed**

from the Sudbury section of the ROW will be reused within Sudbury and/or clean fill will be brought in to use on site.

The issue regarding stockpiling was addressed previously in response to Comment 17c in the Applicants' Response to Comments letter dated June 25, 2020. It was also addressed in responses to Comments W23 and W27 in the Applicants' letter dated June 25, 2020, responding to BETA's peer review comments. Given the length of the segment between White Pond Road in Hudson and Dutton Road in Sudbury, it is possible that some soil from Hudson may be reused in Sudbury within this same segment. However, it is not expected that soils from other segments in Hudson will be reused in Sudbury.

17. **The applicant should provide information on dust control measures that will be implemented during construction. This is typically achieved by spraying exposed soils with water. A special condition should be included that prohibits any use of water from wetland resource areas to be used for dust management.**

    Dust will be controlled in accordance with Eversource's BMP manual (Section 3.12). Control measures can include sprinkling exposed soils with water and/or using calcium chloride. In addition, stockpiles, if present, will be covered with plastic sheets or tarps to minimize dust as outlined in Section 3.13 of the Eversource BMP manual. The entire Eversource BMP manual, including the sections referenced here, was not included in the NOI due to the size of the document. However, it is included with this supplemental submission as a reference.

18. **Dewatering of construction areas to proposed to be achieved by overland flow to vegetated upland area, including Buffer Zone, Adjacent Upland Resource Area and Riverfront Area (outer riparian); dewatering to a filter bag surrounded by straw wattles or other erosion control measures, or discharged within the existing trench. The applicant should explain how discharging into the existing trench provides sufficient dewatering during construction and when this methodology would be used. The applicant should also confirm that dewatering activities will not introduce contaminants into non-contaminated areas.**

    Dewatering into an existing trench is the preferred method and typically provides sufficient recharge capacity. This common method of dewatering is most effective in sandy granular soils with a high hydraulic conductivity and infiltration rate, which are prevalent within the Project Site. Sampling conducted in advance of the Project has not identified significant contaminants in soil or groundwater along the ROW. This method of dewatering keeps groundwater localized and will not significantly alter current site conditions given the limited volumes and duration of dewatering that are anticipated.

19. **The FEIR Certificate states that a Corridor Management Plan will be developed which incorporates specific measure to protect state-listed species during vegetation management activities. The Draft Corridor Management Plan provided states that they will provide annual Vegetation Management**

Plan to NHESP for review and approval. This should also be provided to the Commission to review for area within wetland jurisdiction.

Eversource can provide a copy of the VMP to the Commission. The Commission is encouraged to review this document and provide comment through the Department of Agriculture's review process, and copies of the approved VMP are provided to the chief elective officers, board of health, and Conservation Commission in affected communities. A separate review or approval of the VMP under the NOI process is not necessary. An updated Corridor Management Plan, with the Operations and Maintenance Plan/Long-Term Pollution Prevention Plan as an attachment, is included as an attachment to this letter.

20. **The Corridor Management Plan states that mowing will be avoided between April 1 and November 1, but if done during this time period then turtle sweeps will be conducted ahead of the mower with a mower height of 10 inches. This only addresses (the) area within NHESP jurisdiction and does not protect non state-listed species from this activity. The applicant should commit to not mowing areas over the Eversource duct bank and water quality swales (within wetland jurisdictional areas) between April 1 and November 1, unless needed for safety purposes, without prior approval of the Conservation Commission.**

    The Applicants cannot make the commitment that is proposed in this comment. The Corridor Management Plan does not state that mowing will be avoided between April 1 and November 1. It states that if mowing is conducted during between April 1 and November 1 within habitat mapped for eastern box turtles, sweeps of the work area ahead of the mower will be conducted by a qualified individual to remove any turtles. There is no time of year restriction on mowing outside of the mapped habitat areas.

21. **Trash receptacles are included in the Corridor Management Plan. Trash receptacles should be shown on the plan and/or conditioned to be located outside jurisdictional areas. The applicant should confirm whether there will be other trail amenities, such as benches, kiosks, and dog waste receptacles, and if so, where such amenities will be located.**

    DCR will not install any trash receptacles on the corridor, and this provision has been removed from the CMP. DCR does plan various pullouts, benches and signs, and these are shown on the DCR plans.

22. **Debris from the trail is to be blown from paved surfaces at least once every two weeks. The applicant should provide information on how this is conducted, what machinery is used, and what efforts are employed to keep debris from being blown into the directly adjacent wetlands, especially as many of these are vernal pools.**

    The CMP was revised to clarify that this refers only to plant debris (e.g., leaves, branches, etc.) and not trash. The plant debris will be blown from the path by using leaf blowers, but a note will be added to the CMP to avoid blowing plant debris directly into vernal pools.

23. **The applicant states that Eversource Engineers have determined that the existing culverts/drainage pipes under the ROW do not need to be replaced as they will not affect the operation and**

maintenance of the transmission line. The Commission requests Eversource provide the structural report on the structural integrity of the culverts for review. The analysis should also include the projected lifespan of these culverts with regards to the anticipated lifespan of the transmission line and rail trail. DCR should confirm that they will be taking responsibility to repair/replace failed culverts under the trail as they continue to degrade.

A structural report was not prepared for the culvert inspection. The results of the culvert inspection were provided in Table 4 of the NOI. If a culvert requires replacement in the future, DCR will be responsible. Additional information regarding culverts was provided previously in the response to Comment 70 in the Applicants' Response to Comments letter dated June 25, 2020.

24. **Trimming and removal of hazard trees and those that appear to be causing root damage to the pavement are included in the Corridor Management Plan. This should be modified to include Conservation Commission approval for trees work within wetlands jurisdiction.**

    Trimming and removal of hazard trees will be undertaken when identified since this may represent an imminent danger to the public. The Conservation Commission will be notified of any hazard tree removal within jurisdiction. Any trees to be removed within jurisdictional areas because of root damage to the path will be discussed with the Conservation Commission agent for the appropriate regulatory course of action.

25. **This Corridor Management Plan includes herbicide treatment and includes management under an approved Eversource's Vegetation Management Plan (VMP), should DCR not construct their portion of the project. The applicant should clarify when herbicide treatments are anticipated, including methodology, and provide a typical VMP for other DCR rail trails as well as Eversource utility corridors, for review.**

    The CMP does not discuss the use of herbicides. If DCR does not construct the rail trail, every four years Eversource will manage the vegetation over the duct bank and gravel access road only and all other areas will be allowed to revegetate. Herbicides will not be used by Eversource. This information has also been added to the revised CMP attached to this letter. DCR's use of herbicides was addressed in response to BETA's W36 and W37 comments in the June 25, 2020, letter submitted to the Commission.

26. **The Corridor Management Plan should include invasive species management. Section 3.3 of the NOI should be incorporated into the Plan which includes spot treatment for species that cannot effectively be managed by other methods, such as Japanese knotweed. An invasive species management plan, extending at least 3 years beyond the completion of Phase II should be provided for all areas that will be disturbed.**

    The Corridor Management Plan acknowledges that invasive plant species will be managed in accordance with DCR's best management practices for managing terrestrial invasive plants. The long-term management of invasive species was addressed in response to Comment 10 in the Applicants' Response to Comments letter dated June 25, 2020.

27. **The applicant should confirm that NHESP has reviewed and approved the Eastern Box Turtle Protection Plan. Turtle sweeps will not be conducted during construction during the dormant season as turtles are presumed to be hibernating. The applicant should confirm whether this will be confirmed by the radio tracking that is being conducted to confirm turtles are dormant.**

    NHESP has reviewed and approved the Eastern Box Turtle Protection Plan. All radio tracked turtles will be tracked until they hibernate to confirm that they are dormant.

28. **The Operation and Maintenance and Long Term Pollution Prevention Plan includes elements that are not part of the proposed site such as catch basins and appears to have contradictory statements on management of the vegetation over the duct, for example, the Maintenance of Landscaped Areas section states that maintenance on the shoulder will include mowing of the 2-foot shoulder biweekly with an annually mow of 5 feet beyond the shoulder, but the Appendix notes the annual mow of a 25 foot vegetated filter strip. The applicant should clarify.**

    There is one catch basin, one flared end section, and two headwalls to be constructed as part of this Project in Sudbury. These structures are identified in the OMP/LTPPP since they are part of the stormwater management system and will require periodic maintenance to ensure proper operation. Mowing of the two-foot-wide vegetated path shoulders will be conducted biweekly and the five-foot area over the duct bank will be mowed annually. In addition, the swales and areas of increased infiltration will be inspected and mowed as needed or annually at a minimum to maintain proper water quality treatment function. Beyond that, no mowing will be conducted. A 25-foot vegetated filter strip is not part of the Project's stormwater management system. The updated OM/LTPPP is provided as an attachment to this supplemental submission.

29. **The DEP Environmental Notification Form letter dated July 7, 2017 identifies six additional contaminated sites in close proximity to the ROW including lead generated from the former Rod and Gun Club at 33 Bulkley Road from 2005 and contamination from Mullen Lumber at 39 Union Avenue. DEP advised that recovered groundwater may require treatment and monitoring for VOCs, and soil excavated near Bulkley Road should include testing for lead. The application is silent on this request regarding potential lead contamination.**

    As shown on the Eversource plan set, the area of the ROW near the former Rod and Gun Club at 33 Bulkley Road site (station 507+00 to station 516+00) is a "fill" area, i.e., material will be added to raise the ground surface by as much as 8 feet. In addition, the 21E reports for the Gun Club site indicate that lead was not detected above DEP's reportable concentration in soil samples collected near the ROW.

30. **The application states that the contractor is responsible for cleaning all equipment and timber mats prior to mobilizing to the site, to minimize transport of invasive species. This standard needs to be applied, however, to the mobilization of equipment throughout the corridor as there are**

areas impacted by invasive species, but there are other areas that have very few invasive species. The applicant needs to ensure that invasives will not be transported within the corridor.

In addition to cleaning all equipment and timber mats prior to mobilizing to the site, the Project will prevent invasive species from becoming re-established within the Project footprint as described in the Applicants' response to BETA's comments dated June 25, 2020. We understand Japanese knotweed is of particular concern and areas that contain this species will be mapped prior to construction and soil from these areas will not be reused. Furthermore, DCR's long-term vegetation management will address any invasive species that appear post-construction, as described in Section 3.3 of the NOI.

31. **There are a few areas, such as at the bridges, and the section between Boston Post Road and bridge 127 where dewatering is going to be needed no matter what the conditions are at the time of construction. The applicant should provide a specific dewatering plan for areas that will require dewatering, to guide the contractor on how to appropriately deal with dewatering. This can be modified at the time of construction, with Conservation approval, but a dewatering plan should be provided as part of the NOI submittal.**

    The dewatering methods were identified within the response to Comment 8 in the Applicants' Response to Comments letter dated June 25, 2020. The contractor will select and use one of the identified methods in a work area depending on the field conditions at the time of construction.

32. **The applicant should explain how the timber mats will be positioned to provide a level surface given the currently steep slopes on which the mats will be positions and any alteration that would be needed to the slope to support the crane on an up to 7-foot high stacked platform. The applicant should explain the comment that stacked timber mats is just one method that may be used and identify other methods that the Commission should consider. The applicant should provide an architectural rendering for both bridges showing implementation of construction mats and installation of the transmission line at these crossings.**

    To be clear, the Project is not considering any other methods for bridge reconstruction/rehabilitation. The Project will use timber mats, which will be stacked at the bridge locations. As shown in the crane mat sections on Sheet 125 of the Eversource plan set, the crane mats will be stacked with increasing width as they increase in elevation, and each layer of mats may require some temporary minor grading to provide a level surface for placement. At both bridges, erosion controls will be installed before any grading occurs, and geotextile fabric will be laid under and wrapped around the mats to further prevent sediment from entering the wetland or waterway. Once the bridge work is completed and the mats are removed, the slopes will be restored to a maximum 2:1 slope, will be stabilized with jute mesh erosion control fabric, and will be replanted with vegetation as shown on the planting plans on Sheets 134 and 135 of the Eversource plan set.

33. **The applicant has provided a planting schedule by station. The applicant should submit a detailed planting plan specifying the square footage of each altered area, vegetation removed in each area**

by size and species, and the planting schedule for each of these areas for the Commission to evaluate whether the functions and values provided by these areas will be substantially restored.

The plans attached to this response include a detailed planting plan for the areas at Bridges 127 and 128, and 23 additional areas of woody plantings within Riverfront Area and AURA where space allowed. The available space for supplemental plantings is limited by the narrow Project footprint, within which: 1) the area over the duct bank is not suitable for planting, 2) areas within 4 feet of the bike path pavement must be avoided to maintain safe clearance from branch hazards for trail users, 3) slopes steeper than 2:1 should be avoided as they result in low planting success, and 4) long narrow areas would result in linear plantings that are not consistent with the goal of a natural landscape. The updated plans identify these locations, including details prescribing the species, spacing, and number of plantings of each species proposed for each area. Proposed shrub plantings within the 23 additional areas of woody plantings include summersweet clethra (*Clethra alnifolia*), alternate-leaved dogwood (*Swida alternifolia*), northern bayberry (*Myrica pensylvanica*), and American hazelnut (*Corylus americana*). The number of proposed plants per area is based on the area available for planting and is summarized in the table below.

Area	Stationing	Area (SF)	Number of Additional Plantings
Area 1	437+00 – 437+85	444	30 of each species except for summersweet for a total of 30 plants
Area 2	409+05 – 409-55	183	4 of each species except for summersweet for a total of 12 plants
Area 3	519+55 – 521+00	North – 923 South – 1,369	North – 16 of each species for a total of 64 plants South – 23 of each species for a total of 92 plants
Area 4	523+30 – 523+80	154	5 of dogwood and bayberry for a total of 10 plants
Area 5	433+15 – 534+55	North – 691 South – 1,192	North - 12 of each species for a total of 48 plants South – 20 of each species for a total of 80 plants
Area 6	586+45 – 587+50	North – 705 South – 597	North – 12 of each species for a total of 48 plants South – 10 of each species for a total of 40 plants
Area 7	601+00 – 601+90	1,071	18 of each species for a total of 72 plants
Area 8	700+00 – 701+00	314	5 of each species for a total of 20 plants
Area 9	706+30 – 707+50	944	16 of each species for a total of 64 plants
Area 10	712+15 – 713+20	601	10 of each species for a total of 40 plants
Area 11	717+50 – 718+55	829	14 of each species for a total of 56 plants

Area 12	717+50 – 718+55	862	15 of each species for a total of 60 plants
Area 13	719+85 – 720+55	457	8 of each species for a total of 32 plants
Area 14	722+25 – 722+95	343	6 of each species for a total of 24 plants
Area 15	722+00 – 722+50	242	4 of each species for a total of 16 plants
Area 16	729+95 – 731+45	896	15 of each species for a total of 60 plants
Area 17	731+95 – 732+95	1,081	18 of each species for a total of 72 plants
Area 18	734+55 – 737+95	1,769	30 of each species for a total of 120 plants
Area 19	734+45 – 741+00	5,949	100 of each species for a total of 400 plants
Area 20	752+55 – 753+20	668	11 of each species for a total of 44 plants
Area 21	751+50 – 753+50	1,618	28 of each species for a total of 112 plants
Area 22	762+00 – 762+50	196	3 of each species for a total of 12 plants
Area 23	764+50 – 766+55	677	11 of each species for a total of 44 plants
Total	-	**19,675**	**1,336 additional shrub plantings**

34. **The applicant states that the wetland replication area will be monitored for invasive species until 75% cover is achieved. To be in compliance with standard expectations of the Commission for replication areas, this should be modified to 90% cover, which is particularly important due to the extent of invasive species present.**

    Although this "standard expectation" of the Commission is not stated as a performance standard within the Sudbury Wetlands Administration Bylaw or Bylaw Regulations, the Applicants will monitor for invasive species until 90% cover is achieved if this requirement is included as a condition in the OOC.

35. **The applicant agrees to not store or refuel vehicles within the inner riparian zone or bordering land subject to flooding. This activity should also be required to occur outside the buffer zone, with the exception of the cranes. For the cranes, the applicant should develop secondary containment**

protocols to contain any fluids that may leak from these vehicle as they will be positioned at the river's edge.

The Applicants can agree not to store or refuel vehicles within the inner riparian zone, bordering land subject to flooding, or buffer zone, with the exception of the areas immediately adjacent to road crossings. The Applicants must retain the ability to refuel at road crossings to avoid excessive fuel use and traffic on public roadways to move equipment out of these jurisdictional areas.

The spill prevention approach at the cranes includes the use of erosion controls at the perimeter of the crane mats to protect the adjacent wetlands and waterways, thorough and repeated equipment inspections as well as regular preventive maintenance to ensure equipment is in good working order, and a robust spill prevention, control, and countermeasures plan. All equipment will be checked at the beginning and end of each day and regularly throughout the day for evidence of leaks and other hazards. At each crane, a 55-gallon spill kit containing emergency cleanup and spill containment materials is required to be kept on site and accessible at all times. The construction superintendent responsible for daily operations will designate at least three other site personnel to receive spill prevention and cleanup training, each of whom will be responsible for a particular phase of prevention and cleanup. The cranes will be fueled by experienced fueling technicians who will drive a refueling vehicle to the crane location and transfer the fuel via a fueling hose, similar to the way home heating oil is provided. An impervious basin will be placed under the hose and connection areas to provide protection during refueling.

36. **Best Management Practices submitted with the Notice of Intent refers to the use of hay bales. This should be modified to limit any confusion the contractor may have.**

    The Best Management Practices Manual submitted with the NOI is Eversource's standard BMP guidance for all projects. However, project-specific plans dictate what is used during construction, and the plans for this Project state that straw will be used. Hay will not be used on the Project Site.

37. **The applicant should explain why they are proposing pavement for this section of the Mass Central Rail Trail (MCRT) when other sections of the MCRT are not paved.**

    DCR evaluated various surface options for the MCRT – Wayside and determined that asphalt is the best choice for balancing accessibility, recreational use, environmental protection, alternative transportation, and long-term maintenance. Asphalt is the recommended standard by AASHTO for meeting full accessibility. It also performs best over time and serves the greatest number of users, especially less mobile users and users with devices with narrow wheels. Other potential surfaces, such as "stone dust," do not meet accessibility requirements or serve the full range of users. Surfaces such as "stabilized aggregate," while meeting accessibility requirements, do not serve as many users, do not hold up as well over time, and do not provide any additional permeability or other environmental benefit or cost savings.

38. **As recommended by DEP in their ENF Comment Letter, the applicant should develop a protocol for re- vegetating areas of temporary disturbance that discourages the growth of invasive species and**

provides restoration with a diversity of native species. DEP further recommends the applicant develop a long-term vegetation management plan to maintain the 30-foot ROW.

Managing invasive species was addressed in response to Comments 6, 22, and 45 in the Applicants' Response to Comments letter dated June 25, 2020. The Project design has advanced since the issuance of the DEP's comment letter on the ENF and no longer includes maintaining a 30-foot-wide ROW.

39. **The Memorandum of Understanding should include Joint and Severable Liability to ensure the obligations of the project are fulfilled.**

    As set forth in several of the General Conditions in DEP's WPA Form 5 Order of Conditions (OOC), the OOC issued for the Project will apply to each permittee and to any successor party in control of the property subject to the OOC.

40. **The applicant should provide information on impacts on wildlife due to habitat fragmentation that the project may create, both during construction and from the higher density use of the trail by visitors and dogs.**

    The Project will not result in habitat fragmentation, which is a wildlife habitat concept that generally refers to disruption of contiguous undisturbed areas. The MBTA ROW is located near several abutting areas of conservation land, including the Assabet River National Wildlife Refuge, the City of Marlborough's Desert Conservation Area, and the Sudbury Valley Trustees' ("SVT") Memorial Forest, that have several existing trails and roads cutting through them, several of which are wide enough to be visible in aerial photography. In the Memorial Forest and Desert Conservation Area, SVT and the City of Marlborough have been actively managing for the pitch pine–scrub oak natural community with tree clearing and prescribed burns, including a burn plan originally planned for 2020 as approved by the Conservation Commission. On the Wildlife Refuge property, there is a system of cart paths and roadways, and the US Fish and Wildlife Service has also planned to conduct prescribed burns on the refuge property. Accordingly, the replacement of the rail line with the bike path will not create habitat fragmentation in an otherwise contiguous undisturbed area. In fact, the Massachusetts Division of Fisheries and Wildlife's mapping of interior forest in this area does not identify these areas around the ROW as unfragmented forest like the larger contiguous area well south of the ROW.

41. **The applicant should explain how the restoration of the site following construction minimizes predation and harassment of animals crossing the ROW from the additional exposure due to loss of vegetation.**

    See the response to Comment 40 above.

42. **The applicant should provide information on what will be done to enhance the local population of wild lupine at this site and what they will do to improve habitat for declining insects.**

    The Project is not proposing any measures to "enhance" the wild lupine population, which is not a state-protected species. However, DCR is exploring the possibility of including a specification for a

year of local lupine seed collection and dispersal/propagation within this area of the corridor. In addition, the Project will incorporate measures to protect the existing population that is present outside of the Project's footprint. It should also be noted that this is a non-jurisdictional area.

NHESP has identified Priority Habitat for two state-listed insects along the MBTA corridor. Based on consultation with NHESP, the Applicants will plant lowbush blueberry (*Vaccinium angustifolium*) to provide larval food sources for the Coastal Swamp Metarranthis (*Metarranthis pilosaria*). In addition, several of the species proposed in the herbaceous seed mix (e.g., *Penstemon digitalis*, *Solidago caesia*, *Symphyotrichum* spp.) as well as the supplemental plantings (e.g., *Clethra alnifolia*, *Ilex verticillata*, *Myrica pensylvanica*, *Pontederia cordata*, *Swida amomum*, *Swida alternifolia*, *Vaccinium corymbosum*) will provide food sources for insects.

43. The applicant should provide specific information on the source of any fill used, the sources of any fill certifications, and its appropriateness for the geology and habitat at this site.

As stated within the response to comment W5 in BETA's peer review comment letter and Comment 6 in the Applicants' Response to Comments letter dated June 25, 2020, the Project will only use certified weed free clean fill/loam. The contractor will be responsible for sourcing and certifying the quality of the loam.

44. The applicant should explain the proposed Ordinary Borrow that will be used on site and where is it coming from. Any soils added or brought into the site should be similar to the sandy soils that are already present at the site rather than "loam" in the section of the utility/rail trail corridor that is located between the Marlborough-Hudson town line and Dutton Rd.

See the response to Comment 43 above for ordinary borrow. In the area between the Marlborough-Hudson town line and Dutton Road, the Applicants will use sand borrow for all restored areas outside of the rail trail shoulders. For the shoulders the Applicants will use dense graded gravel to provide a safe surface for trail users, as sand can pose a hazard to bicyclists.

45. What is "Fluidized Thermal Backfill" that will be added above the buried utility line? What are the contents of such substance? What are its typical uses and has it been previously used in a conservation setting?

Fluidized Thermal Backfill (FTB) is a form of low strength concrete that is placed over the concrete duct bank to fill in voids and create a stable substrate to support the surface installed above the trench area. Similar to concrete it is composed of cement, fly ash, sand, gravel/aggregate, and water. FTB is typically used above underground duct banks to ensure that heat can dissipate into the surrounding native soils and not build up in any one location. In transmission line applications, FTB is used wherever underground transmission lines are installed including public roadways, off road rights of way, and in conservation settings along such routes.

46. Explain the applicability of Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails guidance, and any anticipated impacts from the mixing and topsoil with underlying soils. Provide copies of soil boring logs and monitoring well construction diagrams for

all subsurface investigations conducted within the MBTA ROW in the Town of Sudbury, including, but not limited to: B28, MP27, SB33/MW33, MP28, SB36, MP29, SB34, MP30, SB48, , SB35/MW35, MP31, MP32, MP33, SB49, MP34, SB42/MW42, SB40, MP35, SB41, MP36, SB-51, SB-50, MP37, SB-37, SB- 38, MP38, SB-39, MP39 and MP40. Provide copies of laboratory reports for all soil and groundwater analyses completed for samples collected within the MBTA ROW in the Town of Sudbury, including, but not limited to soil borings and/or groundwater monitoring wells B28, MP27, SB33/MW33, MP28, SB36, MP29, SB34, MP30, SB48, , SB35/MW35, MP31, MP32, MP33, SB49, MP34, SB42/MW42, SB40, MP35, SB41, MP36, SB-51, SB-50, MP37, SB-37, SB-38, MP38, SB-39, MP39 and MP40.

The applicability of the Rail Trail guidance was addressed in response to Comment 86 in the Applicants' Response to Comments letter dated June 25, 2020. Soil boring logs, monitoring well construction diagrams, and the analytical laboratory reports are provided as an attachment.

47. **Have other pervious trail surfaces been consider?**

See the response to Comment 37.

48. **Are there accommodations for horses, as they currently use this area?**

This was addressed in response to Comment 55 in the Applicants' Response to Comments letter dated June 25, 2020.

49. **How many manholes are needed in total along the line in Sudbury? How far apart are they and how wide do the sections with manholes have to be built? How many manholes in total for the entire project? How much surface area does that equal?**

As described in Section 3.1 of the NOI and shown on the plans, manhole locations require a work area 40 feet wide for a length of 50 feet and are spaced approximately every 1,500 to 1,800 feet. Section 3.1.5 of the NOI identifies that a total of 13 manholes will be installed in Sudbury, with seven located within the Commission's jurisdiction. There are no manholes within BVW, BLSF, or LUWW. Given a 2,000-square-foot footprint (40 feet by 50 feet) for each manhole, these 13 manholes will have a total surface area of 26,000 square feet. There is a total of 22 manholes proposed within the MBTA ROW in Hudson and Sudbury.

50. **Has DCR ever built a rail trail along an abandoned rail line that did not have a utility corridor associated with it, where the utility corridor was later built adjacent and within the rail line and already built rail trail?**

No, DCR has not built a rail trail along an abandoned rail trail where a utility line was then constructed later and *within* the already built rail trail. However, rail trails and utility lines have been constructed within the same corridor. This was addressed in response to Comment 72 in the Applicants' Response to Comments letter dated June 25, 2020.

51. **Does DCR plan on funding and maintaining rest areas? Are there rest stops and planned areas for handicapped access points located in town or in the conservation areas along the route? Who pays for this construction and maintenance?**

    Rest stops, pullouts, and access points to adjacent public ways are shown on DCR's plans. DCR is responsible for construction and maintenance of these features.

52. **What happens to all the dirt that has to be moved when leveling out the berm that the train used to run on and where is it stored both during and after construction? How many tons and what happens if it rains? What happens to the dirt of the berm when digging out the area for the manholes and the buried vaults for the lines? Will they be using the same dirt already there? If so, will it be tested it for train contaminants?**

    Please refer to the cross sections in Eversource's NOI plans for existing and proposed grades and cut/fill sections.

    The issue regarding stockpiling was addressed in response to Comment 17c in the Applicants' Response to Comments letter dated June 25, 2020. It was also addressed in responses to Comments W23 and W27 in the Applicants' Response to Comments letter dated June 25, 20202 to BETA's peer review. See the response to Comment 43 for clean fill.

    This question raises several items that are addressed separately throughout these questions. Please refer to those comments and answers.

53. **Are there water and soil test results for under and near the proposed rail trail? Have they tested at different depths along the rail bed or just at one depth? Have they tested water for pollution near Landham Road and one of the areas most affected in town by toxic waste spills from gasoline products?**

    An environmental due diligence study and sampling program were conducted within the bounds of the Project along the right of way. The details of the subsurface investigation and results of the soil and groundwater sampling program were provided to the Town of Sudbury in the June 25, 2020 supplemental submission.

54. **Since the train has not run for over 50 years, isn't this land and water now considered a natural area. How can you say that your project will "improve" on what is currently there?**

    This question was addressed previously in the response to Comment 7 and in response to Comment C2 in BETA's peer review comment letter in the June 25, 2020 supplemental submission.

55. **Will the heat from the lines underground affect the natural environment and wildlife in any way? What about people walking through along the trail?**

    This was addressed in response to Comment 31 in the Applicants' Response to Comments letter dated June 25, 2020.

56. Have Eversource or the DCR ever built a utility project or rail trail in the state that involves so many spill sites, so many residences, and require the disposal of so much material and upending of so much property adjacent to this amount of wetlands and priority habitat?

Eversource and DCR have constructed projects that involved similar work in and near residential areas and industrial locations, c. 21E sites, and various wetland resource areas.

57. How do you justify a multi-million dollar project that will obviously lower property values and taxes in our town and raise our utility rates at a time when many people are going to be laid off or let go?

This question and the inaccurate claims presented are beyond the scope of issues that the Commission is responsible for in this proceeding.

58. How would the use of horizontal directional drilling or other technology for installation of transmission line under the water crossing at bridge #127 and #128 impact wetlands vs. wetland impacts from (1) installation/construction of a new replacement bridge #127/rehabilitation of #128 and (2) the use of such replacement bridges as attachment surfaces for the transmission line conduit?

See response to Comment 76 in the prior submission dated June 25, 2020. Note that there are no wetland impacts associated with the rehabilitation of Bridge 128 or with attaching the transmission line to the new bridge as proposed.

59. When the lines go over or under the bridges will they be outwardly visible?

As shown on the Bridge Transverse Section detail for Bridge 128 on sheet 160 of the Eversource NOI plans, the transmission line in this location will be beneath the bridge and will not be visible to MCRT users. As shown on the Bridge Transverse Section detail for Bridge 127 on sheet 168 of the Eversource NOI plans, in this location the transmission line will be located on the side of the bridge outside of the timber rub rails, with a fiberglass-reinforced plastic cover on top. The rub rails and cover will make the line less visible to MCRT users.

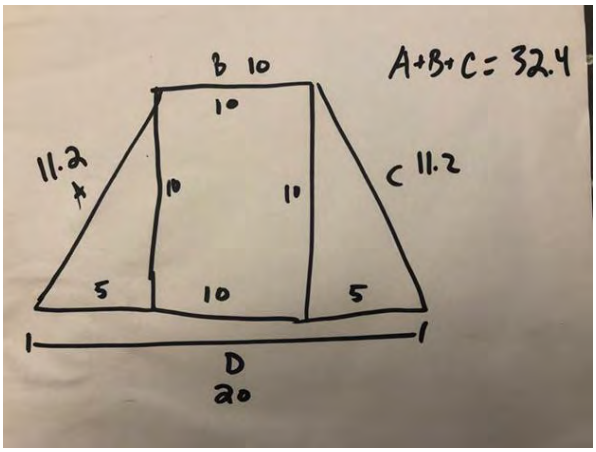
60. With multiple work crews coming from different sides of the ROW, is it possible to reduce the width of the 19-foot construction platform that provides for two way construction traffic?

No, having multiple crews come from different sides of the ROW would not allow for reduction of the construction platform width. Even if a public road-to-public road segment is broken into subsegments for different crews, there will be multiple vehicles travelling within that subsegment as work proceeds in a linear fashion from rail and tie removal to grading to manhole installation to duct bank installation to stabilization.

61. The TOY restrictions shown on the map was very helpful, thank you. Can you show a 20-month calendar of the proposed work? E.g., the proposed timing for particular sections? Using the ROW map or Gantt chart or similar format.

See the response to BETA's W28 provided in the response letter dated June 25, 2020.

62. Has the slope of filled ROW areas been appropriately considered, both in terms of area of impact and mitigation (e.g., amount of re-seeding material needed)? Using a simple overhead calculation rather than accounting for the slope could lead to underestimates for areas such as the section between Hop Brook heading east to Dutton Road, as show in the diagram below. Using an overhead horizontal would results in an impact diameter of 20 (D), when the reality considering the slopes would be a diameter of 32.4 (A+B+C), for however long the length of the impact area travels.



It is standard engineering practice to calculate impact areas horizontally. This is consistent with the Wetlands Protection Act Regulations, which define measurement horizontally (see definition of Buffer Zone at 310 CMR 10.04, and see 310 CMR 10.58(2)(a)3—"Measured horizontally means that the riverfront area extends at a right angle to the mean annual high-water line rather than along the surface of the land").

Should you have any questions concerning this submittal or require additional information, please contact Katie Kinsella at 617.607.2157 or kkinsella@vhb.com, or Gene Crouch at 617.607.2783 or gcrouch@vhb.com.

Sincerely,

Katie Kinsella and Gene Crouch

CC: Denise Bartone - Eversource
Paul Jahnige - DCR
MassDEP - Northeast Regional Office

Attachments:

- Revised plan sheets showing the additional areas of plantings and planting details
- Eversource's Best Management Practices Manual
- Revised Corridor Management Plan with the Operations and Maintenance Plan and Long-term Pollution Prevention Plan attached
- Soil boring and monitoring well logs and analytical lab reports

Tighe&Bond

Construction & Maintenance
Environmental Requirements

Best Management Practices Manual for Massachusetts and Connecticut

Prepared For:

Eversource Energy Environmental Licensing and Permitting Group
107 Selden Street
Berlin, CT

September 2016

Section 1 Introduction

Section 2 Project Planning

Section 3 Construction Considerations

Section 4 Inspection and Maintenance

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Table TOC-1
Best Management Practices Summary Table

	Area / Activity	Applicable BMPs	Tab	Tab Section
CONSTRUCTION	Upland	Construction Entrance Track Pad	1	A
	`	Stormwater Management BMPs (includes temporary water bars, drainage swales, and sedimentation basins)		B
	Wetland	Construction mats	2	A
		Permeable Road		B
	Watercourse Crossings	Without bridged crossings	3	A
		Bridged crossings		B
		Culverts		C
		Poled fords		D
	De-Energized	Construction mat workpads, including construction mats and lightweight mats	4	A
	Energized	Construction mat workpads		B
SOIL STOCKPILE MANAGEMENT	All	Soil Stockpile Management	5	A

Table TOC-2

Appendix A: Erosion / Sedimentation and Water Control Summary Table

Type	Applicable Control	Location
EROSION / SEDIMENTATION CONTROLS	Preservation of Existing Vegetation	
	Topsoil Segregation for Work in Wetlands and Agricultural Areas	
	Straw (or Hay) Bales*	Section I
	Silt Fence	
	Syncopated Silt Fence	
	Erosion Control Blankets	
	Straw/Compost Wattles	
	Wood Chip Bags	
	Catch Basin Protection	
	Loaming and Seeding	
	Mulching with Hay/Straw/Woodchips	
	Coir Log Use for Bank Stabilization	
	Level Spreader	
	Check Dams	
	Temporary and Permanent Diversions	
	Temporary and Permanent Trench Breaker	
WATER CONTROL	Dewatering Activities	
	- Overland Flow	
	- Frac Tank	
	- Filter Bags and Hay Bale Containment	
	- Discharge Hose Filter Socks	Section II
	Coffer Dam and Stream Bypass via Pumping	
	Coffer Dam and Stream Bypass via Gravity	
	Silt Barriers	

***** Straw bales preferred in wetlands, if allowed by permit, and hay bales in uplands

TABLE TOC-3
List of Acronyms

Acronym	Definition
ATV	All-Terrain Vehicle
BMP	Best Management Practices
ConnDOT	Connecticut Department of Transportation
ACOE	United States Army Corps of Engineers
CT	Connecticut
CTDEEP	Connecticut Department of Energy and Environmental Projection
EBT	Eastern Box Turtle
EPA	United States Environmental Protection Agency
Eversource	Eversource Energy
EL&P	Environmental Licensing and Permitting
FEMA	Federal Emergency Management Agency
HDD	Horizontal Directional Drilling
LGP	Low Ground Pressure
MA	Massachusetts
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MassWPA	Massachusetts Wetlands Protection Act
NDDB	Connecticut Natural Diversity Database
NHESP	Massachusetts Natural Heritage Endangered Species Program
OLISP	Office of Long Island Sound Programs
ORV	Off-Road Vehicle
PSI	Pounds per square inch
RIM	Record Information Management System
ROW	Right of Way
TOC	Table of Contents

Section 1
Introduction

1.1 Purpose

As a matter of Eversource Energy (Eversource) policy regarding environmental stewardship and in accordance with local, state, and federal regulations, all construction and maintenance projects shall use environmentally sound best management practices (BMPs) to minimize or eliminate environmental impacts that may result from construction activities. Regardless of whether a specific permit is needed for the work, construction and maintenance projects must follow internal environmental performance standards, which is the purpose of these BMPs. In many cases, maintenance activities are exempt from regulatory authorization. Permits are usually required for new work. Contractors will be provided with copies of any project specific permits, and will be required to adhere to any and all conditions of the permit(s). Permit conditions that are more detailed than the BMPs outlined in this manual shall always be given priority. However, where certain construction elements are not addressed by permit conditions, or where permitting is not required, or for emergency situations where obtaining a permit before the work occurs may not be an option, these BMPs shall be considered as Eversource's standards. In some cases, and at the discretion of the Eversource Management, the BMPs presented herein may be modified to be more appropriate for site-specific conditions.

1.2 Scope and Applicability

These BMPs primarily address the disturbance of soil, water, and vegetation incidental to construction within on- and off-road utility corridors, substations, including the establishment of access roads and work areas, within rights of way (ROWs) and on private property, in and near wetlands, watercourses, or other sensitive natural areas (such as protected species), including storm drain systems (e.g., catchbasins). Types of construction include, but are not limited to, installation or maintenance of underground and overhead utilities, access road repair/improvement or installation, and upgrades or maintenance of substations and other facilities. Other common construction issues such as noise, air pollution, oil spill procedures, handling of contaminated soils, and work safety rules are addressed in the Eversource Energy Contractor Work Rules and related appendices.

1.3 Definitions

The following definitions are provided to clarify use of common terms throughout this document.

Best Management Practice (BMP): A means to reduce and minimize impact to natural resources.

Casing: A galvanized steel corrugated pipe that serves as the form for a utility structure foundation.

Emergency Projects: Actions needed to maintain the operational integrity of the system or activities necessary to restore the system and affected facilities in response to a sudden and unexpected loss of electric or gas service or events that affect public health and safety.

Embedded Culvert: A culvert that is installed in such a way that the bottom of the structure is below the stream bed and there is substrate in the culvert.

Environmentally Sensitive Areas: An area containing natural features, cultural features or ecological functions of such significance to warrant protection. Some examples are rivers, streams, ponds, lakes, wetlands, rare species habitat, water supply protection areas, cultural sites, parks, and agricultural land.

Erosion Control: A measure to prevent soil from detachment and transportation by water, wind, or gravity.

Existing Access Roads: Previously permitted or grandfathered access roads that are used to access structures that are clearly visible or can be found by mowing or by the presence of road materials in soil cores.

Grubbing: A site preparation method that is used to clear the ground of roots and stumps.

Intermittent Watercourse: An intermittent watercourse is broadly defined as a channel that a flowing body of water follows at irregular intervals and does not have continuous or steady flow. Regulatory definitions for intermittent water courses are:

- Connecticut—Per the Connecticut Inland Wetland and Watercourses Act, intermittent watercourses are delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation.

- Massachusetts—Under the Massachusetts Wetlands Protection Act (MassWPA), a jurisdictional intermittent watercourse is defined as a body of running water which moves in a definite channel in the ground due to a hydraulic gradient, does not flow throughout the year, and which flows within, into or out of an area subject to protection under the MassWPA. Intermittent watercourses upgradient of any Bordering Vegetated Wetlands are not jurisdictional under the MassWPA. A watercourse can be determined to be intermittent if it meets MassWPA criteria in regards to watershed characteristics found on the Stream Stats website or documented observations of no flow.

Limit of Work/Disturbance: The boundaries of the approved project within regulated areas. All project related activities in regulated areas must be conducted within the approved limit of work/disturbance. The limit of work/disturbance should be depicted on the approved permit site plans, which may require the limits to be identified in the field by flagging, construction fencing, and/or perimeter erosion controls.

Low-Impact Vehicles: Vehicles that have a lesser impact on an environmentally sensitive area due to the vehicle being smaller, lighter, or different in another way than a vehicle which would have a greater impact. Low impact vehicles could include ORVs or

ATVs, tracked vehicles with low ground pressure, or vehicles with oversized balloon-type tires.

Maintenance Projects: Typically consist of activities limited to the repair and/or replacement of existing and lawfully located utility structures and/or facilities where no substantial change in the original structure or footprint is proposed. Maintenance activities also include vegetation management.

Minimization: Causing as little disturbance to an area as practicable during construction.

New Construction: Construction of new transmission or distribution facilities that previously did not exist or construction that substantially modifies existing facilities. All new (and existing) construction projects are required to go through a full permit review by the Eversource Environmental Licensing and Permitting Department.

Pre-Construction Notification (PCN): Project activities that do not qualify for SV or where otherwise required by the terms of the MA and CT GPs must submit a PCN and obtain written verification before starting work in ACOE jurisdiction. Refer to MA and CT GP appendices for PCN thresholds. Projects that cannot be completed under a PCN must file for an Individual Permit with the ACOE. In CT, for coastal projects, notification is provided to ACOE by CT DEEP, Office of Long Island Sound Programs (OLISP) or by applicants as necessary. Written approval from ACOE is required.

Restoration: To return a disturbed area to its former, original or unimpaired condition. A site is considered fully restored when it has returned (as closely as practicable) to its original state. Restoration of disturbed areas should occur as soon as practicable following the completion of activities at that location.

Re-Vegetation: Establishment of plant material for temporary or permanent soil stabilization.

Right of Way: A pathway, road, or corridor of land where Eversource Energy has legal rights (either fee ownership, lease, or easement) to construct, operator, and maintain an electric power line and/or natural gas pipeline.

Self-Verification (SV): Activities that are eligible for SV are authorized under the MA and CT GPs and may commence without written verification from the ACOE provided the prospective permittee has:

i. Confirmed that the activity will meet the terms and conditions of applicable MA and CT GPs

ii. Submitted the Self-Verification Notification Form (SVNF) to the ACOE.

In CT, coastal projects do not require filing of a Self-Verification Notification Form. ACOE relies on CT DEEP and OLISP submittals.

Stabilization: A system of permanent or temporary measures used alone or in combination to minimize erosion from disturbed areas.

Sediment Control: Control of eroded so that it does not wash off and pollute nearby wetland and water resources.

Vehicles with Low Ground Pressure: Vehicles which have tires or tracks that apply less than three pounds per square inch (psi) on the ground surface.

Work: For the purposes of this BMP Manual, the disturbance of soil, water, and vegetation incidental to construction within on- and off-road utility corridors, substations, including but not limited to the establishment of access roads and work areas, in and near wetlands, watercourses, or other sensitive natural areas, including storm drain systems (e.g., catch basins). Types of construction include, but are not limited to installation or maintenance of underground and overhead utilities, substations and other facilities.

1.4 BMP References

The following table lists the public guidance documents utilized during the preparation of this BMP manual. Refer to these documents for additional information.

TABLE 1-2

Document Title
General
Best Management Practices (BMPs) Manual for Access Road Crossings of Wetlands and Waterbodies, EPRI, Palo Alto, CA (2002) 1005188.
Gas Research Institute. Horizontal Directional Drilling Best Management Practices Manual (2002) ENSR Corporation, Westford, MA and Trenchless Engineering Corp., Houston, TX.
Connecticut
Connecticut Department of Transportation (ConnDOT). ConnDOT Drainage Manual (October 2000) http://www.ct.gov/dot/cwp/view.asp?a=1385&Q=260116
Connecticut Standard Specifications for Roads, Bridges and Incidental Construction, FORM 816 (2004) http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362
Connecticut Department of Energy & Environmental Protection. Connecticut Guidelines for Erosion and Sediment Control. (2002) http://www.ct.gov/deep/cwp/view.asp?a=2720&q=325660&deepNav_GID=1654%20
Connecticut Department of Energy & Environmental Protection, Bureau of Natural Resources, Division of Forestry. Best Management Practices for Water Quality While Harvesting Forest Products (2007) http://www.ct.gov/dep/lib/deep/forestry/best_management_practices/best_practicesmanual.pdf
Massachusetts
Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges (1988) http://www.mhd.state.ma.us/default.asp?pgid=content/publicationmanuals&sid=about
Massachusetts River and Stream Crossing Standards (Revised March 1, 2011) http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StreamRiverContinuity/MA_RiverStreamCrossingStandards.pdf
Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas. Original Print: March 1997. *Reprint: May 2003*. http://www.mass.gov/eea/docs/dep/water/essec1.pdf
The Massachusetts Unpaved Roads BMP Manual (Winter 2001) http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/dirtroad.pdf

Section 2
Project Planning

After undergoing an initial screening review by the department conducting the proposed project, if resources are identified, the project is required to go through a permit review by the Environmental Licensing and Permitting Group. The permit review process is supported by Geographic Information Systems (GIS) or a similar program that references the most current spatial data for the project areas in question. Through the GIS review process various geo-processing tools are used to compose maps and provide a spatial reference to environmentally sensitive areas. In consultation with the Environmental Licensing and Permitting Group, the Project Engineer, permitting specialist, or other project planner should determine regulatory jurisdiction and which (if any) environmental permits or approvals are required before starting any project. Questions regarding which activities may be conducted in regulated areas or within environmentally sensitive areas should be referred to the Environmental Licensing and Permitting Group. Summaries of potentially applicable laws and regulations are provided in Appendices B and C of this document.

2.1 Types of Wetlands

Wetland areas common to New England and common to both Connecticut and Massachusetts include, but are not limited to, the following:

Forested Wetlands

Forested wetlands are wetlands that are dominated by trees that are 20 feet or taller. These wetlands are typically drier with standing water typically occurring during periods of high precipitation, seasonally high groundwater, snowmelt, and runoff (e.g., early spring through mid-summer). Tree species typical of this type of wetland include red maple (*Acer rubrum*) and eastern hemlock (*Tsuga canadensis*). "Pit and mound" topography is common in forested wetlands, where mature trees grow on the higher and drier mounds and obligate wetland species are found in the lower pits.

Scrub-Shrub Wetlands

Scrub-shrub wetlands are dominated by woody vegetation less than 20 feet tall, and may include peat bogs. Typical bog species include leatherleaf (*Chamaedaphne calyculata*), cotton grasses (*Eriophorum* sp.), cranberry (*Vaccinium macrocarpon, V. oxycoccus*), and black spruce (*Picea marina*). Other non-bog scrub-shrub wetlands are characterized by buttonbush (*Cephalanthus occidentalis*), alders (*Alnus* sp.), dogwoods (*Cornus* sp.), and arrowwoods (*Viburnum* sp.).

Marshes

Marshes are dominated by erect, herbaceous vegetation and appear as grasslands or stands of reedy growth. These wetlands are commonly referred to by a host of terms, including marsh, wet meadow, fen. These areas are flooded all or most of the year and, in New England, tend to be dominated by cattails (*Typha* sp.).

Wet Meadows

Typical wet meadow species include grasses such as bluejoint (*Calamagrostis canadensis*) and reed canary grass (*Phalaris arundinacea*), sedges (*Carex* sp.) and rushes (*Juncus* sp.), and various other forbs such as Joe-Pye-weeds (*Eupatorium* sp.) and asters (*Aster* sp.).

Floodplains

A floodplain is generally defined as an area of low-lying ground adjacent to a stream or river that is formed mainly of river sediments and is subject to flooding. State-specific regulatory definitions vary and are described as follows:

- In Connecticut, areas that contain alluvial or floodplain soils are regulated as wetlands. These areas may flood so infrequently or be so freely drained that hydrophytic vegetation and hydric soils are not present. Soils in these areas must be examined carefully to determine whether well drained alluvial or floodplain soils are present.

- In Massachusetts, a floodplain is a type of wetland resource are that floods following storms, prolonged rainfall, or snowmelt. There are three types of floodplain areas protected under the MassWPA: coastal areas, areas bordering rivers and streams, and isolated depressions that flood at least once a year.

Streams

A stream is any natural flowing body of water that empties to any ocean, lake, pond or other river. Perennial streams, or rivers, have flows throughout the year. Intermittent streams do not have surface flows throughout the year, though surface water may remain in isolated pockets.

Vernal Pools

Vernal pools are typically contained basin depressions lacking permanent aboveground outlets. These areas fill with water with the rising water table of fall and winter and/or with the meltwater and runoff of winter and spring snow and rain. The pools contain water for a few months in the spring and early summer. Due to periodic drying cycles, vernal pools do not support breeding fish populations and can thus serve as breeding grounds for a variety of amphibians, including some rare and protected species of frogs and salamanders.

Other Considerations

Other regulated factors taken into consideration during the project planning process include the presence of protected (i.e., threatened, rare or endangered) species, non-native invasive plant species and/or historical and archaeological resources. Special requirements may need to be evaluated as part of new construction and/or some maintenance activities.

2.2 Meetings

A pre-construction meeting is typically held prior to the commencement of all work with the purpose to appoint responsible parties, discuss timing of work, and further consider options to avoid and/or minimize disturbance to sensitive areas. The meeting

confirms that there is consensus on work methods and responsibilities, and ensure that tasks will be fulfilled with as little disturbance to the environment as practicable. These meetings can occur on or off-site and should include all the applicable stakeholders (i.e., Eversource, contractors, consultants, inspectors and/or monitors, and regulatory agency personnel). A short and less formal briefing should suffice for smaller maintenance projects.

2.3 Site Staging and Parking

During the project planning and permitting process, locations should be identified for designated crew parking areas, material storage, and staging areas. Where possible, these areas should be located outside of buffer zones, watershed protection areas, and other environmentally sensitive areas. Any proposed locations should be evaluated for all sensitive receptors and for new projects requiring permitting, should be incorporated onto permitting and access plans.

2.4 Construction Monitoring

Construction projects require environmental monitoring, which can be conducted either internally or by consultants. Some permitted projects require oversight by designated and pre-approved compliance monitors. Environmental monitoring is a way to keep a chronological record of pre-construction site conditions, progress, and changes that are made, as well as to document issues and authorized solutions.

If work will occur in a wetland resource area or an area mapped or otherwise designated as rare or endangered species habitat, permit conditions may dictate that construction be monitored by a qualified and pre-approved wetland or wildlife specialist.

2.5 Signage/Limit of Boundaries

Where appropriate, wetland delineation flagging or signage shall be installed that makes clear where critical boundaries (i.e., the limits of jurisdictional wetland resource areas and/or rare species habitat) and setbacks occur, regulatory authorization by agencies, and certain uses on ROWs are prohibited, such as ORV traffic.

Where appropriate, signage shall be installed along sediment and erosion control barriers at appropriate intervals, heights and sizes to ensure that the presence and location of said barriers is clear to construction personnel during deep snow or other low visibility conditions. Inspection and maintenance of this signage shall be conducted on a regular basis to ensure effectiveness.

Examples of signage at wetlands.

Section 3
Construction Considerations

During all project activities (e.g., maintenance, new construction), federal, state, and local regulatory authorities require steps be taken to avoid, minimize, and/or mitigate disturbance to the environment. Wetlands and other sensitive areas should be avoided whenever practicable. However, some work may require entrance into these areas in order to perform work. This section discusses measures that should be taken to minimize disturbance to if work must occur within sensitive areas.

BMPs were developed to aid in this process and should be carefully selected and implemented based on the proposed activities and the nature of sensitive area(s) encountered at each site. Proper selection of BMPs should take into consideration the project goals, permit requirements, and site specific information. Once an assessment of the area is made and requirements of the project are established, all BMPs should be considered and implemented as appropriate.

Tables TOC-1 and TOC-2 summarize BMP types. This section addresses BMPs specific to construction of new access roads, repair of existing access roads, the installation of work pads, structure-related work, and soil stockpile management. Information regarding recommended erosion and sedimentation controls or stormwater controls is also discussed. Please refer to Appendix A for typicals and representative photographs of BMPs used for erosion and sedimentation control and water diversion during construction.

3.1 Avoidance and Minimization

Avoidance and minimization should always be considered before beginning any construction or maintenance project. Take appropriate measures to avoid construction impacts to wetlands, waterways, rare species habitats, known below and above ground historical/archeological resources, and other environmentally sensitive areas. Use existing ROW access whenever practicable. Keep to approved routes and roads and do not widen or deviate from them. Consult with the Environmental Licensing and Permitting Group, when avoidance is not practicable, to determine measures to minimize the extent of construction impacts. Alternate access routes and/or staging areas that will minimize construction impacts to the natural environment may be considered.

3.2 Rare Species Habitat

The Environmental Licensing and Permitting Group coordinates with state and local agencies when work is within areas that are identified as rare species habitat. In Connecticut, the Natural Diversity Database (NDDB) is used to identify rare species habitat and is under the Department of Energy and Environmental Projection (CTDEEP). In Massachusetts, the Natural Heritage Endangered Species Program (NHESP) is consulted to identify rare species habitat, which is under the Department of Fisheries and Wildlife and part of the Natural Heritage network. State regulatory agencies may require crew training and turtle sweeps of work areas, botanist identification of rare plants for avoidance, and protection of vernal pools, prior to starting the work.

3.3 Vernal Pools

Construction within and across wetlands and in proximity to vernal pools should be limited to the extent practicable to avoid working in the periods between April 1st and June 1st. This will allow for obligate vernal pool species to emigrate to the breeding areas, deposit egg masses, and allow for hatching and development of juveniles. Silt fence should be installed at the limits of the construction to prevent individual reptiles and amphibians from entering the workspace, but in a manner that does not impede movement to and from pools from adjacent forested uplands. Consider installing syncopated silt fencing.

Protection Measures

When performing construction activities in proximity to vernal pools, a number protection measures should be implemented.

Vegetation Removal

- Maintain existing scrub-shrub vegetation (consistent with ROW vegetation management requirements) within 25 feet of vernal pools, except in areas where access roads and work pads must be installed.

- Minimize removal of low growing (scrub-shrub) vegetation surrounding vernal pools by utilizing construction matting where access is needed. If vegetation must be cut adjacent to vernal pools, the cut vegetation (slash) should be left in place to serve as recruitment for leaf litter and coarse woody debris.

Erosion and Sedimentation Control

- Install and maintain erosion and sedimentation control measures along construction access roads and work pads to protect water quality and to limit the potential for sediment transport to vernal pools.

- Promptly remove erosion and sedimentation control devices upon final revegetation and stabilization of the ROW.

Access Roads

- Use construction mats, corduroy roads, or clean materials (i.e., clean riprap, gravel, stone or equivalent and rock fords) in locations where existing on-ROW access roads must be improved and are adjacent to vernal pools.

- Man-made depressions along existing on-ROW access roads provide low-quality vernal pool breeding habitat (due to an insufficient hydroperiod). Access roads must be graded and/or improved to accommodate project construction vehicles and may eliminate these depressions and the associated potential for amphibian breeding habitat. Perform improvements to on-ROW access roads outside of the breeding and migration seasons of vernal pool species to avoid direct impacts to amphibians that may breed in the man-made depressions along existing on-ROW access roads.

Scheduling and Site-Specific Considerations

- To the extent practicable (considering circuit outages and other construction timing constraints), schedule access road and work pad installation in and around vernal pool habitats to minimize interference with amphibian breeding and migration seasons.

- For project activities that must occur adjacent to vernal pools during amphibian migration periods, implement measures on a site-specific basis to facilitate unencumbered amphibian access to and from vernal pools. Consider the site-specific conditions including the type of construction activity that will occur in proximity to a vernal pool, the amphibian species known to occur in the vernal pool, and seasonal conditions. Identify appropriate mitigation measures. Options to be evaluated to allow amphibian access to vernal pools may include, but not be limited to: syncopated silt fencing in the immediate vicinity of vernal pools; elevated construction matting; and aligning erosion and sedimentation controls to avoid bifurcating vernal pool habitat.

3.4 Access Roads

Existing construction access roads are unpaved roadways that work crews use to access a site within a ROW. These access roads were generally either permitted previously or constructed prior to the promulgation of regulations and are grandfathered in under past general permits.

3.4.1 New Access Roads

New access roads are generally associated with new or large-scale projects that have separate permitting requirements. Construction of new access roads will be based on plans that are reviewed and approved by applicable federal, state, and local agencies. If a new access road is needed and not associated with a large project, notify the Environmental Licensing and Permitting Group to make a decision on best access routes and identification of the necessary permits and approvals required to construct the new road. **Permit requirements must be followed.**

3.4.2 Existing Access Roads

The travel surface width of access roads in upland areas will not exceed 16 feet. This does not include side slopes. Maintaining existing access roads includes mowing of vegetation, grading, placement/replacement of stone, and the installation/maintenance of erosion control features (e.g., water bars, swales, sedimentation basins).

When access roads are in wetlands, measures should be taken to avoid disturbance to wetlands, waterways, and sensitive areas. If avoidance is not practicable, then measures should be taken to minimize the extent of disturbance. Alternate access routes should always be considered. Below is a list of methods that should be considered where disturbance is necessary:

- Minimize the width of typical access roads through wetlands. If an existing access road is evident in the wetland, the existing width of the access road must be maintained. If unable to ascertain the original width of the access, then do not make the road wider than 16 feet (including side slopes).

- To the extent practicable, use low-impact vehicles and/or vehicles with low ground pressure when driving through wetlands.
- Coordinate the timing of work to cause the least impacts during the regulatory low-flow period under normal conditions, when water/ground is frozen, after the spring songbird nesting season, and, outside of the anticipated amphibian migration window (mid- February to mid-June). The United States Army Corps of Engineers defines the low-flow periods for streams as follows:
    - Connecticut streams—July 1 through September 30
    - Massachusetts non-tidal streams—July 1 through September 30
    - Massachusetts tidal streams—November 16 to February 15
    - New Hampshire streams—July 15 through October 1
- Use construction mats in wetlands to minimize soil disturbance and rutting when work needs to occur during non-frozen ground conditions.
- If practicable, conduct work manually if warranted (decision to be made by Project Team).

Existing access roads that have become part of the wetland are considered previous fill that were either permitted or grandfathered and where it is evident that an access road exists, it is acceptable to place stone over the previously placed fill. Where the existing access road is not evident, Environmental Licensing and Permitting must be consulted to make a determination whether stone can be placed in the wetland. If stone is not evident, through soil cores, hand digging or other methods, construction mats will be used. If permanent access is warranted through the wetland, the new access road will need to have a permitting review and will likely require permits.

The access road in the wetland should not exceed 16 feet in width (unless there is evidence that the road was originally wider than 16 feet).

Over time, existing access roads require maintenance and repair. Travel by construction equipment and general traffic to reach a particular portion of the ROW must be via the designated access road and route. Changes in the location of the access road or the use of alternate roads must be reviewed and approved by the Project Team prior to their construction or use. Access road routes were selected to prevent degradation of the utility corridor, and must be constructed, used, and maintained in accordance with this manual, as well as federal, state, and local requirements, and other project plans.

Though, in some situations, they may be necessary, constructing duplicate access roads should be avoided to the extent practicable. Some appropriate reasons for suggesting alternate routes are:

- Poor site conditions along preferred route because of weather or season.
- Property rights constraints, or property owner's preference.
- Equipment requirements.
- Unanticipated off-site access limitations along existing roads.
- Unanticipated access opportunities (e.g., ice, snow, other developments) which may avoid environmental disturbance and/or reduce cost.

General Design: New and Existing Access Roads

Construction access roads that require new grading and/or filling, or are to be heavily used require the creation of a stable, tractable, load-bearing surface resistant to erosion. If the existing soil and subsoil are not well drained, it may be necessary to import an aggregate road base (i.e., gravel borrow) such as that meeting the requirements of aggregate found in the:

- *Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges*, Section 400
- Connecticut *Standard Specifications for Roads, Bridges and Incidental Construction*, Section M1.02

When the construction access road follows the same route as the permanent design road, constructing the grades and subgrade for the permanent roadway early in the construction sequence is recommended.

The travel surface of construction access roads shall typically not exceed 16 feet in width except for passing points, where necessary. Subgrading shall not extend beyond the space required for the finished road and normal side slopes.

Where practicable, construction access roads should conform to the contours of the land, avoiding grades steeper than 10 percent and creating side slopes no steeper than a ratio of 2:1. If the side slopes are steeper than 2:1, then use of engineered slope stabilization methods may be necessary Consider the volume and type of construction traffic as well as the extent that natural ground must be altered to accommodate the traffic. If no grading is required and the construction traffic is very intermittent (i.e., access roads used to maintain utility lines) the measures used may be limited to water bars, or some top dressing with gravel or stone in areas where the vegetation over soft soil is destroyed by traffic.

During wet weather, these roadways can generate significant quantities of sediment if not constructed with adequate stormwater management and erosion control measures. During an active construction or maintenance activity, inspection of the construction access road and the associated erosion and sedimentation measures should be conducted by the person(s) designated at the pre-construction meeting, should occur regularly while the activity is occurring, and repairs to controls should be made in a timely matter. Repairs may include regrading and/or top dressing the traveled surface with additional aggregate to eliminate ruts, as well as those repairs required by each erosion and sedimentation measure used. When the roadway is no longer needed on a regular basis, the access road should be reviewed to ensure that the road is left in a condition that prevents future erosion and sedimentation (i.e., installation of water bars, gravel, etc.). In some cases, permit conditions may warrant that the access road be removed and that the disturbed area be seeded and mulched as required to match the pre-construction conditions.

Erosion and Sedimentation Controls

Construction personnel are reminded to control erosion and flow conditions during access road construction or maintenance by utilizing the following erosion and sedimentation measures which are described and illustrated further in Appendix A:

- **Outlet protection**, a **level spreader**, a **trench breaker**, a **sediment trap or basin**, or a **stone check dam** may be used to de-energize concentrated flows from diversions and in temporary channels.
- **Geotextile silt fencing**, **compost filter berms**, **straw wattles** and **hay/straw bale barriers** may be utilized to provide protection at the toe of fill slopes and discharges from water bars.
- Side slopes can be protected by installing **erosion control blankets** and **seeding** the area with a fast-growing native or annual grass mix.
- **Dust contro**l should be employed when construction access road conditions create airborne dust.
- **Geotextile fabric** shall be used beneath all new fill and construction entrances, where needed.

3.4.2.1 Best Management Practices – New Access Roads

The following are BMPs that are applicable to new access roads in uplands and are described at the following tabs:

Construction Entrance Track Pad − Tab 1A

Stormwater Management BMPs (includes Water Bars, Drainage Swales, and Sedimentation Basins) − Tab 1B

TAB 1A

Construction Entrance Track Pad

Applications: Erosion and sedimentation control, roadway protection

Limitations:

- Maintenance is required if the pad becomes clogged with soil.
- Muddy conditions may warrant the use of a tire wash station.

Overview:

Where access roads or construction areas connect to paved roads, a stone track pad must be installed at the construction entrance to prevent construction machinery from tracking soil onto paved roadways. Materials appropriate to construction site soil conditions should be employed and/or replenished, as necessary.

Installation:

- Use 3- to 6-inch washed stone to install stone tracking pads at a minimum length of 50 feet and a minimum depth of 12 inches.
- On sites with clayey soils, underlay stone tracking pads with a geotextile liner to prevent the stone from sinking into the soil.

Maintenance:

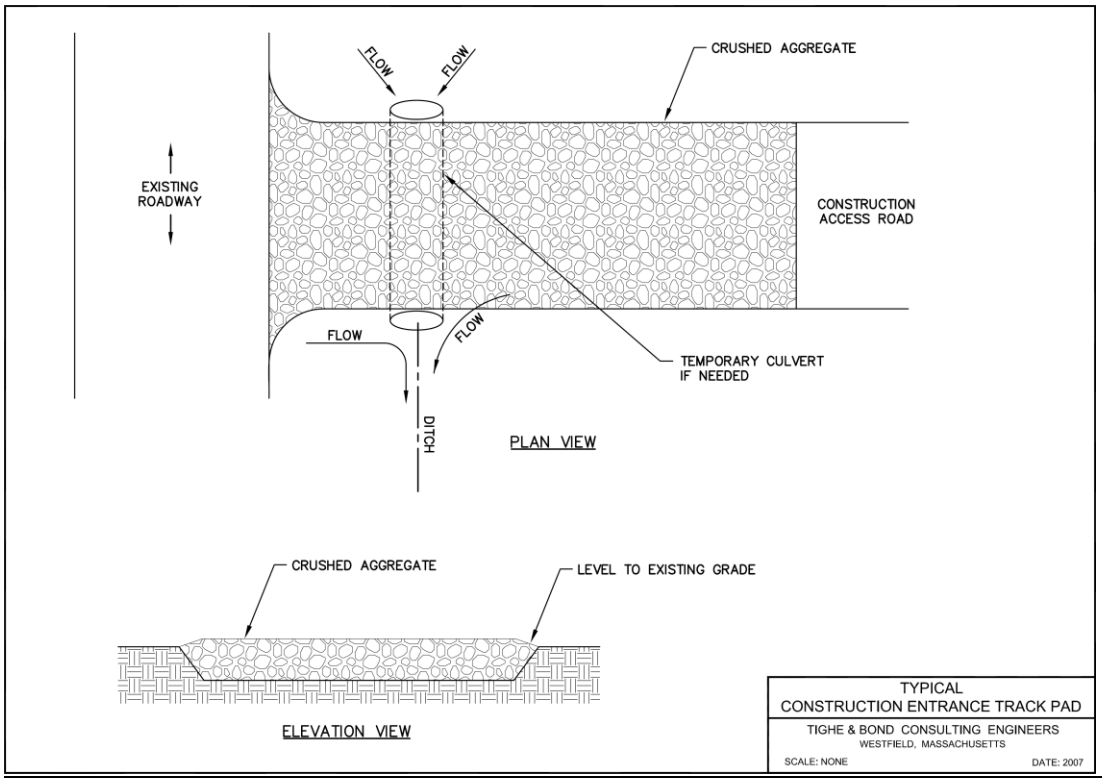
- Periodically inspect the stone in the entrance tack pad. If the pad becomes clogged with soil, remove and refresh and/or clean stone.

Additional Comments:

If muddy conditions warrant the use of a tire wash station, procedures should be established to ensure soils are not tracked off site.

Where appropriate and when safety and environmental conditions are considered, vehicle tires or tracks may be spun quickly ("burn out") on the track pad to further facilitate the removal of soil.

Construction entrance track pad.



TAB 1B

Water Bar

Applications: Erosion and sedimentation control

Limitations:

- Should never be used to direct a watercourse into another waterbody or to divert unfiltered runoff to a wetland.
- Can impede vehicular movement.
- Damage from vehicle traffic and stormwater flow may require water bars to be reinstalled/reworked at the beginning and end of each construction season.

Overview:

Water bars are linear features built diagonally across access roads or ROWs to redirect waterflow off of the road surface at non-erosive intervals. In general, they consist of a trench dug at least 6 inches below grade followed by an earthen mound at least 6 inches above grade. Use water bars to prevent erosion on sloping roadways less than 100-feet wide. Water bars must be designed to be stable throughout their useful life and meet the criteria in the table below. The maximum capacity should be the peak runoff from a 10-year storm. Permanent diversions (Appendix A) may also be used if water bars are not suitable.

Installation:

- Set water bar direction to utilize stable outlets and do not allow upslope water bar runoff to converge with down slope water bars.
- Construct the bar immediately after vegetation has been cleared on constant or slightly increasing grades, not exceeding 2%. Avoid reverse grades.
- Mark the location and width of the ridge and disk the entire length.
- Fill ridge to above the design height and compact with wheeled equipment to the design cross section.
- Construct sediment traps or outlet stabilization measures, as needed.
- After the area has been permanently stabilized, remove the ridge and channel to blend with the natural ground level.
- Seed and mulch diversions that are intended for use for more than 30 days.

Minimum Cross Section

Top Width (ft)	Height (ft)	Side Slopes
0	1.5	4:1
4	1.5	2:1

Maximum Recommended Spacing

Land Slope (%)	Spacing (ft)
1 or less	300
2	200
3 to 5	150
Greater than 5	100

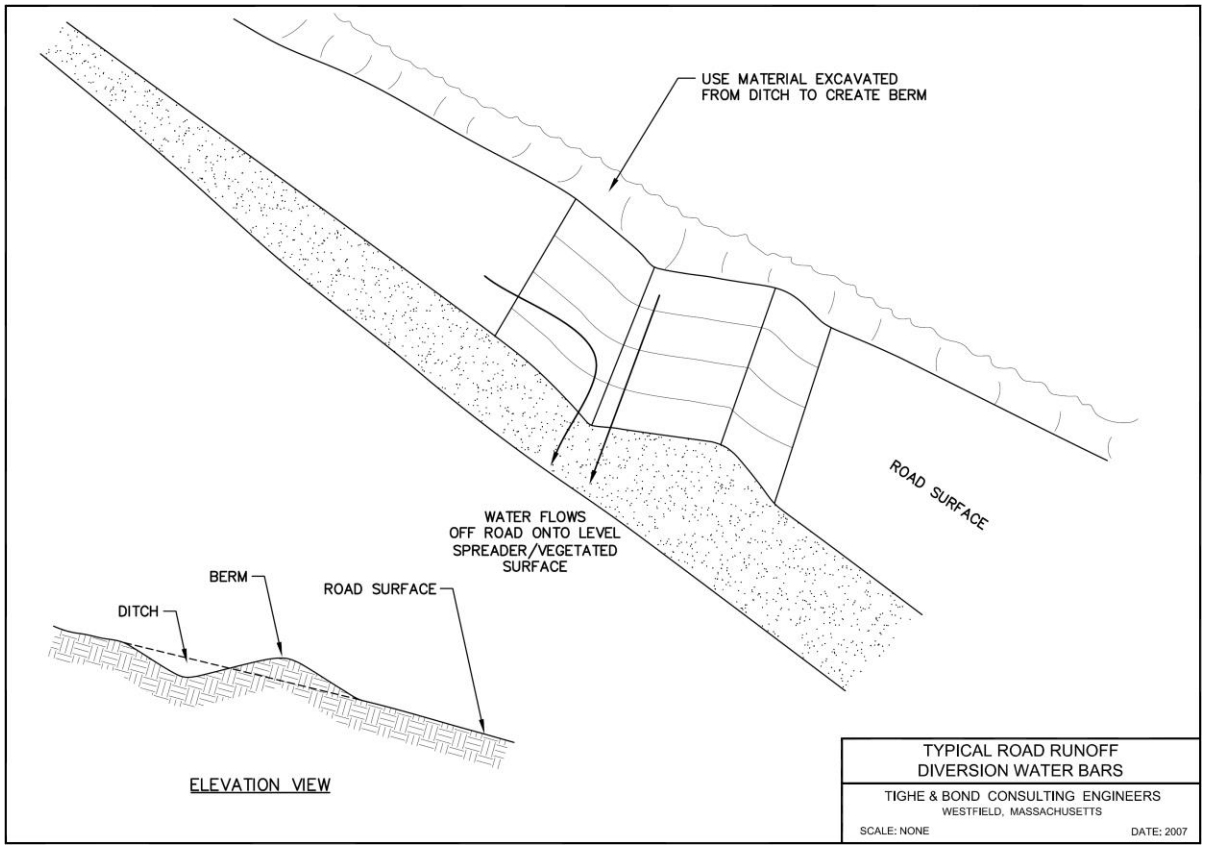
Maintenance:

- Inspect each week and after rain events. Repair damage caused by construction traffic or erosion.
- Remove accumulated sediment and debris from the trench and stabilize outlets.
- If necessary, repair ridge to a positive grade and cross section, and add gravel at crossing areas.
- Use routine inspections to determine if the original spacing is adequate or if additional water bars need to be constructed.

Additional Comments:

Water bars may include the use of hardwood logs to provide structural stability.

Diversion waterbar.


USE MATERIAL EXCAVATED
FROM DITCH TO CREATE BERM
ROAD SURFACE
WATER FLOWS
OFF ROAD ONTO LEVEL
SPREADER/VEGETATED
SURFACE
BERM
ROAD SURFACE
DITCH
ELEVATION VIEW
TYPICAL ROAD RUNOFF
DIVERSION WATER BARS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2007

Drainage Swales

Applications: Convey stormwater away from work area and/or improve water quality and reduce peak runoff.

Limitations:

- Vegetated swales need to have adequately established vegetation before flow is diverted to them.
- Need to have adequate bottom stabilization to prevent scouring.

Overview:

Drainage swales usually consist of a ditch that is either vegetated or lined with rip rap, erosion control blankets, or other materials. They are natural or constructed waterways/outlets that intercept, redirect, and convey stormwater away from the work area to a stable location and are used in areas where concentrated runoff would otherwise cause erosion/flooding. Swales can be used to reduce erosion in uplands and/or prior to discharge of stormwater flows to natural receiving waters (e.g., wetlands or streams). They also help to reduce surface flow velocity and turbidity.

Grass Lined Channels (Stabilized with vegetation)

- Use where vegetative lining will provide sufficient stability, slopes are less than 5%, and space is available for large cross section.

Installation:

- Remove trees, brush and stumps.
- Excavate and shape channel to dimensions on plans. Overcut 0.2 ft for vegetative growth.
- Install temporary liner or riprap at inflows and stabilize outlets.
- Vegetate immediately after construction and divert water until grass establishes. Install matting if flow cannot be diverted.
- Install sod rather than seeding where slopes approach 5%.
- Spread topsoil to a minimum of 4 inches where soil conditions are unfavorable. Seeded channels should be mulched.

Vegetated Swales (Stabilized with dense vegetation)

- Use for water quality improvement and peak runoff reduction. Applicable for small drainage areas with relatively small amount of impervious cover. The grassed waterway is used to convey runoff at a non-erosive velocity. Dense vegetation can be established and a stable outlet constructed.

Installation:

- General design parameters are as follows: minimum capacity 10-year, 24-hour storm; design slopes to prevent erosion during the 2-year storm event; maximum side slopes 3:1; bottom width 2 to 8 feet.
- Vegetate with water resistant grasses and divert flow until established.

Riprap Lined Channels (Contains lining of riprap or stone)

- Use on sites where channel flow velocities exceed those acceptable for grass lined waterway. Applicable where vegetative establishment is not possible or there are steep grades, wetness, highly erodible soils, seepage or prolonged base flow.

Installation:

- Remove trees, brush, and vegetation from channel area.
- Stabilize inlets and install outlet protection.
- Construct channel and install filter and lining as shown on plan.
- Use the maximum stone size for riprap plus thickness of filter.

Maintenance:

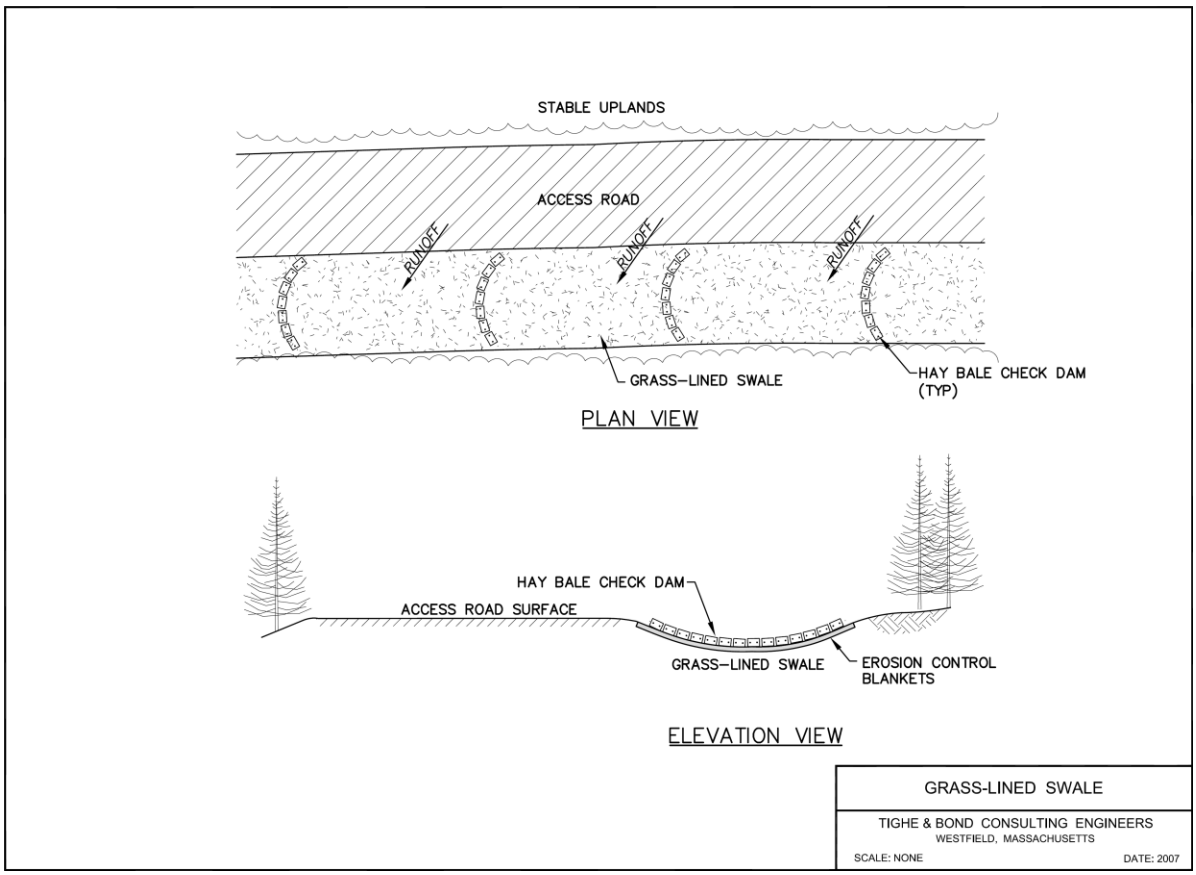
- Swales need to be routinely maintained to prevent brush/sediment buildup. Inspect swale regularly and after every rain event (0.25 inches or greater). Repair and/or re-seed rill or gully erosion. Remove accumulated sediments and brush before it reaches a depth of six inches.

Additional Comments:

- Depth and spacing of swales should be dependent on runoff conditions of the specific site.
- If required, install check dams constructed of rip rap or other materials to slow flows along certain reaches of a swale.
- Remove temporary swales once construction is complete or areas are stabilized. If leaving swales in place will allow for long-term benefits and be compatible with the ultimate use of the site, then they may remain in place.

Photo provided courtesy of Tighe & Bond, Inc.

Grass-lined swale underlain with erosion control blanket and containing hay bale check dams; used to quickly stabilize soils along a construction access road subjected to significant stormwater runoff. Blue arrow indicates direction of flow.



Sedimentation Basins

Applications: Erosion and sedimentation control

Limitations:

- Traps and basins need to be adequately sized based on expected rain events and the contributing drainage area.

Overview:

Sediment traps and basins are used to filter and settle out sediment in stormwater runoff before water is released into a wetland or other unprotected and/or sensitive area. A sediment trap is a temporary measure installed during construction to detain runoff, while a basin is a more permanent measure. Basins are also used where other erosion control measures are not adequate to prevent off-site sedimentation.

A sediment traps and basins should have three components: a forebay, a check dam, and a basin. Debris and some sediments begin to settle out of the water in the forebay. The stone or hay bale check dam filters more sediments as water flows through. The actual basin is a low velocity pool where sediments settle out of the water column before the water is released at the outlet.

Based on the size of the project area, a qualified engineer may be required to calculate the appropriate size of the basin. State-specific guidance for basin sizing can be found in the following locations:

- *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas* (Page 140); http://www.mass.gov/eea/docs/dep/water/esfull.pdf
- *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (Section 5-11-1); http://www.ct.gov/dep/cwp/view.asp?A=2720&Q=325660.

Installation:

Drainage area of 5 acres or less

- Install to direct stormwater runoff to the sedimentation trap or basin. Form basin by excavating a depression similar to a small pond or by placing an earthen embankment across an existing drainage swale or naturally low area.
- The ratio between the basin length and width should be greater than 3:1 (L:W). A ratio of 9:1 is recommended.
- Clear, grub, and strip all vegetation and root material from area of embankment and place embankment fill in lifts (<9″/lift, max). Compact fill and construct side slopes 2:1 or flatter. Excavate rectangular outlet section from compacted embankment.
- Filter fabric may be installed on bottom and sides of basin and covered by riprap.
- Extend outlet apron/spillway below toe of dam on level grade until stable conditions are reached (5 feet minimum). Cover inside face of stone outlet section with a 1-foot layer of ½- to ¼-inch aggregate.
- Use permanent or temporary seeding to vegetate embankments, spillways, and disturbed areas downgradient of the basin.

Drainage area of 10 acres or less

- Locate the basin in an easily accessible upland area, not a wetland area.
- Install the basin so that it intercepts the largest possible amount of runoff from the disturbed area.
- Divert sediment-laden water to the upper end of the sediment pool to improve trapping effectiveness.
- Basin should have a minimum volume based on ½-inch of storage for each acre of drainage area.
- Size basin to provide a minimum detention of 12 to 24 hours at the maximum runoff quantity expected for the duration of the basin's use.

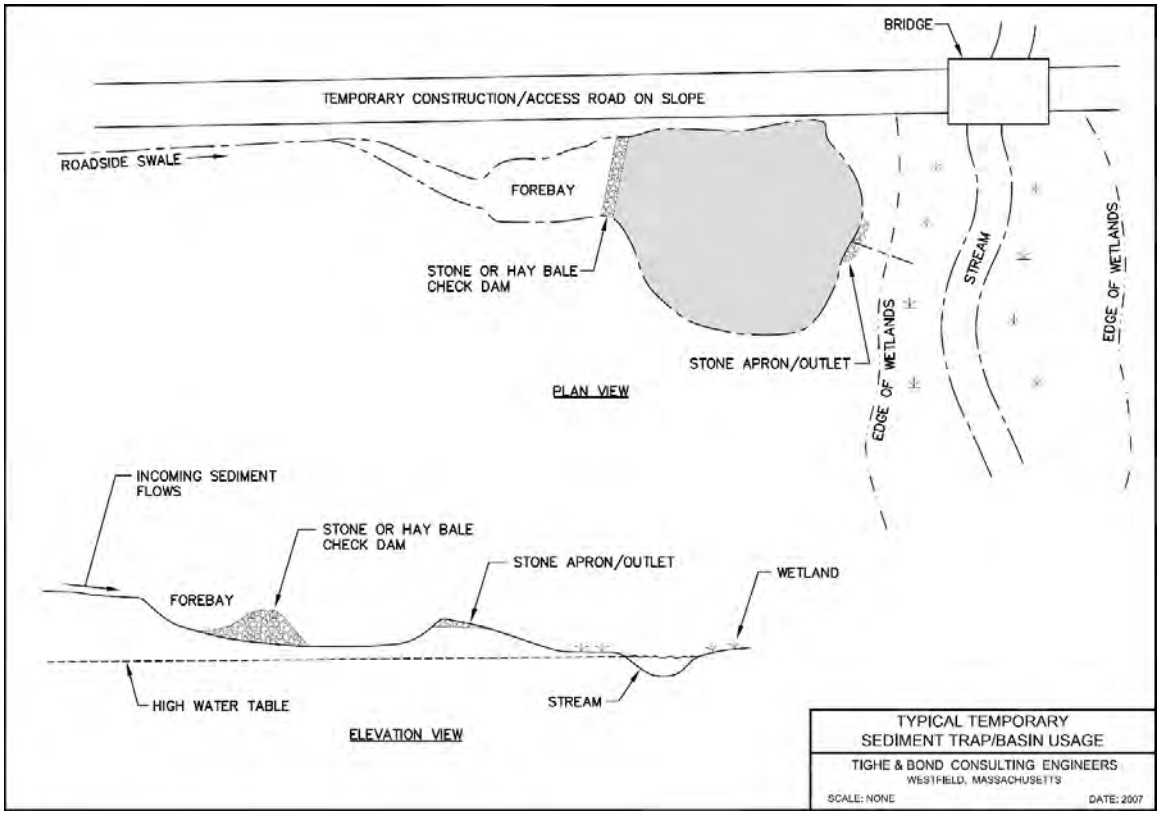
Maintenance:

- Monitor the amount of sedimentation in the trap/basin. Install a stake with a marking at half the design depth. Remove sediment when it reaches this mark.
- Inspect after every rain event.
- Clean or replace the spillway gravel and re-seed/plant vegetation, as needed.
- Monitor embankment, spillway, and outlet for erosion. Repair erosion problems immediately.

Additional Comments:

Construction of sediment traps and/or basins should occur before primary construction on a project begins. They are often a critical stormwater management component for larger construction sites and/or those with poorly drained upland soils. If compatible with the post-construction site use, it may be appropriate to leave sediment basins in place indefinitely.

Sedimentation basin with hay bale filters.



3.4.3 Construction in Wetlands

Access roads that are constructed in or across wetlands require the following considerations in addition to the considerations for access roads in uplands:

- Construction of new access roads in wetlands, whether temporary or permanent, that do not utilize construction mats (e.g., earthen and/or rock fill roads, corduroy roads) require considerable project specific permitting and design. These kinds of projects should comply with project specific permits and plans, while only using this BMP manual as a general reference source. Permits often also require wetlands replication when permanent new access roads are constructed in wetlands.
- Avoid putting the construction access road in a wetland whenever practicable. Explore all feasible and prudent alternatives before determining that a wetland crossing is necessary. When avoidance is not practicable, consider crossings that will result in the least amount of disturbance. This may involve locating the construction access road so that it crosses the wetland at its narrowest width or uses areas previously disturbed for access or other purposes.
- Minimize the width of the temporary construction access road through the wetlands (generally no wider than 16 feet when using construction mats). It is preferable to have a passing point created before and after the wetland crossing, but internal passing points may be needed if the crossing is very long or critical sight line restrictions exist.
- Construct access roads so that wildlife is able to pass under or go through the road. In areas where the road is only one construction mat thick, allow for passageways or "gaps" between construction mats. In locations where the access road is greater than one mat thick, install elevated construction mat road crossings or "bridges." Gaps and/or bridges are to be placed along the access road at intervals no less than 50 feet.
- Consider the soil conditions. Expect deep organic wetland soils to require geotextiles, construction mats, or other materials during use to keep imported road materials separated from wetland soils. In shallow organic or saturated soils, thick plywood sheets or AlturnaMATS® may be sufficient to support a stable travel surface for small, lightweight vehicles. In addition, in areas which are inundated or have deep organic wetland soils, it may be necessary to use more than one layer of construction mats.
- Prevent obstructions to surface and subsurface flow across and through the construction access road. Provide adequate drainage. This may require the use of crushed stone, a layer of log corduroy, construction mat bridges, or multiple cross culverts, particularly if the wetland does not contain a well-defined watercourse channel and/or the wetland crossing is long. If the wetland soils are susceptible to seasonal high groundwater tables or flooding, then give additional consideration for maintaining flows across and/or over the construction access road without causing erosion or siltation during such times.
- Plan in advance how the construction access road will be removed and the wetland restored. A road stabilization geotextile can facilitate the segregation of imported soils and crushed stone and/or log corduroy from the native wetland soils and make wetland restoration easier. However, after the end of an extensive project and a highly traveled crossing, stone removal from the wetland surface will still usually have to occur, even when placed in conjunction with geotextile.

In some cases, access roads may not need to be constructed in a wetland to get access into or through a wetland if the work can be designed such that disturbance to the wetland are avoided or negligible. Options to be considered are presented below.

Equipment Selection and Usage

- **Low ground pressure equipment**. Using equipment that reduces the pressure it exerts on the ground can minimize disturbance to sensitive areas. Employing the use of equipment with wide tires, rubberized tracks, and low ground pressure (<3 psi) can help minimize soil compaction.
- **Wide tires**. Increasing the width of tires will increase traveling surface area and therefore reduce the amount of ground compaction that the equipment will cause. Ultimately, this will reduce rutting, and allow for easier maneuvering of the vehicle. However, wide tires may be costly and will require a wider travel area.
- **Rubberized tracks**. Equipment with rubberized tracks spreads the weight of the vehicle over a much larger surface, reducing ground pressure and enabling the vehicle to move more freely through wet substrates. Each track can be between 1.5 and 3 feet wide, length depending on the width of the vehicle. This can greatly reduce rutting and allow the vehicle to move with less difficulty through wet substrates.
- **Lightweight equipment**. Disturbance in a wetland area can be lessened by reducing the size of equipment (e.g., ORVs, Gator™) used in sensitive areas. This reduces the amount of pressure to the travel surface as well as the necessary width of access ways.

Equipment with rubberized tracks.

Timing of Work

- **Work during frozen conditions**. Activities conducted once wetland areas are frozen can minimize rutting and other disturbance to the surrounding environment. Work during this time also generally reduces disturbance of aquatic and terrestrial wildlife movement by avoiding sensitive breeding and nesting seasons.
- **Work during the "low flow" period**. Conducting work during the low flow period can reduce disturbance to surface water and generally avoids spawning and breeding seasons of aquatic organisms. The United States Army Corps of Engineers defines the low-flow periods for streams as follows:
    - Connecticut streams—July 1 through September 30
    - Massachusetts non-tidal streams—July 1 through September 30
    - Massachusetts tidal streams—November 16 to February 15
    - New Hampshire streams—July 15 through October 1

Alternate Access

- **Manual access.** Consider accessing work areas on foot through terrestrial areas and/or by boat through open water or ponded areas. Smaller projects (e.g., repairs

to individual structures or parts of structures) do not categorically require the use of heavy machinery and should be accessed manually to the extent practicable.

- **Limit trips.** Multiple trips through a wetland have shown to increase the potential for damage and requirement for matting. Try to limit trip to one in and one out.

Use of overhead/aerial access (e.g., helicopters)

- Using overhead or aerial equipment can be expensive and is not always feasible, but it may be appropriate in some situations in order to get vehicles and other equipment to a site that may be otherwise very difficult to access. The use of overhead and/or aerial equipment may be beneficial for work in areas where large water bodies, deep crevices, or mountainous areas hinder ground access.

Erosion and Sedimentation Controls

Construction personnel are reminded to control erosion and flow conditions during new access road construction by utilizing the following erosion and sedimentation measures which are described and illustrated further in Appendix A:

- **Straw wattles, Geotextile silt fencing** and **hay/straw bale barriers** may be installed at the edges of earthen roads or construction mat roads to prevent erosion of soil into wetlands from the road fill or tracked soil on construction mats.
- In areas where silt fencing is required for more than one activity season, **syncopated silt fencing** may be installed to permit animal crossings.
- Side slopes of earthen roads can be protected by installing **erosion control blankets** and **seeding** the area with a fast-growing native or annual grass mix.
- **Dust control** should be employed as necessary when construction access road conditions create airborne dust when necessary.

3.4.3.1 Best Management Practices – Construction in Wetlands

The following are BMPs that are applicable to new access roads in wetlands and are described at the following tab:

Construction Mats (includes Elevated Construction Mats and AlturnaMATs) – Tab 2A

Permeable Road- Tab 2B

Dewatering – Appendix A Section II

TAB 2A

Construction Mats (i.e., timber or swamp mats)

Applications: Wetland crossings, rut minimization

- Used for access where the ground surface is unstable due to shallow, standing water, saturated soils, or other substrates not suitable for heavy vehicles.

Limitations:

- Only for temporary use. Generally mats should be removed upon construction completion.
- May float away in high water conditions.
- Need to be installed with heavy machinery.
- AlturnaMATs® limited to smaller vehicles and equipment.
- Equipment operators should remain cautious so as not to drive off or slip off the side of the mats.
- In winter, mats must be plowed and sanded or heated to prevent equipment from sliding off mats. Use of a deicing agent requires approval by the Environmental Licensing and Permitting Group.

Installation:

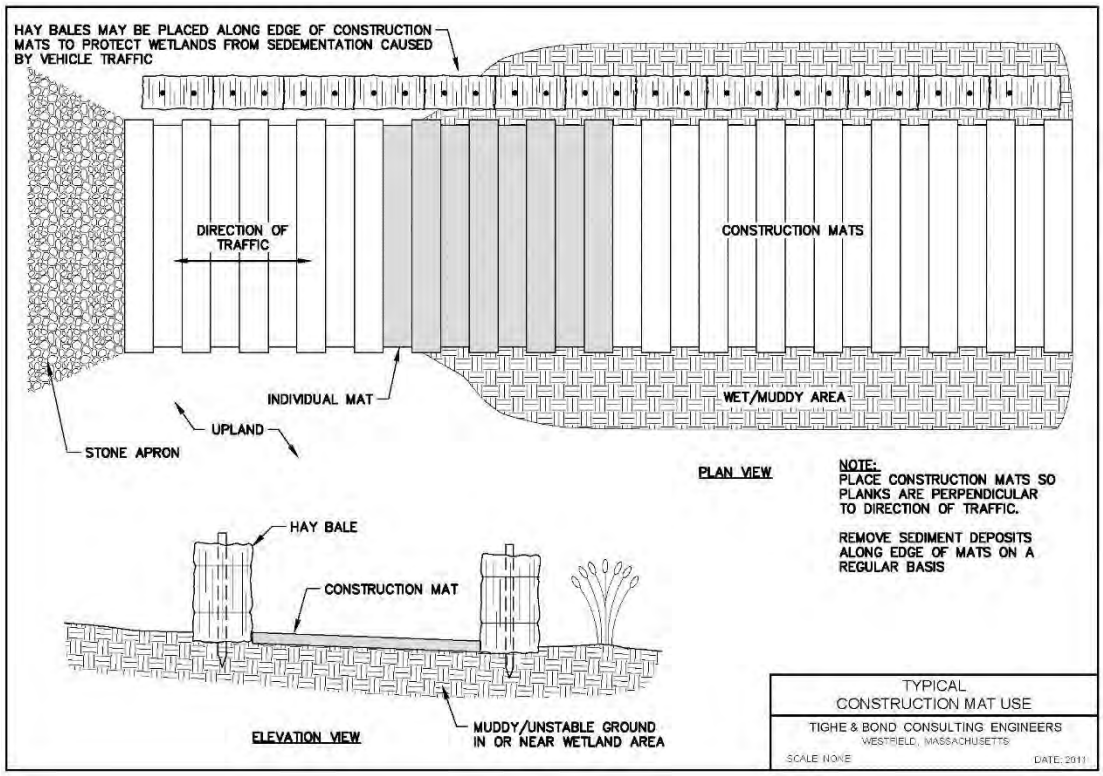
- Place mats along the travel area without any gaps and so that each board is positioned perpendicular to the direction of traffic. Position mats so that they are offset far enough from the resource area so that ruts are not created when equipment enters and exits a sensitive area.
- Remove mats by "backing" out of the site and removing mats one at a time. Regrade soils to pre-existing contours while taking care not to compact soils.
- Clean mats after use to remove any invasive plant species seed stock. Cleaning methods may include, but are not limited to, shaking or dropping mats in a controlled manner with a piece of machinery to knock off attached soil and debris, spraying with water or air, sweeping, or exposing the mats to high temperatures.
- Clean mats that were used in wetlands dominated by invasive species using brooms, shovels, and compressed air, if needed.

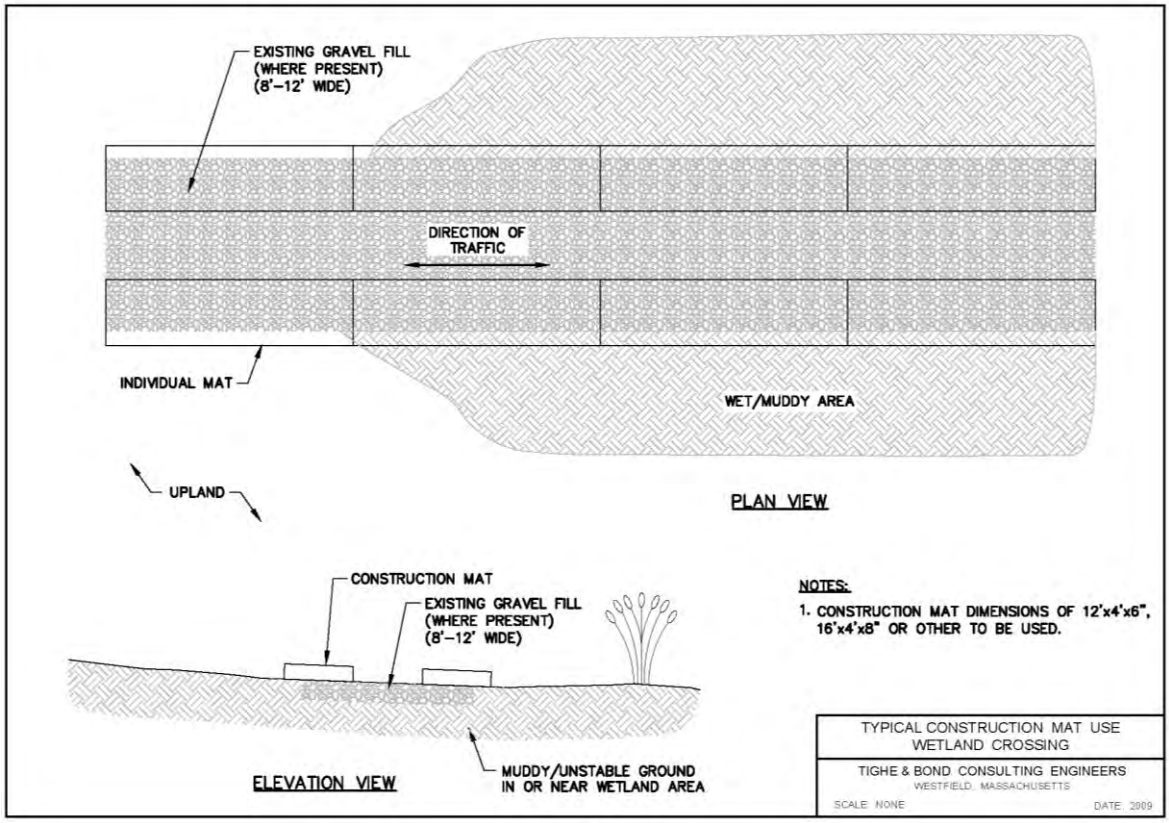
Additional Comments:

Lightweight, easy to maneuver alternatives to traditional mats are available. For example, AlturnaMATS® are half-inch thick polyethylene slip-resistant ground protection mats available in dimensions up to 4 feet by 8 feet and weigh between 21.5 and 86 pounds.

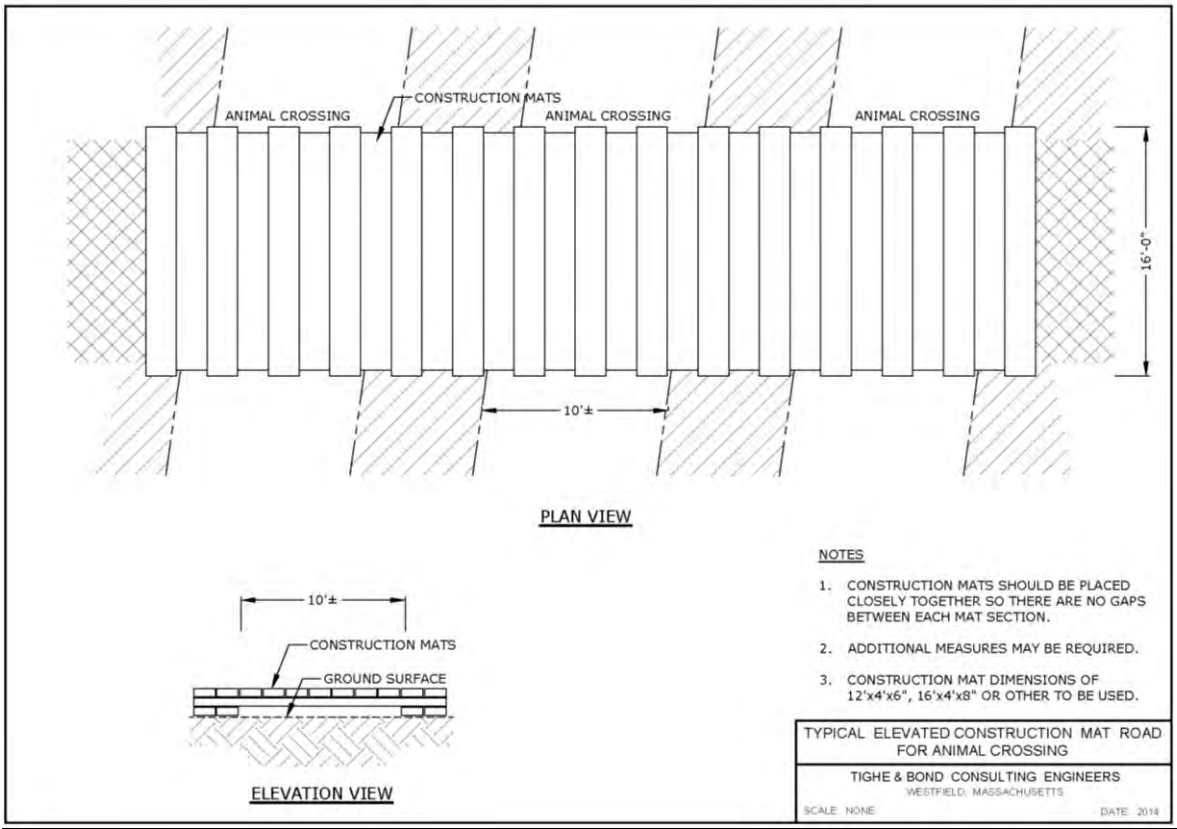
See photograph and typical sheet on following pages.

Construction mat access road.

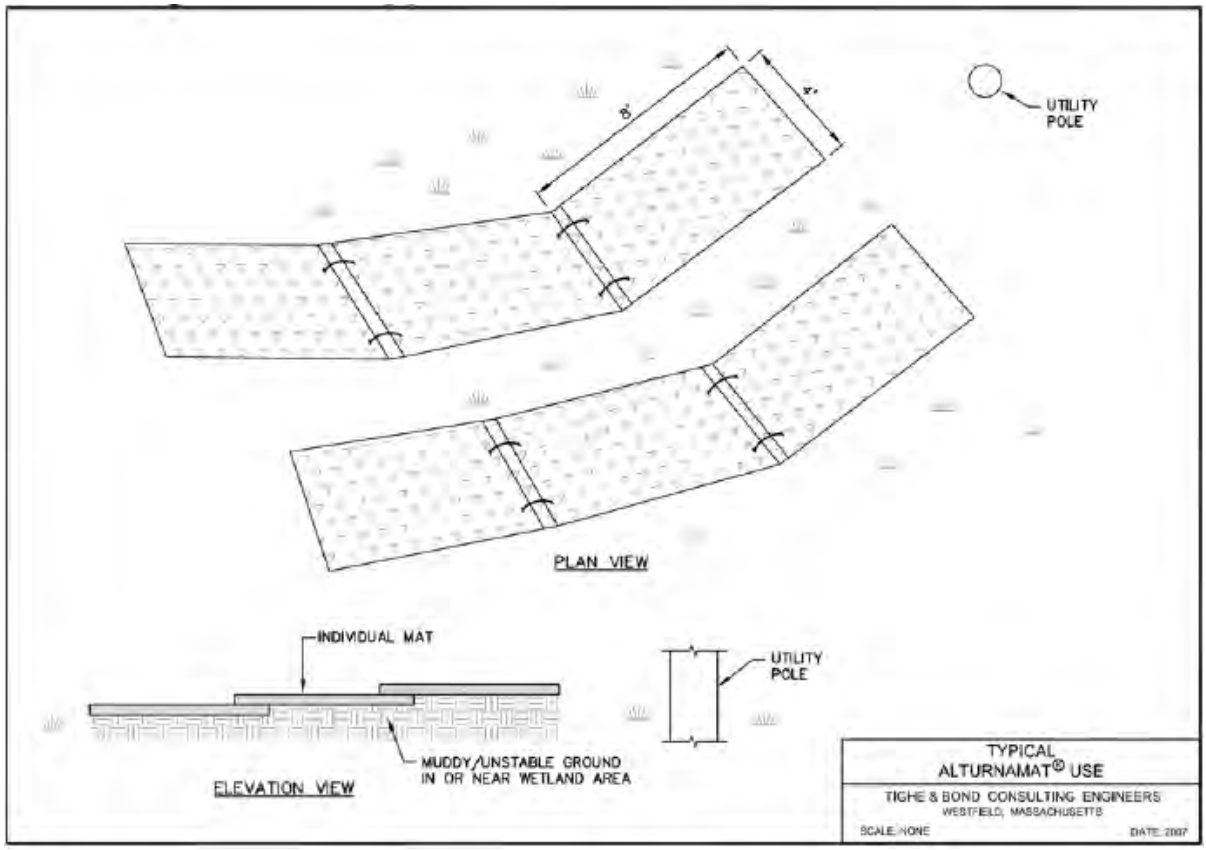



EXISTING GRAVEL FILL
(WHERE PRESENT)
(8'–12' WIDE)
DIRECTION OF
TRAFFIC
INDIVIDUAL MAT
WET/MUDDY AREA
UPLAND
PLAN VIEW
CONSTRUCTION MAT
EXISTING GRAVEL FILL
(WHERE PRESENT)
(8'–12' WIDE)
ELEVATION VIEW
MUDDY/UNSTABLE GROUND
IN OR NEAR WETLAND AREA
NOTES:
1. CONSTRUCTION MAT DIMENSIONS OF 12'x4'x6",
16'x4'x8" OR OTHER TO BE USED.
TYPICAL CONSTRUCTION MAT USE
WETLAND CROSSING
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2009

Elevated construction mat road with bridging for animal crossing.



AlturnaMAT® tracks to utility pole in wetland.



TAB 2B

Permeable Road (i.e., rock sandwich, French Mattress, or road with continuous cross-drainage)

Applications: Wetland crossings, rut minimization

Limitations:

- Not appropriate for areas where concentrated, high volume and/or velocity water flow will intersect the road (i.e., stream crossings).
- Need to be installed with heavy machinery.
- Equipment operators should remain cautious so as not to drive or slip off the side of the road.

Overview:

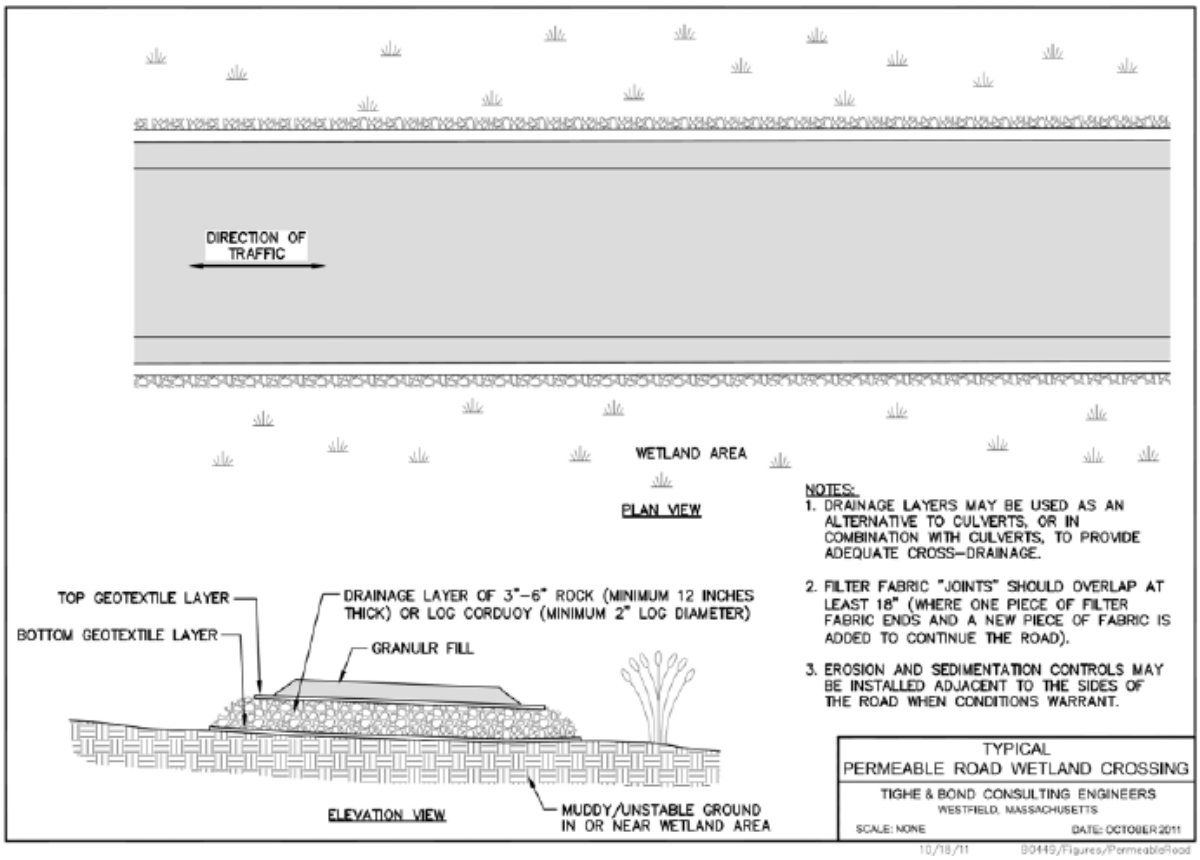
Permeable roads are used for access in situations not suitable for heavy vehicle use often due to unstable ground surfaces with shallow standing water, saturated soils, or other unstable substrate. Installation of a permeable road can also help reduce the potential for frost action and pothole creation by preventing groundwater from wicking up into the road fill material.

Installation:

- Cover existing soil with a geotextile fabric prior to road construction. Excavation of existing soil is generally not recommended in order to minimize impacts to the resource area. Construct road on top of the soil surface, as shown on the typical on the next page. Drainage layer materials include 3- to 6-inch rock (12-inch minimum depth) or log corduroy (2-inch minimum diameter).
- Install the road so that it is offset far enough from the resource area so that ruts are not created when equipment enters and exits a sensitive area.
- Remove road by "backing" out of the site and removing road one section at a time. Regrade soils to pre-existing contours while taking care not to compact soils.

Maintenance:

- Regularly inspect and clean edges of cross-drainage layer along the sides of the road to prevent clogging by debris, leaf litter, sediment, etc.


DIRECTION OF TRAFFIC
WETLAND AREA
PLAN VIEW
NOTES:
1. DRAINAGE LAYERS MAY BE USED AS AN ALTERNATIVE TO CULVERTS, OR IN COMBINATION WITH CULVERTS, TO PROVIDE ADEQUATE CROSS-DRAINAGE.
2. FILTER FABRIC "JOINTS" SHOULD OVERLAP AT LEAST 18" (WHERE ONE PIECE OF FILTER FABRIC ENDS AND A NEW PIECE OF FABRIC IS ADDED TO CONTINUE THE ROAD).
3. EROSION AND SEDIMENTATION CONTROLS MAY BE INSTALLED ADJACENT TO THE SIDES OF THE ROAD WHEN CONDITIONS WARRANT.
TOP GEOTEXTILE LAYER
BOTTOM GEOTEXTILE LAYER
DRAINAGE LAYER OF 3"-6" ROCK (MINIMUM 12 INCHES THICK) OR LOG CORDUOY (MINIMUM 2" LOG DIAMETER)
GRANULR FILL
ELEVATION VIEW
MUDDY/UNSTABLE GROUND IN OR NEAR WETLAND AREA
TYPICAL
PERMEABLE ROAD WETLAND CROSSING
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: OCTOBER 2011
10/18/11
S0449/Figures/PermeableRoad

3.4.4 Watercourse Crossings

There are a number of BMPs that can be used to minimize disturbance to streams. For each application, consider the site and project needs to select a method that is cost effective and will incur the fewest secondary disturbances. Additional erosion and sedimentation controls (e.g., hay or straw bales) may be required in conjunction with the stream crossing BMPs to protect sensitive areas. The stream crossing methodology chosen will depend largely on the equipment required for a particular task, the existing environmental conditions, and the duration of the crossing. In constructing any stream crossing, care should be taken to limit disturbance to the extent practicable within 100 feet of the stream banks (the riparian area). The riparian area provides habitat to a number of species and provides protection and shading to the stream.

Erosion and Sedimentation Controls

Construction personnel are reminded to control erosion and flow conditions during new watercourse crossings by utilizing the following erosion and sedimentation measures which are described and illustrated further in Appendix A:

- **Straw wattles, Geotextile silt fencing** and **hay/straw bale barriers** may be installed at the edges of earthen roads or construction mat roads to prevent erosion of soil into watercourses from the road fill or tracked soil on construction mats. These controls however should generally not be placed within a watercourse.
- Side slopes of earthen roads can be protected by installing **erosion control blankets** and **seeding** the area with a fast-growing native or annual grass mix.

3.4.4.1 Best Management Practices – Watercourse Crossings

The following are BMPs that are applicable to new access roads watercourse crossings and are described at the following tabs:

Stream Crossings without Bridges (includes limiting turbidity and stone crossing) – Tab 3A

Bridged Crossings (includes construction mat bridges and rail car frame bridges) – Tab 3B

Culverts – Tab 3C

Poled Fords – Tab 3D

Dewatering – Appendix A Section II

TAB 3A

Stream Crossings Without Bridges: Limiting Turbidity

Applications: Stream crossing, turbidity control

Limitations:

- Limited to areas where stream banks and bottoms will not be significantly damaged by the crossing.

Overview/Use:

- In some situations, such as routine or emergency maintenance with small ORVs, pickup trucks or tracked equipment, it may be acceptable for equipment to simply travel (perpendicularly) through a stream.
- Crossings are generally considered acceptable in situations where there is an existing or historic access road, a stable rock or sand/gravel stream bottom, and/or the crossing is at a relatively narrow reach of the stream and any adjacent wetlands.
- Cross streams slowly to minimize in-stream turbidity.

Stream Crossings Without Bridges: Stone Crossings

Applications: Stream crossing, turbidity control

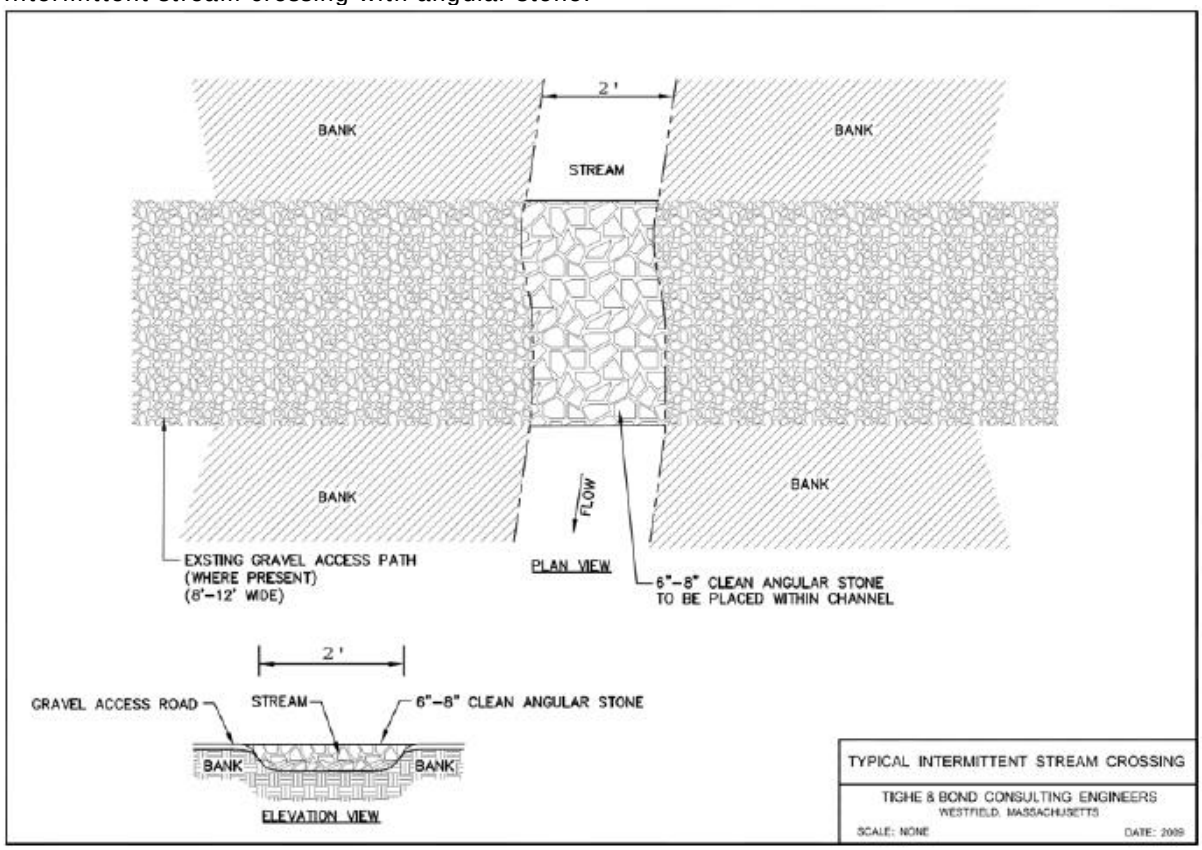
Limitations:

- Only use in small (less than 2-feet wide or braided) intermittent streams which do not appear on USGS topographic maps, and have a downstream section with a gradient greater than 20%.
- Not suitable in areas where there could be a potential for fish passage.
- Stone size should be sufficient to allow for macroinvertebrate passage.
- Not preferred for new access road crossings. Generally is a BMP more suitable for existing access road crossings.

Overview/Use:

- Use to cross small streams with stable stream bottoms.
- Carefully place 6-inch to 8-inch clean angular stone within stream at crossing. Limit width of stone to that needed for widest vehicle/equipment to crossing the stream.
- Drive over stone slowly.
- Leave riprap in intermittent streams for future use. More damage will occur by removing stone.

Intermittent stream crossing with angular stone.



TAB 3B

Bridged Crossings: Construction Mats as Temporary Bridge

Applications: Watercourse crossings

Limitations:

- Installation requires machinery.
- May become unstable under high flows.

Overview/Use:

- Untreated wooden construction mats may be used as a temporary bridge over a stream to allow construction vehicles access to the work site. Construction mat bridging is suitable for crossing intermittent and perennial streams. Before constructing a stream crossing, confirm that the construction mats are capable of supporting the equipment to be used.
- Place small sections of matting on either side of the stream parallel to the flow of water at top of banks to act as supports. Then place mats perpendicular to the stream and resting on top of the initial construction mat supports.
- It may be necessary to place a large steel plate along the top of the construction mats for extra stability and to minimize the amount of sediment that could fall between the spaces of each timber.

Construction mat bridge.

Bridged Crossings: Rail Car Frame as Temporary Bridge

Applications: Watercourse crossings

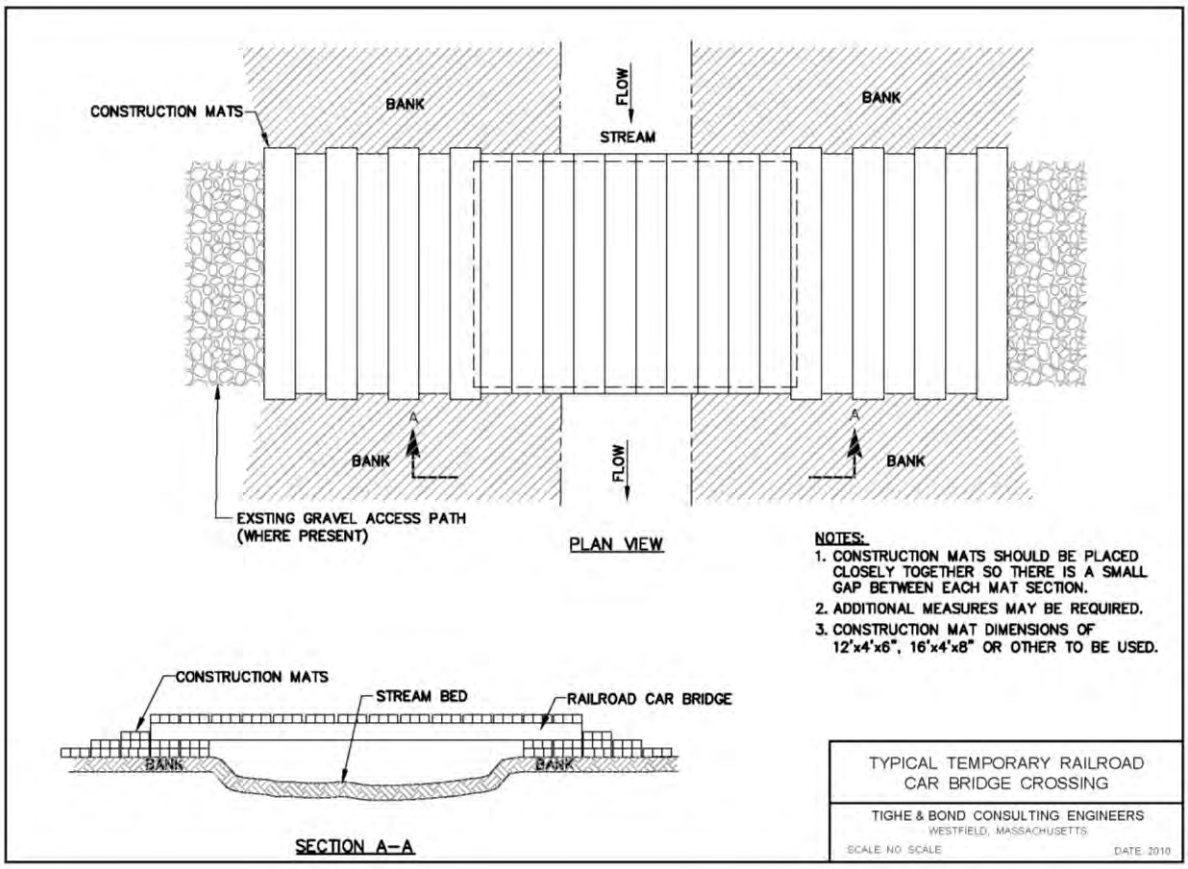
Limitations:

- Requires heavy equipment for transport and installation.
- Expensive.
- Banks must be stable to support heavy loads.

Overview/Use:

- Used rail car frames can be used for crossing larger and deeply incised streams where construction mats are unsuitable.
- Place the rail car frame perpendicular to the stream flow and between opposing banks. Use timber frame footings, if necessary. Next, place construction matting on the rail car frame to provide vehicle access.

Rail car frame bridge crossing.


CONSTRUCTION MATS
BANK
FLOW
STREAM
BANK
A
BANK
FLOW
A
BANK
EXSTING GRAVEL ACCESS PATH
(WHERE PRESENT)
PLAN VIEW
NOTES:
1. CONSTRUCTION MATS SHOULD BE PLACED CLOSELY TOGETHER SO THERE IS A SMALL GAP BETWEEN EACH MAT SECTION.
2. ADDITIONAL MEASURES MAY BE REQUIRED.
3. CONSTRUCTION MAT DIMENSIONS OF 12'x4'x6", 16'x4'x8" OR OTHER TO BE USED.
CONSTRUCTION MATS
STREAM BED
RAILROAD CAR BRIDGE
BANK
BANK
SECTION A-A
TYPICAL TEMPORARY RAILROAD CAR BRIDGE CROSSING
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NO SCALE
DATE: 2010

TAB 3C

Culvert Installation/Repair/Replacement

***Contact Environmental Licensing and Permitting prior to performing any culvert installations or replacements.**

Applications: Stream and wetland crossings

Limitations:

- Permitting and design are required for new culvert installation or expansion of existing culvers over streams and wetlands. Significant regulatory requirements must be followed. Permitting restrictions on time of year use.
- Installation may require in-stream work; dewatering and sedimentation concerns.
- Culverts are susceptible to washouts, sedimentation, erosion, and failure during heavy wet-weather events and flooding.
- Culverts require routine and long-term maintenance because they often become clogged with debris or other obstructions.

Overview:

Culverts are installed to maintain wetlands or streams at road crossings. Hydraulic calculations are required at all crossings to determine the area that will drain to the culvert.

General Design Guidelines:

- Size culverts to handle the maximum expected flow of the wetland or watercourse. It is preferable to one large culvert rather than multiple culverts. Corrugated culverts are favored because they slow the water velocity. Plastic pipes are preferred to metal.
- Design culverts to withstand and accommodate high flows while maintaining existing low flows and not impeding on the movement of indigenous aquatic life. Culverts must be sized to accommodate flows from at least the 100-year storm and preferably 500-year storm.
- The maximum velocity at the culvert outlet should be consistent with the velocity of the natural channel. To mitigate higher velocities, use outlet protection measures, energy dissipation, and channel stabilization, if necessary.
- Refer to state specific stream crossing guidance documents for additional design requirements:
    - Connecticut: Stream Crossing Guidelines, CT DEEP, Inland Fisheries Division Habitat Conservation and Enhancement Program, February 26, 2008, www.ct.gov/deep/lib/deep/fishing/restoration/streamcrossingguidelines.pdf
    - Massachusetts: Massachusetts River and Stream Crossing Standards, River and Stream Continuity Partnership, March 1, 2006, Revised March 1, 2011, www.nae.usace.army.mil/Portals/74/docs/regulatory/StreamRiverContinuity/MA_RiverStreamCrossingStandards.pdf

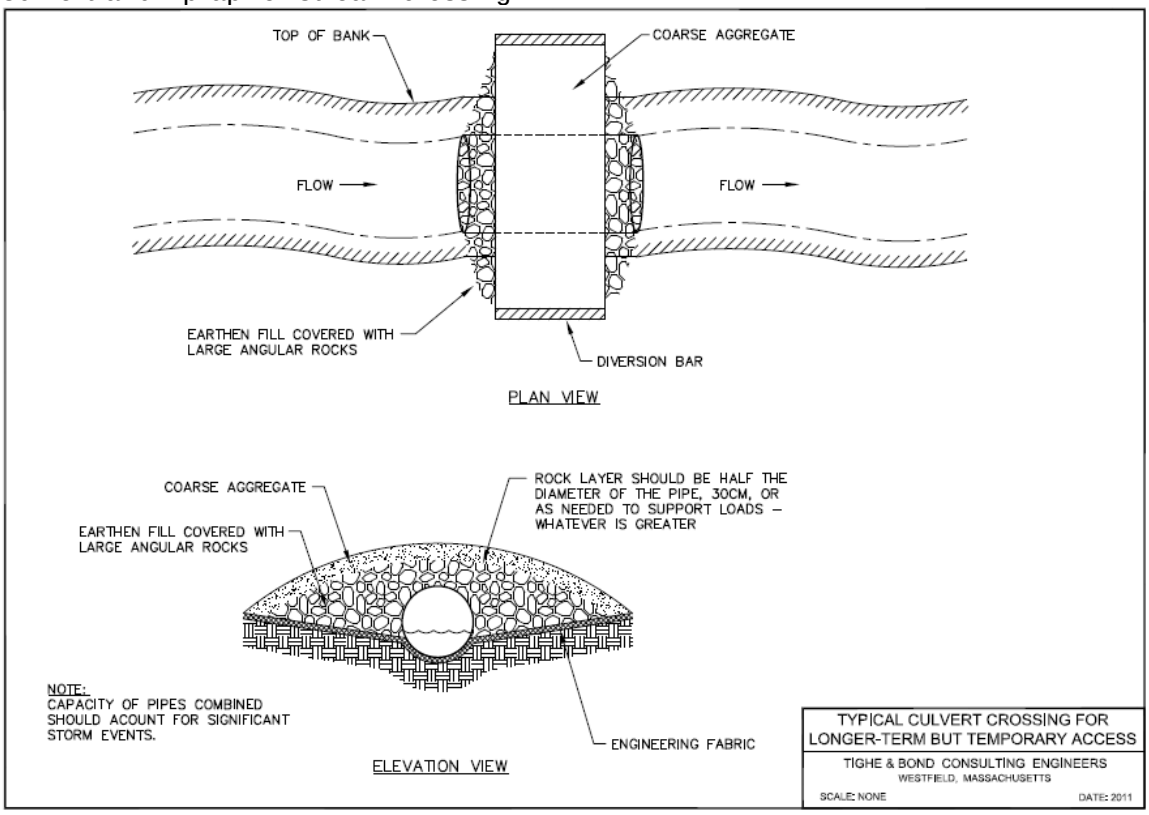
Installation:

- Construction mats may be placed over culverts to provide structural protection from heavy loads.
- Backfill culverts with natural substrate matching the upstream and downstream streambed substrate, even when fish passage is not a concern. Other aquatic organisms rely on natural streambed sediment to aid their movement.
- Strive to install culverts with minimal disruption to the watercourse and riparian buffer zone.
- Culvert length should be as short in length as practicable. Cut culverts to size if they are protruding into the natural streambed.

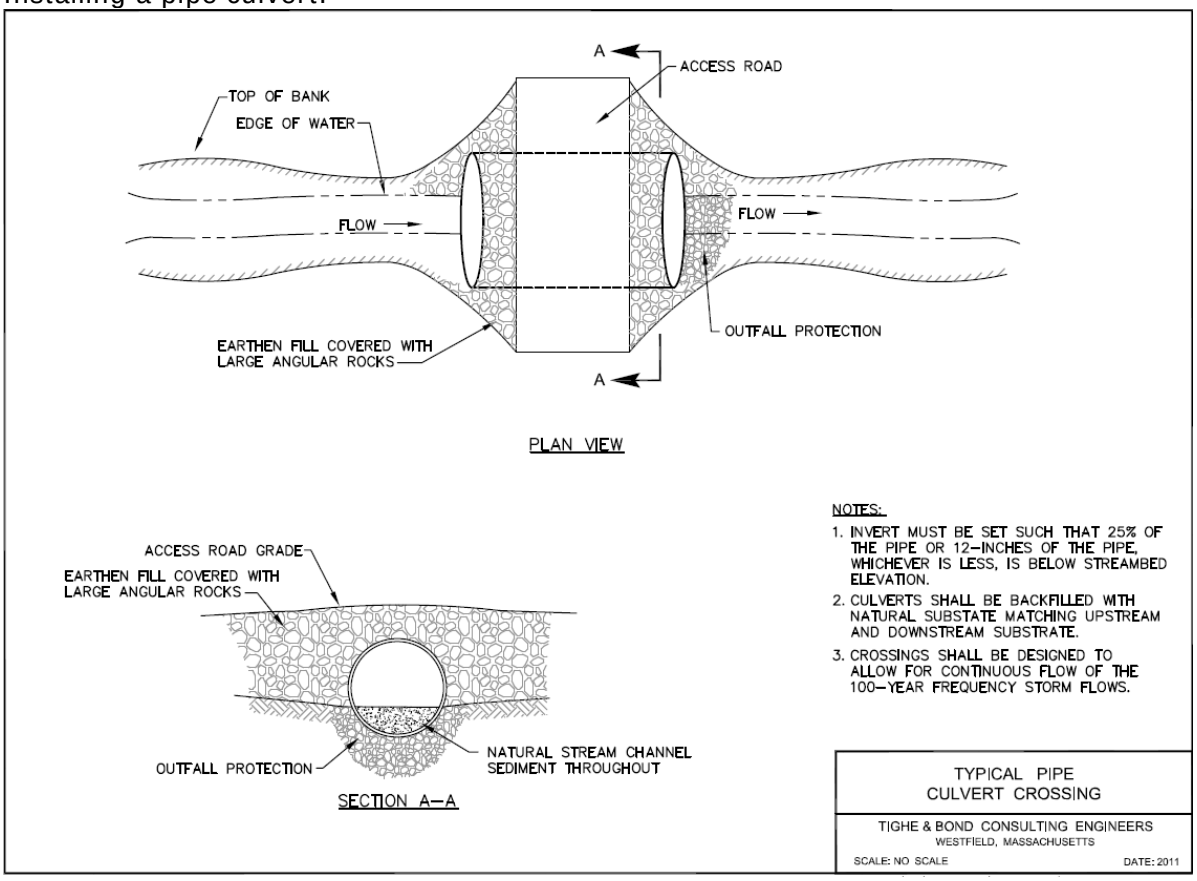
Maintenance:

- Remove debris and sediment from culverts to maintain an open channel for flow. A clogged culvert could result in flooding and washout.

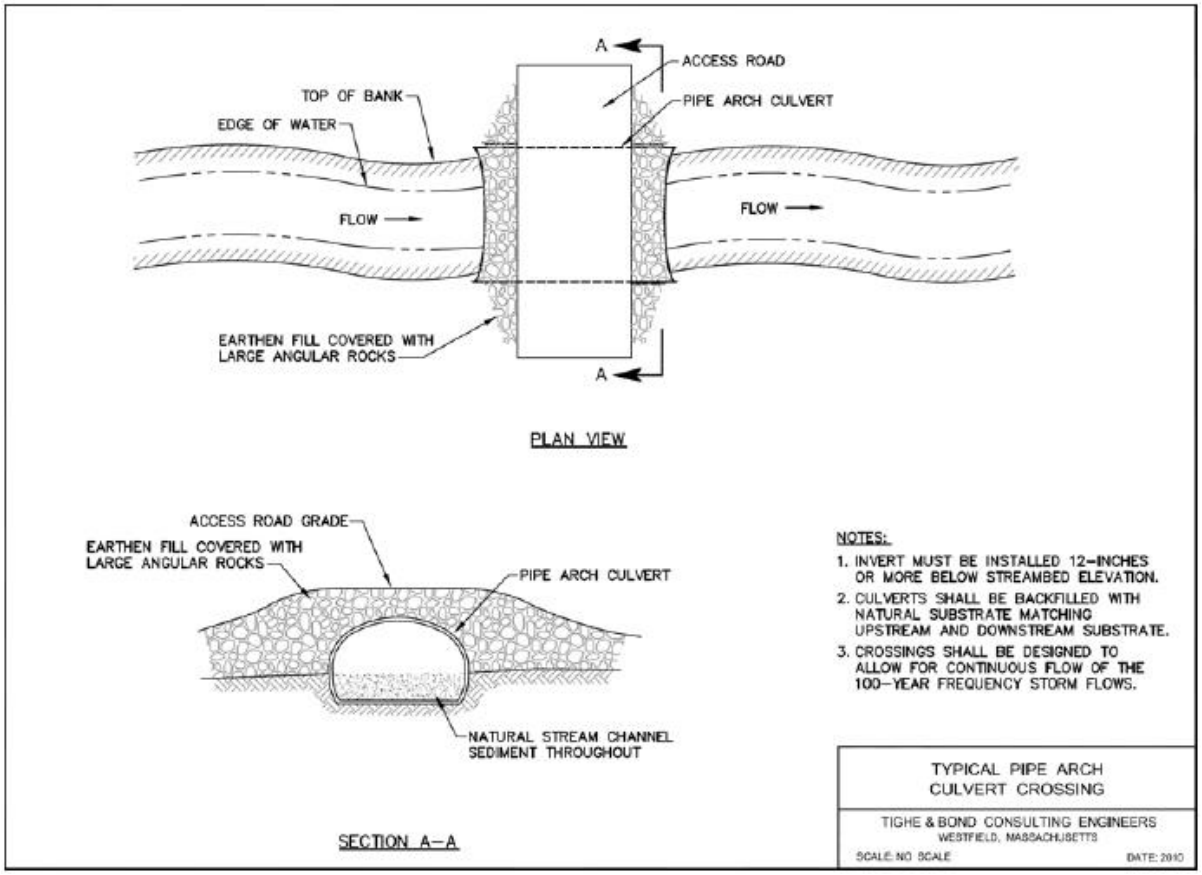
Culvert and riprap for stream crossing.



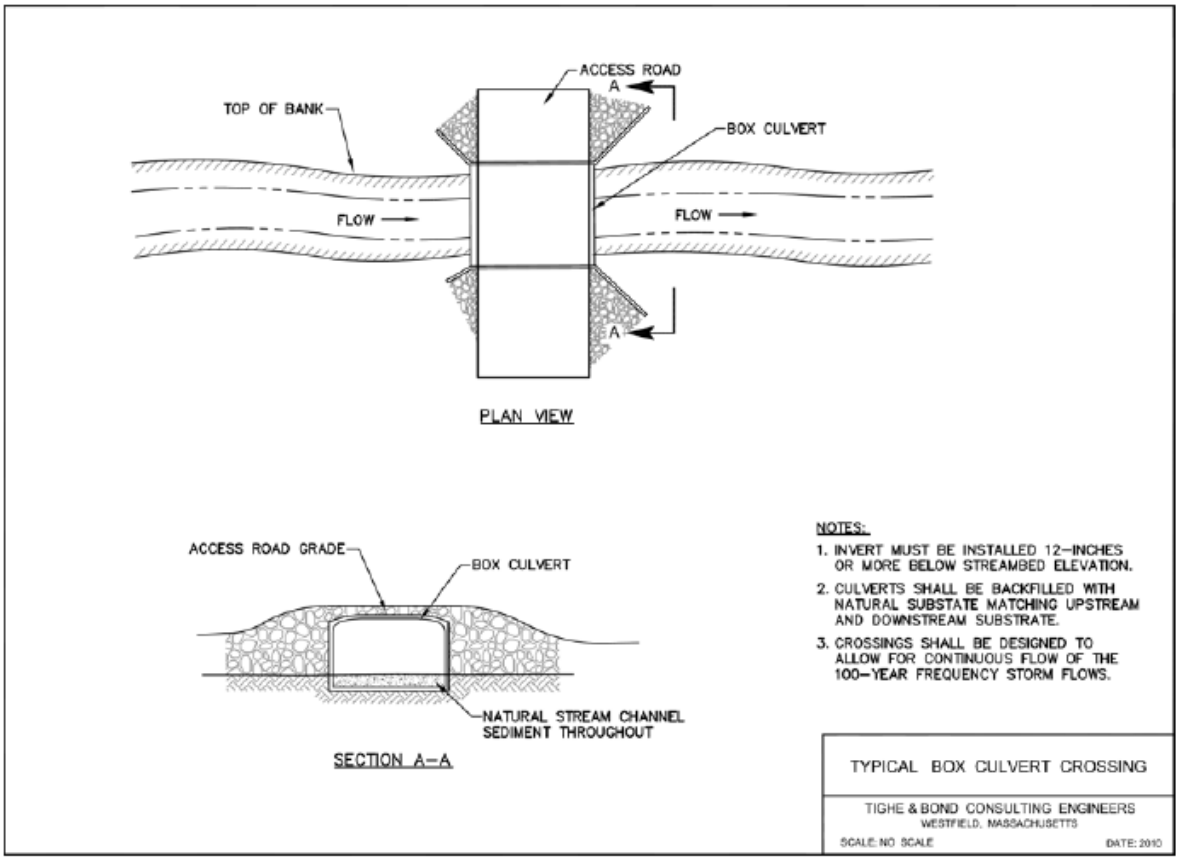
Installing a pipe culvert.



Pipe arch culvert.



Embedded box culvert with wing walls.



TAB 3D

Poled Fords

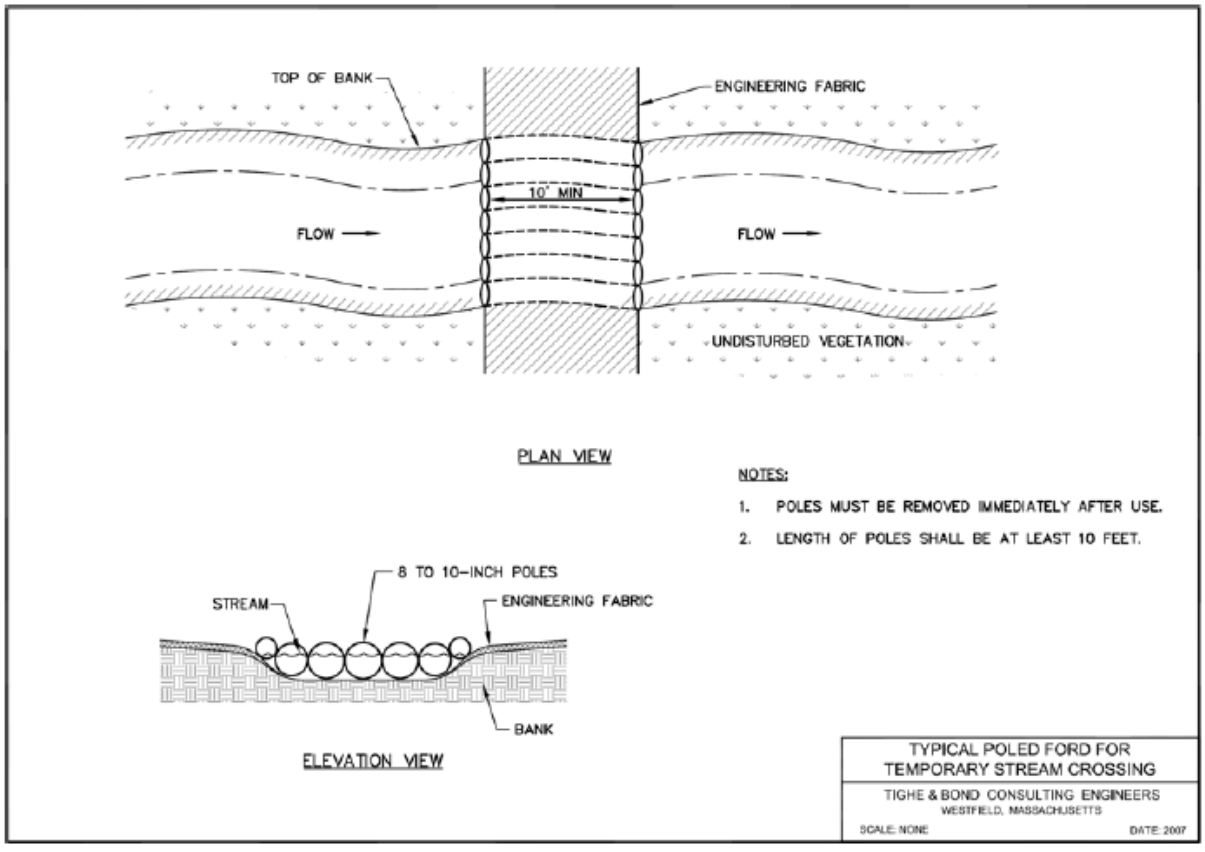
Applications: Stream Crossings

Limitations:

- Limited to streams with gently sloping adjacent land.

Overview/Use:

- Poled fords are used in remote locations where a stream crossing requires a functional BMP, but it is impractical to bring in larger materials. Sufficiently sized wood poles or saw logs of may be laid in the streambed parallel to the flow.
- Gently slope the road to and from the streambed at a maximum ratio of 1:5 (V:H). To limit disturbance to the riparian area, install engineering fabric and cover with an aggregate bed at the approach and exit.
- Use poles with a minimum length of ten feet.
- Remove poles immediately after use.



3.5 Slope Excavation

Engineering designs may be required for any upland changes that could potentially direct or channel water across the face of a terrace escarpment slope. No snow or soil piles, construction materials, or equipment should be stored in the immediate vicinity at the top of the terrace escarpment slope.

3.6 Vegetation Removal and Preservation

Care should be taken to limit disturbance to the extent practicable when removing vegetation. Grubbing is not preferred as it results in considerable erosion and should be avoided to the extent feasible. Utilize grubbing only when all other methods cannot be used to prepare stable and safe work areas. If grubbing is necessary, the area must be covered with seed and mulch to protect it prior to the end of the work day. During mowing and trimming, woody debris greater than two (2) inches in diameter should not be placed in wetlands, and no woody debris should be placed in standing water. All woody debris must be removed from wetlands if required by a permit condition. Mowing must be kept to a minimum, particularly at road crossings.

3.6.1 Right of Way (ROW) Vegetation and Eastern Box Turtle (EBT)

Eastern box turtles (EBT) are often found near small streams and ponds and inhabit old fields, deciduous forests, and logged woodlands. Adults are completely terrestrial, while the young may be semiaquatic and hibernate on land by digging down in the soil between October and April. EBTs have an extremely small home range and can usually be found in the same area year after year. EBT populations have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Therefore, vegetation removal in ROWs should be performed in a manner that minimizes impacts to turtle populations.

Cleared and Maintained ROW—EBTs have been found to use existing ROWs for foraging and nesting. Whenever feasible, perform maintenance mowing in identified habitat during inactive periods (November 1 to April 1). If mowing during the active turtle season (April 1 to November 1) is required, mow vegetation to no lower than seven (7) inches. Use Brontosaurus or Fecon mower heads to minimize the impact to identified habitat areas. Do not used Flail-type mowers during the active season.

Uncleared ROW—When project work requires vegetation removal in an uncleared ROW, cut and mow uncleared portions of EBT habitat during the active season (April 1 to November 1). If clearing must be conducted during hibernation periods, pre-planning will involve conducting a turtle survey and the possible use of telemetry. Consult Environmental Licensing and Permitting before performing work because this activity may not be covered under the Operation and Maintenance Plan and may require a permit.

		Recommended Maintenance Activity if the Existing ROW is:	
Time Period	Turtle Status	Cleared and Maintained	Uncleared
April 1 to November 1	Active	*Perform only if required*—Mow vegetation no lower than seven (7) inches and use recommended mower heads	*Recommended*—Cut and mow uncleared areas
November 1 to April 1	Inactive	*Recommended*—Perform maintenance mowing	*Not recommended*—Requires turtle survey at minimum before removing vegetation

General Construction Recommendations –The following are general construction guidelines for protecting turtles:

- Install silt fencing around the work area prior to construction activity. Consider using syncopated silt fencing (Appendix A).
- Turtle training is required for all contractors. Apprise workers of the possible presence of turtles and provided a description of the species. Include a turtle sweep reminder on the Tail Board.
- Conduct a turtle sweep after installing silt fencing and before conducting work.
- Perform daily turtle sweeps in work areas before performing any work.
- Carefully move any turtles that are discovered to an area immediately outside of the fenced area. Position turtle in the same direction that it was walking.
- Perform work with caution during early morning and evening hours. Take special care not to harm basking or foraging individuals.
- Remove silt fencing after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.
- Return temporary cross country access routes to pre-construction grade, seed if adequate root and seed stock are absent, and mulch. Do not seed pre-existing sandy soils that are within mapped rare turtle habitats unless directed by Environmental Licensing and Permitting in order to avoid altering nesting habitat

3.6.2 Preservation of Existing Vegetation

Preserve the existing vegetation (i.e., groundcovers, vines, shrubs, trees) on a site when practicable to improve soil stability and decrease the runoff volume and velocity. Identify and protect specified trees for erosion and sediment control benefits and/or aesthetic purposes. Consider saving trees that provide shading or screening benefits, particularly in residential areas. Preserve existing vegetation by reducing the width of a cleared ROW at stream crossings. See Appendix A for preserving existing vegetation BMP.

3.7 Work Pads

3.7.1 De-Energized and Energized

Applications: Work in wetlands

- Reconnaissance of each workpad area in or adjacent to wetlands should be performed to determine if the construction mat workpad areas could be located outside of wetland resource areas. Wetland disturbances should be avoided or minimized where practicable. Contact Environmental Permitting and Licensing.

Limitations:

- Requires heavy machinery for installation.
- Significant amount of time required for installation and removal.
- Pads for live line work require a considerably larger footprint.
- Several layers of matting may be needed in deep, construction areas.
- Animals may be injured or killed when attempting to cross workpads.
- May not be suitable in deep/open water wetlands.

How to Use:

- Work at structures may require placement of construction mats to provide safe and stable workpad areas for employees and contractors.
- Live line work, which is work that is done while the line is energized, requires a much larger workpad area. Efforts should be made to stay out of wetland areas to the extent practicable.
- Sizes of workpads vary based on the type of work being proposed.
- Workpad areas may extend into wetlands where structures that require maintenance either fall within or are in close proximity to wetlands. In these cases, untreated wooden construction mats shall be used to limit disturbance.
- Install silt fencing around work pads in identified amphibian and reptile priority habitat and where matting is greater than one mat thick. The exclusionary silt fencing will deter animals from moving across workpads and reduce the likelihood of being crushed by heavy equipment.
- Following construction activities all mats at each workpad and vehicle access locations must be removed.
- Remove mats by "backing" out of the site and removing mats one at a time. Regrade soils to pre-existing contours while taking care not to compact soils.
- In areas with invasive species, plant material should be removed from mats following removal from the infested area to prevent the spread of invasive species.

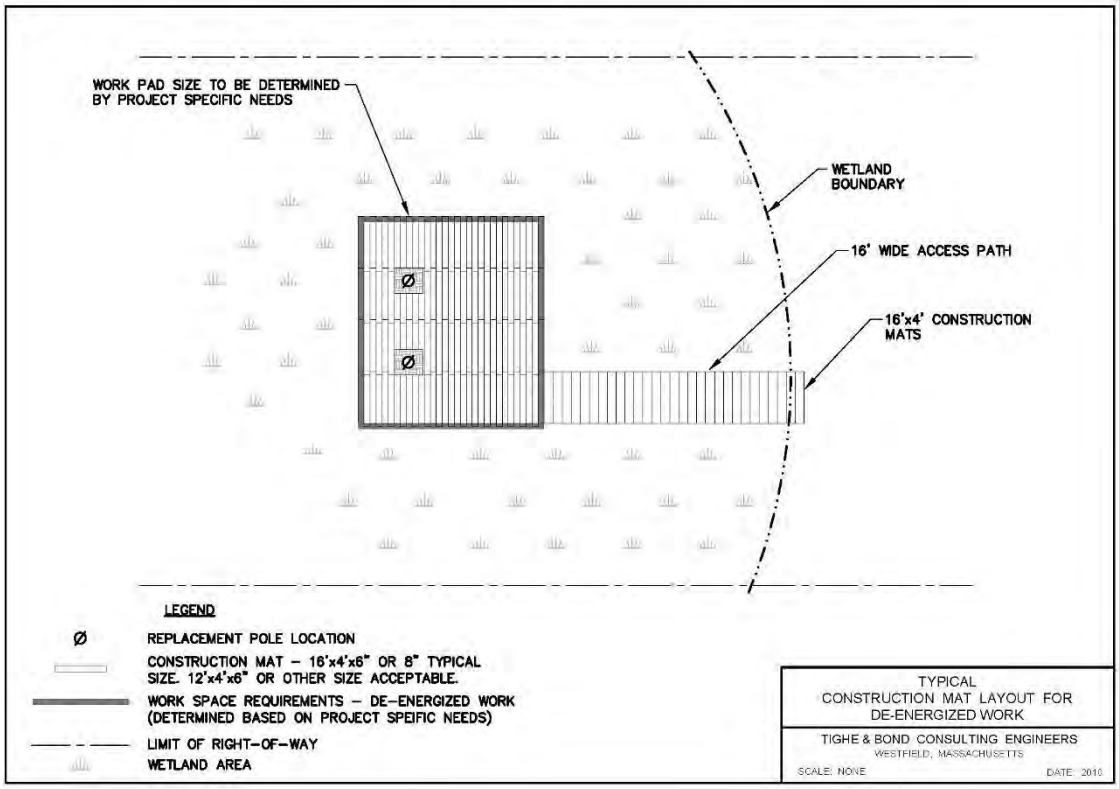
3.7.1.1 Best Management Practices – Work Pads

De-energized work requires small workpad areas, while live line work (i.e., work that is done while the line is energized) requires a much larger workpad areas.

De-energized construction mat workpads – Tab 4A

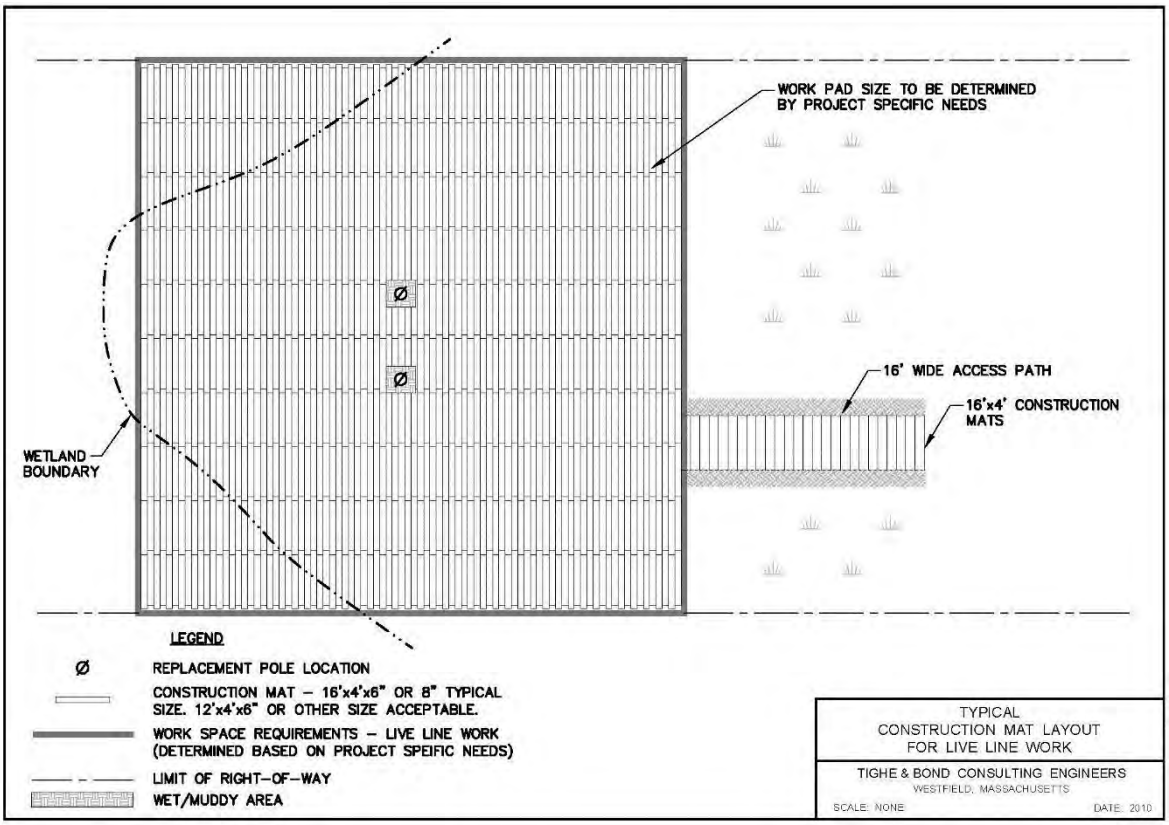
Energized construction mat workpads – Tab 4B

TAB 4A



Construction mat wetland work-pad for de-energized work.

TAB 4B



Construction mat wetland workpad for live line work.

3.8 Structure-Related Work

3.8.1 Wetland

Structure-related activities that may occur in wetlands include structure replacement/ installation (including casing installation), guy wire anchor installation, counterpoise installation, and pole butt removal. Access to these areas and completion of the activities can cause disturbance to wetland vegetation and soils. Therefore, structure-related activities in wetlands should entail use of adequately sized work-pads and proper dewatering methods. Inspection of the construction access and associated dewatering measures should occur daily during construction to ensure that controls are in working order, and repairs to damaged/deteriorating controls are made in a timely matter. Repairs may include regrading the traveled surface to eliminate ruts as well as those repairs required by each erosion and sedimentation measure used.

Structure Replacement / Installation

Structure replacement may require impacts to wetlands to install new poles and their casings. Poles that are significantly damaged must be replaced to comply with engineering and safety standards. Not replacing damaged structures could result in the eventual failure of one or more structures within or adjacent to wetlands.

Replacement structures will often be replaced within a few feet of the original structure to maintain the required distances and line sags between other existing structures. Therefore, options for relocating proposed replacement structures are limited. Pole replacement will also require placement of construction mats in wetlands to provide a safe workpad for the required structure replacement activities. Usually, there are no alternatives to conduct this work from nearby upland areas or to install the replacement structures in upland areas. Each structure replacement area should be assessed to determine the required footprint needed for construction mat workpads. Typical installation is as follows:

- At each pole location, remove wetland topsoil with an excavator and stockpile.
- If a borehole is drilled, collect and dispose of drilling spoils in an upland area.
- A galvanized steel casing is then driven into place at least 12 inches below the ground surface. The new pole is installed within the casing with a crane. The casing is then backfilled with crushed rock and compacted.
- Stockpiled wetland topsoil is placed above the casing to the ground surface. No net fill in wetlands occur, as the original poles are removed.
- Following installation of the new structures, the old structures are removed. Each pole is cut with a chainsaw and allowed to fall to the ground, which in wetland areas is protected by construction mats. Pole butts will remain in place; if removing the pole butt will cause more damage than if left in place.
- Remove the pole and all appurtenant accessories (e.g., cross-arms, insulators) and properly dispose off-site. Remove each pole butt by pulling with an excavator positioned on a construction mat. If it is apparent that pole removal will compromise the integrity of the new pole installation, or that removal will result in additional disturbance to wetland areas, cut off the old pole at least 12 inches below ground level.

Guy Wire Anchor Installation

Guy wire anchors supporting the structures may also require replacing. There are two types of anchors: 1) helical and 2) plate type. The helical anchor is preferred over the plate anchor because the installation of the helical anchor results in less disturbance to the wetland.

- Load test the existing anchor to 15,000 pounds to determine whether it will support the pole structure. In the event the existing anchor cannot be re-used, remove it and install a new anchor.
- Screw in place a special triple helix ("screw type") anchor with 1 ½-inch square rods with an anchor installation rig operated from the matting area. Add rod sections in five foot increments as needed until proper holding capacity of the anchor is achieved.
- Helical anchors are turned into the ground with only the rods protruding. Disturbance to the wetland from the helical anchor is minimal.
- Plate anchors are used in wetlands when proper holding cannot be achieved with screw anchors. To install a plate anchor, a pit is excavated to a sufficient depth and if necessary a concrete footing would be installed several feet below surface grade.
- When excavating to install plate anchors, segregate the top 12 inches of wetland topsoil from the underlying material. When the plate anchor has been set, backfill the excavation with underlying material. Then following the backfilling of underlying material return the segregated topsoil to the surface of the excavation.

Counterpoise Installation/Grounding

To install grounding equipment in wetlands, use hand digging or minimally invasive methods to dig around the structure and restore soil to previous grades. In some cases, grounding rods can be driven directly into the ground with hand tools. Where work is occurring in the vicinity of wetland areas, sedimentation and erosion controls will be used to limit disturbance to wetlands.

Underground facility repair/replacement

Underground facilities such as cables and conduits may be present beneath wetland areas. In the event underground facilities require repair, BMPs are required for both access and construction. Construction mats are used for access where warranted, and sedimentation and erosion controls are used to isolate the work area. During excavation activities, excavate wetland topsoil and store separately from subsurface soils. Dewatering is often required during excavation and repair activities.

An alternative to repairing a subsurface line by excavation would be to install a new line via trenching or horizontal directional drilling. The decision to use one of these alternatives is made on a case by case basis. Consult with Environmental Licensing and Permitting to determine if any permits will be needed.

Pole Butt Removal

When transmission poles are decommissioned or otherwise taken out of service, in most cases the entire pole shall be removed. Treated wood pole butts shall be removed completely from the ground and properly disposed at an off-site location. Locations where

the removal of pole butts may cause significant disturbance to wetlands or other sensitive areas will be considered for exception to this practice on a site-by-site basis. The Transmission Line Construction and Maintenance Manager, in consultation with Environmental Licensing and Permitting, will be responsible for determining if a pole butt can be removed if located in a sensitive area.

All pole butt holes must be backfilled and compacted (every 3′) with appropriate fill material. Existing material on-site can be reused if it does not include materials that can rot (e.g., vegetation) and cause sink holes.

Disposal

Treated and non-treated wood products owned by the Transmission Group shall be stored in an area(s) designated by the Transmission Line Construction/Contract Field Services Supervisor until collected by an approved disposal vendor.

3.9 Gas Piping-Related Work

Gas piping-related activities will typically occur within roadways or along roadway shoulders. There may be some instances where wetland permitting is required when wetlands are located adjacent to or in the vicinity of roadways. However, when work is performed within the roadway/shoulder, no permitting is typically required. In all cases, BMPs should be followed to ensure environmental compliance.

Roadways and Shoulders

When working in roadways, particularly in residential areas, the following activities should be performed in addition to standard construction BMPs:

- Repave disturbed paved areas and return to original elevations on the same day that construction is performed.
- Restore all non-paved areas to preexisting or better conditions. Replace any sod or other plantings in kind or with an acceptable alternative.
- Employ dust control as necessary to minimize airborne dust.

Under certain circumstances, gas piping must be installed beneath existing culverts within roadways. Take care to ensure that any saturated material excavated from the trench be properly stored and disposed as to not cause sedimentation issues. Implement dewatering methodologies, as required.

There may be cases where a drainage ditch or swale must be crossed to gain construction access from paved roads onto ROWs along the roadway shoulder. Install construction mats, mat bridges, or temporary culverts, as necessary, to facilitate access. Culverts should be for temporary use, sized for peak flow, and removed after construction is complete. Consult with Environmental Licensing and Permitting prior to installation.

Bridges and Culverts

Attachment of gas piping to bridges or culverts is the environmentally preferable method for crossing a wetland or watercourse. Consult with the appropriate people (engineers,

the Department of Transportation (DOT), etc.) to determine if attachment to a bridge or culvert is a technically feasible option at the desired crossing location. Environmental Licensing and Permitting should also evaluate the impacts to FEMA flood storage quantities and potential Coast Guard permitting requirements. Ensure that proper erosion and sedimentation controls are in place on either side of the bridge or culvert throughout construction.

Rivers and Streams

There are two primary approaches for crossing a river or stream with a gas pipeline: direct bury (open trenching) and trenchless methods (e.g., horizontal directional drilling, standard bore/pipe jacking).

Direct bury methods involve erecting a coffer dam to isolate the work area and redirecting water flow using gravity or pumping to move water from one side of the work area to the other. Direct bury methods have larger direct environmental impacts than trenchless methods. Typical coffer dam examples are included in Appendix A.

Trenchless methods use specialized equipment to install piping beneath a waterbody (or a major roadway, railroad, etc.). The most common method used for gas piping is horizontal directional drilling (HDD) which uses remote controlled, steerable drilling equipment to install pipe along a long arc alignment. The drilling process can be divided into three steps: pilot, reaming, and pull-in. The first step is to drill a pilot bore-hole. Next, a larger diameter fly cutter is used to enlarge the opening. A specialized bentonite slurry drilling fluid is injected into the bore-hole to stabilize the surrounding soil and to lubricate and cool the drill bit. For the final step, a barrel reamer is used to further enlarge the bore-hole and to pull the pipe into place.

A notable environmental concern with HDD is called "frac-out." This occurs when drilling fluid breaks through the soil surface and into the waterbody. Regulatory agencies may require a "frac-out plan" which details preventative controls and response measures should frac-out occur. A typical frac out plan is included in Appendix D.

3.10 Construction Material along the Right of Way (ROW)

Once a site is prepared by clearing and/or installing erosion and sediment controls, materials may be stored along the ROW prior to the start of construction. Such materials may include the following: piping, poles, cross-arms, cable, insulators, stone, and other engineered backfill materials. In general, the stockpiling of stone and other unconsolidated material on construction mats should be avoided. If it is determined necessary due to access and workpad constraints, the material should be placed on a geotextile fabric and be properly contained with a sedimentation barrier such as straw wattle or hay bales. No construction materials should be placed in wetlands or other sensitive resource areas.

3.11 Winter Construction

3.11.1 Snow Management

Snow should not be stockpiled or disposed in any waterbody or near water supply sources. These include wetlands, rivers/streams, the ocean, reservoirs, ponds, stormwater catch basins, wellhead protection area, in high or medium yield aquifer, or within 200 feet of a

private well. In addition to water quality impacts and flooding, snow disposed in surface water can cause navigational hazards when it freezes into ice blocks. Maintain a minimum buffer of 25 feet between any snow disposal area and the high water mark of any surface water. A silt fence or equivalent barrier should be installed between the snow storage area and the high water mark of rivers, streams, ponds, or the ocean. Consult with Environmental L&P regarding any specific state and local snow management requirements.

Avoid disposing of snow on top of storm drain catch basins or in storm water drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system and cause localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water and could also result in fines or a violation.

All debris in a snow storage area should be cleared from the site and properly disposed of no later than May 15th of each year. Care shall be taken not to plow road materials away when removing snow.

3.11.2 De-Icing

Where permitted, calcium chloride is the preferred de-icing agent when applied according to manufacturer's guidelines in upland areas. Sand should be used on construction mats through wetland areas. Consult with Environmental Licensing and Permitting on de-icing agents when working in a facility or substation near resource areas. Many municipalities have specific de-icing agent requirements for work within 100 feet of wetland resources and other sensitive areas.

3.11.3 Snow and Ice Management on Construction Mats

Promptly and properly remove snow from construction mats to avoid ice formation. Remove snow from construction mats before applying sand to avoid forming ice. A round street sweeping brush mounted on the front of a truck may be an effective way to remove snow from construction mats. Propane heaters may also be suitable solutions for snow removal and/or de-icing of construction mats. Sand should be collected from the construction mats and disposed of in an upland area prior to removing construction mats from wetlands. Once construction mats are removed, wetlands shall be inspected for sand buildup that may have fallen through construction mats.

3.12 Dust Control

Dust control measures are used to reduce surface and air movement of dust from exposed soil surfaces during land disturbance, demolition, and construction activities. These practices reduce the amount of dust in the air and decrease the potential for accidents, respiratory problems, and airborne sedimentation. Construction activities should be scheduled appropriately to minimize the amount of site surface exposed at one time in order to reduce the amount of areas requiring dust control. Use dust control measures on disturbed soil surfaces and exposed soil surfaces, especially during hot or dry weather periods and in areas with excessively well-drained soils. Repetitive treatments should be used as needed, or required by permits, and until the surface is permanently stabilized.

Type	Description / Use
Vegetative Cover	• Most effective and practical method. • Use in disturbed areas not subject to traffic. • Follow seeding requirements as directed by local guidelines or permit requirements.
Stone	• Cover soil surface with crushed stone/coarse gravel.
Water/Sprinkling	• Sprinkle exposed soils until wet (Water trucks may be used depending on size of the site). • Do not excessively wet the soil as this causes run-off and also wastes water.
Barriers	• Board fences, wind fences, and sediment fences control air currents and blowing soil. • Wind barriers protect soil downgradient for a distance of ten times the barrier height. • Perennial grasses and stands of existing trees also serve as wind barriers, stressing the importance of planning work phasing properly and minimizing the amount of exposed soil.
Plastic Covering	• Cover soil piles with sheets of plastic/tarp to minimize dust.
Calcium Chloride	• Loose, dry granules of calcium chloride may be applied with a mechanical spreader. • Apply at a rate that keeps the surface moist but not high enough to cause water pollution or plant damage. This method should be done under consultation with an expert in order to maintain this balance and to determine if the site is applicable.

3.13 Soil Stockpile Management

Some projects may involve excavation and stockpiling of soil. Stockpiles should be located outside sensitive areas to the extent practicable and managed to prevent erosion and sedimentation of adjacent areas. Typical measures include the installation of protective measures (e.g., siltation fence and/or hay bales) around the perimeter of the stockpile. The stockpile must be seeded if left in place for more than 30 days. No snow or soil piles, construction materials, or equipment should be stored in the immediate vicinity at the top of a terrace escarpment slope.

When polluted/contaminated soil is encountered, it must be handled in accordance with the appropriate regulatory requirements. In addition to the measures discussed above, contaminated soils should be stockpiled on and covered by polyethylene sheeting. Sheeting used to cover the stockpile should be weighted down to prevent the wind migration of contaminated dust.

For soil stockpiles in substations, contact Environmental Licensing and Permitting. If soil/water must be stored and/or disposed, comply with existing soil and groundwater management guidelines. Coordinate with the Environmental Affairs Department (EAD) to ensure appropriate procedures are followed.

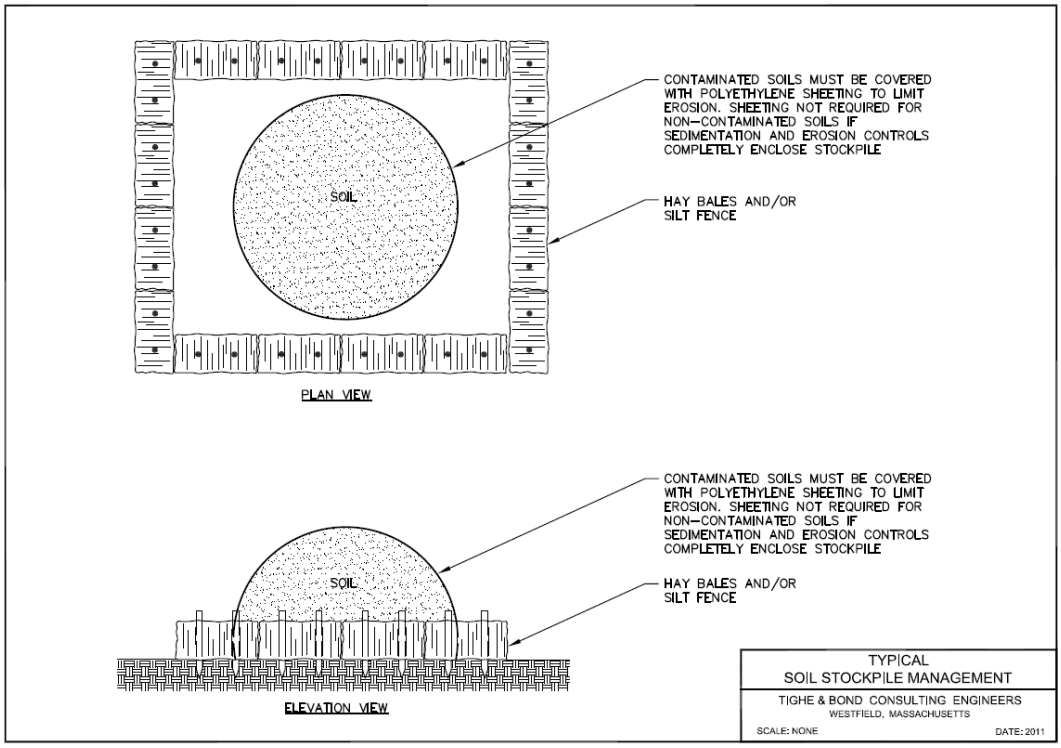
3.13.1 Best Management Practices – Soil Stockpile Management

The following BMP is applicable to soil stockpile management and is described at the following tab:

Soil Stockpile Management – Tab 5A

TAB 5A

Soil stockpile management.



Section 4
Inspection and Maintenance

A pre-construction meeting will be held to discuss how often and who will be checking that all erosion and sedimentation controls are in working order. All BMPs will be inspected at least once per week during construction and at least once per month during restoration. Construction sites will be inspected after major storm events (rainfall events greater than 0.25 inches).

4.1 During Construction

Construction sites, construction access roads, and the associated erosion and sedimentation controls should be inspected by the person(s) designated at the pre-construction meeting, as required by permit conditions. Any damage observed must be repaired in a timely matter, at least within 48 hours of observation. Repairs may include regrading and/or top dressing the surface with additional aggregate to eliminate ruts as well as those repairs required by each erosion and sedimentation measure used.

All inspections will be documented in the project folder.

4.1.1 Maintenance of E&S Controls

Spare erosion and sedimentation control materials such as straw wattles, hay/straw bales and silt fencing should be kept on site or readily available so they may be replaced if they become non-functional due to deterioration or damaged during a storm, extreme water or wind, or other unexpected events.

4.1.2 Rapid Wetland Response Restoration

In the event of unintended discharges of sediment into wetlands, Eversource will quickly control, contain and remove sediment using non- or marginally invasive methods. Responding quickly to unintended discharges minimizes the difficulty and cost of restoration if the sediment is left in place for an extended period of time. Eversource will conduct sediment removal activities at the time of discharge and will notify the appropriate regulators of the discharge and the restoration process.

4.1.3 Vehicle Storage

All storage and refueling of vehicles and other equipment must occur outside of and as far away as practical from sensitive areas such as wetlands, unless specifically agreed by the Project Team and an alternate protocol is developed and approved internally. Refueling for larger, less mobile equipment such as drill rigs or large cranes, may be allowed within wetland resources only with prior approval and if specified precautions and protocols are followed. A proper location for refueling should be identified and designated before site work begins. The recommended minimum distance from wetland areas for storage of fuel and refueling is 100 feet. Additionally, equipment should be checked regularly for evidence of leaks. Construction material storage should also be located at least 100 feet from wetlands.

4.1.4 Spills

Spill kits consist of emergency cleanup and spill containment materials that can be used in the event of a fuel or other chemical spill. Spill kits must be kept on site and accessible at all times in case of an emergency spill. Such kits should generally contain multiple absorbent socks and/or pillows and wipes and temporary disposal bags. Follow the applicable Eversource Contractor Work Rules.

4.1.5 Post Construction

Post-construction inspections of restored areas will be conducted at regular intervals throughout the growing season, as required by any applicable permits, and/or after major storm events. Sites should be inspected for success or failure of revegetation, invasive species colonization, and erosion and sedimentation. In the event additional measures are required to achieve site restoration and stabilization, corrective actions shall be identified and implemented.

All information collected during inspections, regular maintenance, and repair procedures should be documented in project folders. In addition, photographic or diagrammatic logs may be kept to help record certain events and for documentation of project progress and any noteworthy observations.

The construction work is not complete until all areas are restored.

Section 5
Rehabilitation and Restoration

5.1 Restoration

All areas disturbed by construction, repair, and maintenance activities shall be substantially restored to pre-construction conditions. Please refer to Appendix A Section I for photos and typicals for loaming, seeding, and mulching. Prompt restoration minimizes the extent and duration of soil exposure and protects disturbed areas from stormwater runoff. Stabilization should be conducted as soon as practicable. Where appropriate, it is preferable to allow wetlands to naturally revegetate.

5.1.1 Seed Mixes

Several different seed mixes are available for upland and wetland restoration. State-specific comprehensive summaries of seed mixes for both temporary and permanent seeding of disturbed sites can be found within the following documents:

- Massachusetts: Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, page 157: http://www.mass.gov/eea/docs/dep/water/essec1.pdf

- Connecticut: 2002 Connecticut Guidelines for Soil and Erosion Sediment Control, page 5-3-8: http://www.ct.gov/deep/cwp/view.asp?A=2720&Q=325660

Upland Seed Mix: If significant grading or upland alteration has occurred, annual rye grass seed shall be placed following manufacturer's recommendations after regrading activities.

Wetland Seed Mix: If significant grading or wetland alteration has occurred, a wetland seed mix shall be placed following manufacture's recommendations after regrading activities.

5.1.2 Upland

The following restoration techniques apply to restoration projects in upland areas.

- Soil excavated during construction and not used as backfill must be evenly spread onto disturbed areas to restore grades. Topsoil shall be stripped and separated to the extent practical, for re-use. Permanent soil protection shall be provided for all areas disturbed by construction activities. All areas will be seeded either by Hydro-seeding or broadcast seeding. If areas cannot be seeded due to the time of year, then mulch (hay or straw) is still required prior to the next precipitation event.
- Topsoil removed during construction activities will be replaced, seeded, and mulched.
- All areas that are broadcast seeded shall be treated with a layer of mulch, such as hay, but preferably straw, up to one inch thick to enhance moisture retention, dissipate disturbance from precipitation, and detract birds foraging on broadcast seed.

- Rehabilitation of access routes and other areas must be performed as soon as practicable after construction is completed, including reestablishment of water bars or other BMPs to control erosion of the access road, and the removal and restoration of temporary wetland or waterway crossings.
    - Temporary breaks in construction activities may warrant seeding and mulching of disturbed areas as interim erosion control measures.
- Erosion control measures shall remain in place until soils are clearly stabilized. Once soils are stable, erosion controls – especially silt fence, which presents an obstacle to movement of small animals shall be removed and properly disposed. Stakes should be removed from hay bales and spread as mulch to remove barriers to wildlife movement.
- Straw is preferred over hay to prevent the spread of invasive plant species seed stock.
- If a grading operation at a site shall be suspended for a period of more than 29 consecutive days, the disturbed area shall be stabilized by seeding, mulching, and/or other appropriate means within the first 7 days of the suspension of grading.
- Within 7 days after a final grade is established in any grading operation the disturbed area shall be stabilized by seeding, loaming, and/or other appropriate means.

5.1.3 Wetland / Watercourses

Regrading of Ruts: Upon removal of construction mats, or other BMPs, the wetland resource area should be inspected for rutting or disturbance from eroded upland soils. Any rutting should be regraded to pre-existing contours and upland soils removed from wetland areas while taking care not to compact soils.

The following restoration techniques apply to restoration project in wetlands:

Maintenance, Repair, and Emergency Projects (When No Permit is Required)

- Remove mats by "backing" out of the site and removing mats one at a time. Regrade soils to pre-existing contours while taking care not to compact soils.
- Soils excavated from wetland areas shall be segregated and stockpiled separately (i.e., topsoil/muck apart from mineral subsoil) in a dry/upland area at least 100 feet from wetland boundaries unless other provisions have been made to facilitate restoration activities.
- Excavated wetland soils that have been stockpiled during underground utility installations within wetlands shall be replaced in the same order (i.e., mineral subsoil beneath organic topsoil/muck) to the extent practicable and restored to pre-disturbance grades.
    - Grading activities should include the elimination of ruts within the area to be restored.
- If replacement of soil associated with temporary wetland or watercourse crossings for access roads is necessary, disturbed areas must be restored to pre- disturbance grades, either seeded and mulched, or allowed to revegetate from the natural seed bank.

- Disturbed wetland areas shall generally be allowed to revegetate from the natural seed bank. Measures to discourage the establishment or spread of plant species identified as non-native, invasive species by federal or state agencies shall be utilized. Environmental Licensing and Permitting can evaluate whether to let the wetland vegetate naturally.
- Any restoration plantings or seed mixes used in restoration shall consist of species native to the project area and, if feasible, from local nursery stock.
- Any stream banks and beds damaged shall be restored through use of geotextile erosion control blankets, and/or coir logs.
- All seeded areas shall be treated with a layer of mulch (i.e., hay, but preferably straw) up to one inch thick to enhance moisture retention, dissipate disturbance from precipitation, and detract songbirds foraging on broadcast seed.

5.2 Private Property

5.2.1 Improved Areas

Access to and along the ROW over private property must be improved to the extent necessary to ensure suitable passage for construction equipment, provide erosion control, and maintain proper drainage. Upon completion of construction activities, altered yards, lawns, agricultural areas, and other improved areas must be restored to a condition equal to or better than before their use for the construction project. If access is over a property off the transmission easement, then it is the responsibility of a construction representative to determine if legal access rights are available to cross the property.

5.2.2 Overall Work Site

Construction personnel should remove all work-related trailers, buildings, rubbish, waste soil, temporary structures, and unused materials upon satisfactory completion of work. All areas should be left clean, without any litter or equipment (wire, pole butts, anchors, insulators, cross-arms, cardboard, coffee cups, water bottles, etc.) and restored to a stable condition and close to the original condition. Debris and spent equipment should be returned to the operating facility or contractor staging area for disposal or recycling as appropriate.

5.2.3 Material Storage/Staging and Parking Areas

Upon completion of all work, all material storage yards, staging areas, and parking areas shall be completely cleared of all waste and debris. Unless otherwise directed or unless other arrangements have been made with an off ROW or off-property owner, material storage yards and staging areas shall be returned to the condition that existed prior to the installation of the material storage yard or staging area. Regardless of arrangements made with a landowner, all areas shall be restored to their pre-construction condition or better. Also any temporary structures erected by the construction personnel, including fences, shall be removed by the construction personnel and the area restored as near as possible to its original condition, including seeding and mulching as needed.

5.3 Work in Agricultural Lands

Transmission lines often cross agricultural lands. In some instances, this may affect ongoing agricultural activities in and around the ROWs. If a construction or maintenance project occurs on agricultural lands, Eversource will work closely with landowners, licensees and stakeholders to minimize agricultural impacts. Whenever practical, Eversource will make reasonable efforts to coordinate the schedule of construction-related activities around the growing and harvest seasons to minimize the impacts on agricultural operations. When this is not practical, Eversource will pursue reasonable measures to mitigate any impacts.

Eversource recognizes that disturbed soils, or soils compacted by heavy construction equipment, may affect the soil's ability to support certain agricultural activities. Eversource will take reasonable steps to avoid or minimize soil compaction, and will restore soils that are compacted by construction equipment. Eversource will also work with affected landowners to determine the appropriate method for restoring the soils, and is open to discussing and implementing the landowners' alternative restoration suggestions. After the transmission improvement is complete, Eversource will remove all construction-related equipment and debris from the ROW.

Tighe&Bond

APPENDIX A

Introduction

Section 1 Erosion and Sedimentation Controls

Section 2 Water Control

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Introduction

Adequate erosion and sedimentation control management measures shall be installed and properly maintained to reduce erosion and retain sediment on site during and after construction. These devices shall be capable of preventing erosion, collecting sediment (suspended and floating materials) and filtering fine sediment. Sediments collected by these devices shall be removed and placed in an upland location beyond buffer zones/upland review areas and any other regulatory setbacks preventing later migration into a waterway or wetland. Once work has been completed, all areas shall be stabilized with erosion control blankets and/or robust vegetation and erosion control devices shall then be removed. Erosion and sedimentation controls are provided in Section I of this Appendix. Note that stormwater management is an important part of erosion and sedimentation control. Accordingly, temporary stormwater management measures are outlined in Section II of this Appendix. Please refer to the below table for a complete list of BMP typicals and photos provided in this appendix.

Appendix A

Section I

Section 1
Erosion and Sedimentation Controls

1.1 Preservation of Existing Vegetation

Applications: Erosion and sedimentation control, habitat and aesthetic preservation, reduce landscaping and restoration costs

Limitations:

- Access needs on ROWs.
- Required distances between underground utilities and mature trees.

Overview:

Examine the area to identify vegetation (i.e., groundcovers, vines, shrubs, trees) that may be saved. Focus on preserving vegetation on steep slopes, near drainage ways, and/or drainage swales in order to help increase soil stability and decrease runoff volume and velocity. Use construction phasing to preserve vegetation in areas where activities are not scheduled to occur or will occur at a later time.

Identify and protect specified trees for erosion and sediment control benefits and/or aesthetic purposes. Consider saving trees that provide shading or screening benefits, particularly in residential areas.

Installation:

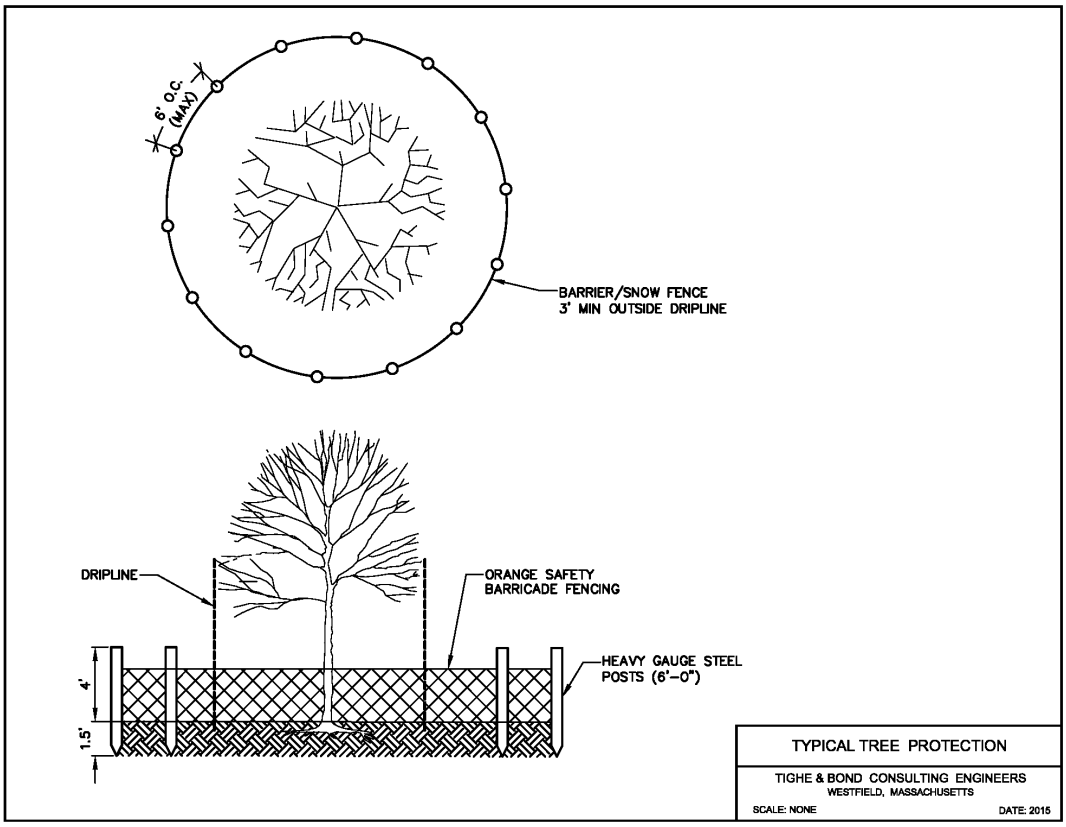
- Select healthy, relatively young trees (less than 40 years old) and vegetation that will not interfere with the installation or maintenance of utilities. Pay attention to the aesthetics of trees along roadways and preserve wherever practicable.
- Place barriers around trees least three feet from the drip line or five feet from the trunk (whichever is greater) using wooden and wire fencing made from scrap lumber or snow fencing. If fencing is not feasible, mark the selected trees with bright flagging.
- Construct the barrier (or place the flags) before heavy equipment arrives to the site and leave in place until the last piece of machinery is gone.
- Dig trenches as far from the trunks and outside of the canopy drip line as practicable. If large roots are encountered, consider trenching under them.
- The width of the ROW will vary depending on the corridor's designated use. Federal guidelines suggest that 15 feet on either side of a buried pipeline should remain clear of mature trees.

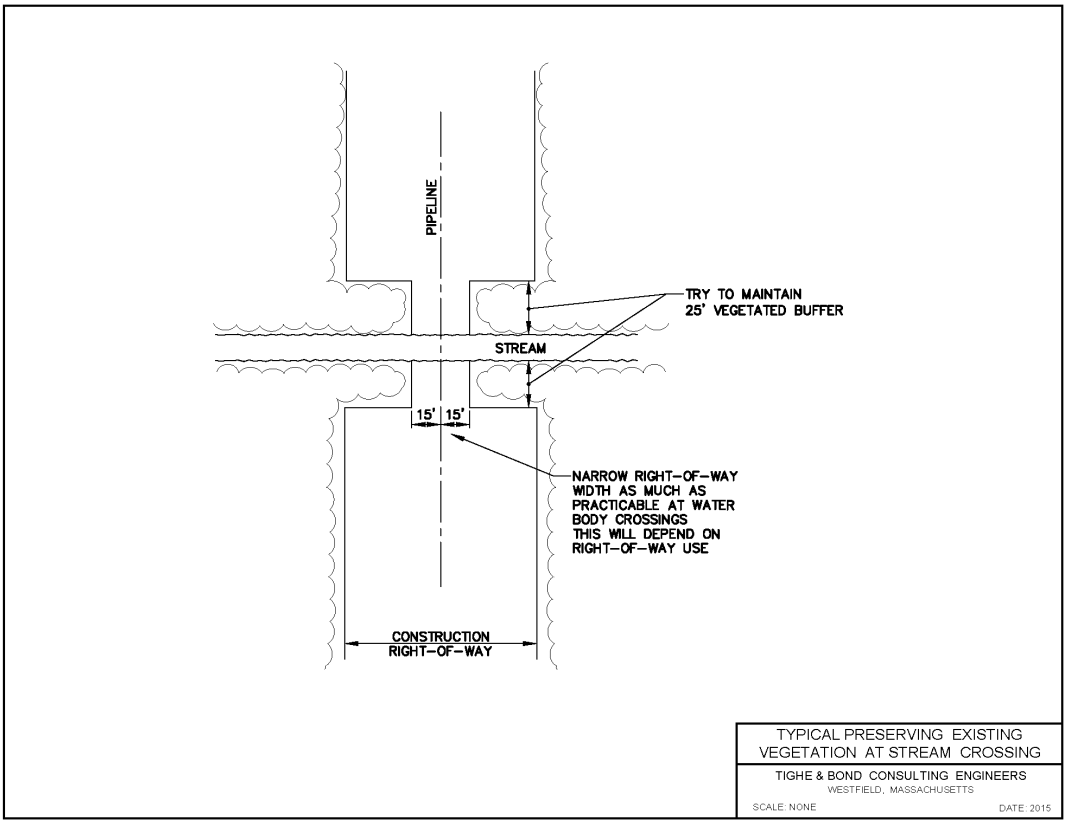
Maintenance:

- Inspect flagged and/or barricaded areas throughout construction. Replace flagging and repair/replace barriers as needed.
- Inspect exposed tree roots. Re-cover or re-seal roots that have been exposed and/or injured by construction activity.

Additional Comments:

When approaching a stream crossing, limit the amount of clearing of the existing stream bank and riparian vegetation to only the areas essential for construction and maintenance. Maintain a 25-foot wide vegetated buffer between the stream bank and the cleared ROW, except in locations where the line is directly installed.




PIPELINE
TRY TO MAINTAIN
25' VEGETATED BUFFER
STREAM
15'
15'
NARROW RIGHT-OF-WAY
WIDTH AS MUCH AS
PRACTICABLE AT WATER
BODY CROSSINGS
THIS WILL DEPEND ON
RIGHT-OF-WAY USE
CONSTRUCTION
RIGHT-OF-WAY
TYPICAL PRESERVING EXISTING
VEGETATION AT STREAM CROSSING
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2015

1.2 Topsoil Segregation for Work in Wetlands and Agricultural Areas

Applications: During excavation in wetlands and agricultural areas

Limitations:

- May be site-specific limitations; otherwise none.

Overview:

The top 12 inches of soil are the most important for providing nutrients and a suitable growth medium to the existing vegetative cover in an area, as well as containing the root stock and seed bank of the plant community. Topsoil segregation is recommended for the first 12 inches of soil in all wetlands and agricultural land, but is also a good practice in any area, including uplands in order to provide a suitable growth medium and more rapid revegetation and restoration of the original plant species.

When digging a trench for installation or maintenance of a pipeline or conduit, or excavating for the installation or replacement of the base of a utility pole, it is good practice to segregate the first 12 inches of topsoil and stockpile it separately from the subsoil until the layers can replaced into the excavation in the proper order. In some cases, it may be necessary to strip topsoil off the areas where the subsoil will be stockpiled as well. Additional topsoil can also be brought into an upland or residential area if necessary where the existing soil is too shallow to provide adequate rooting depth, moisture and nutrients, or too much topsoil was lost during construction.

Installation:

- Set up proper erosion control (i.e., hay bales, silt fence) around the work area before beginning any excavation near wetland areas.
- Identify the stockpile locations near the trench or excavation.
- Locate stockpiles from active work areas to the extent practicable.
- Remove the top 12 inches of topsoil from the trench or excavation. If less than 12 inches are available, remove the entire layer of soil.
- Place the topsoil in a separate stockpile than the layers of excavated subsoil.
- Place additional lines of erosion control around the stockpiles to control sedimentation, if necessary.
- Side slopes of soil stockpiles should not exceed 2:1.
- Stabilize stockpiles with temporary seeding or plastic covering if they will remain exposed for more than 21 days.
- Backfill the trench with the proper soil layers, subsoil followed by topsoil, when work activities are completed. Backfilling should take place immediately after activities are completed, and grading and site stabilization should take place within 10 days following backfilling.

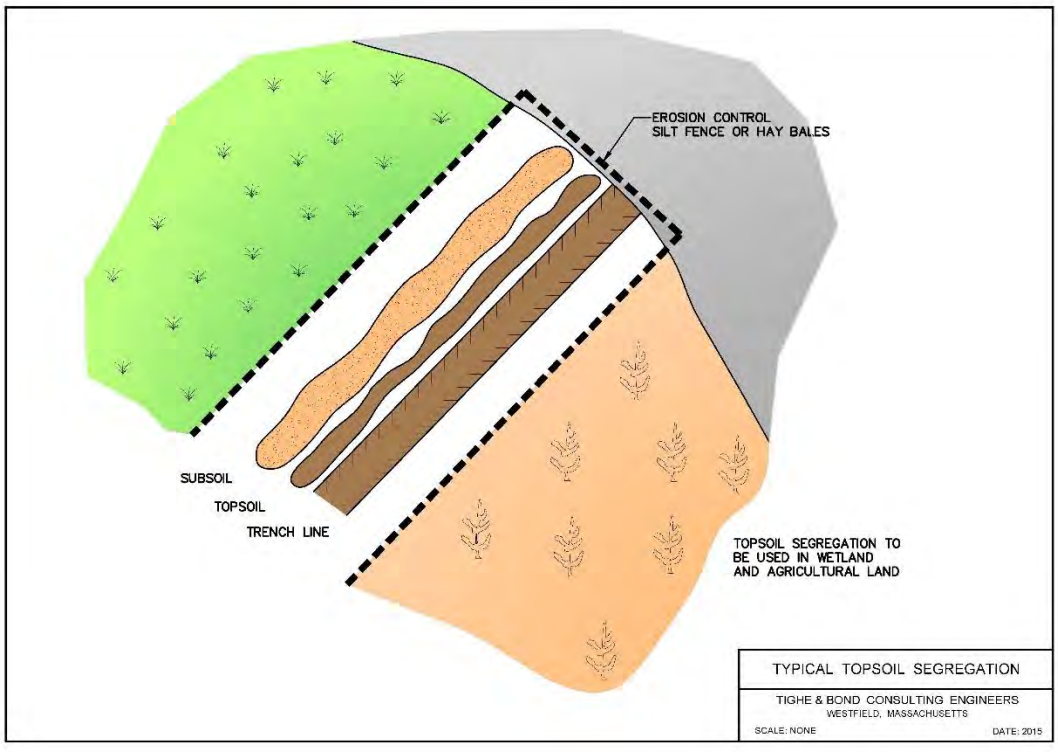
Maintenance:

- Inspect and maintain erosion control on a regular basis and observe the stockpiles for any signs of sedimentation or mixing.
- In residential and agricultural areas, make a reasonable effort to remove all rocks larger than 4 inches in diameter from the topsoil that have been turned up during construction.

Additional Comments:

If the topsoil and subsoil stockpiles are mixing:

- The piles are located too close together. Try placing the separate stockpiles on opposite sides of the trench or work area.
- The topsoil stockpile could also be individually enclosed in hay bales or silt fence. This will help create a barrier, keeping it separate from the subsoil.
- Avoid working with large amounts of trench or excavation open when heavy rains are predicted.
- If polluted/contaminated soil is encountered, handle in accordance with appropriate regulatory requirements. Stockpile contaminated soil on and cover with polyethylene sheeting. Weigh down sheeting covering contaminated soil to prevent the wind migration of contaminated dust.



1.3 Straw (or Hay) Bales

Applications: Erosion and sedimentation control, mulch

Limitations:

- Hay bales degrade quickly.
- Hay bale height can provide an obstacle to movement of smaller wildlife.
- Should not be used as a temporary check dam/ stormwater control within waterways.
- Difficult to install during frozen conditions.
- Generally only effective for 3-6 months (hay) or 6-12 months (straw) before replacement.

Overview:

Hay/straw bales should be placed end-to-end to form a temporary sedimentation control barrier. This barrier should run perpendicular to the slope and direction of runoff, and should be installed downgradient of the disturbed site (i.e., construction area). Hay/straw bales are intended to slow flow velocity and trap sediments to prevent siltation in sensitive areas, specifically downgradient areas with open and/or flowing water. Barriers should be removed once the project is complete and soils are stabilized with erosion control blankets and/or well-established vegetation.

Installation:

- Install hay/straw bales end-to-end lengthwise along the toe of a slope or along a slope contour being sure the bales are butted tightly against each other without gaps between them. The outer ends of the barrier should be turned slightly upslope.
- Entrench to a minimum depth of 4 inches and backfill around the base of the bale. If additional protection is needed, backfill both upslope and downslope to create better ground contact and reduce sediment passage through or beneath hay/straw bales.
- Stake each hay/straw bale into the ground by two stakes each approximately 3 feet long
- If a silt fence is being used with the hay/straw bale barrier, position the silt fence downgradient of the hay/straw bales (hay bales filter first).
- Since hay/straw bales degrade quickly, check barriers often and replace as needed. Routinely remove and dispose of sediment buildup in a stable upland area.
- The hay/straw bale barrier should be as far away from downgradient sensitive areas, and as close to the work areas as construction limitations allow, in order to minimize the total work area and disturb as little area as possible.
- Once the project is complete and soils are stabilized, hay/straw bales should generally be compacted and allowed to decay in place, as their height can provide an obstacle to movement of smaller wildlife. Spreading hay bales around a site as mulch could introduce weed seeds. Using hay/straw as mulch is not generally

problematic if the site is already colonized by invasive species. Plastic bailing twine should be removed from hay/straw bales. Wooden stakes should also be removed.

Maintenance:

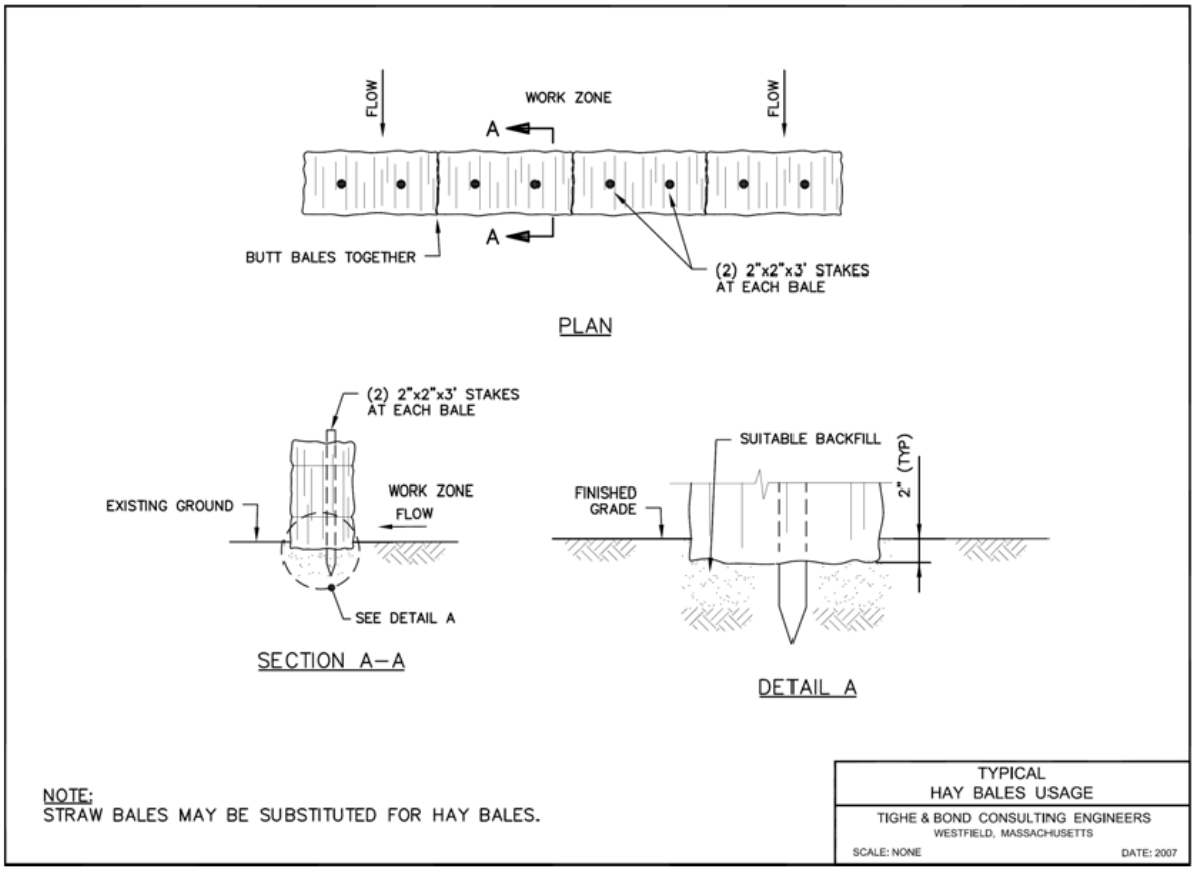
- Inspect before a forecasted storm event and daily during a prolonged rain event.
- Remove accumulated sediment and properly disposed outside sensitive areas when it has reached a thickness of ½ to ⅔ the height of the bale.
- Replace rotted or sediment-covered bales when necessary.

Additional Comments:

Straw bales are favored over hay bales for use as erosion control barriers. Since straw bales are composed of the dried stalks left over after a grain is harvested, they do not contain the plant's seeds and therefore will not spread growth of such species, some of which may be exotic, invasive or otherwise undesirable. Hay bales are generally less expensive, but consist of the seed heads and the upper, thinner portion of the stems which generally decay faster than straw.

Properly installed hay bale barrier with silt fence.

Properly installed hay bale barrier with silt fence.



1.4 Silt Fence

Applications: Sedimentation control, work limits, temporary animal barrier, slows flow on steep slopes

Limitations:

- Frozen or rocky ground (for installing stakes).
- May prevent critical movements of sensitive wildlife species.
- Disposal.

Overview:

Silt fence is constructed of a permeable geotextile fabric secured by wooden stakes driven into the ground. It is installed as a temporary barrier to prevent sediments from flowing into an unprotected and/or sensitive area from a disturbed site. A silt fence should be installed downgradient of the work area. Once the project is complete and soils are stabilized, silt fence materials (i.e., geotextile fabric and wooden stakes) must be removed and properly disposed off-site (see environmental scientist to determine if area is stabilized).

Installation:

- Install silt fence along the toe of a slope or along a fairly level contour with the outermost ends directed upslope. The fabric should be laid into a 6-inch wide by 6-inch deep trench dug on the upslope side of the fence and tamped down with fill material to ensure a sturdy base and so sediments will not flow beneath the fabric. Use of a Ditch Witch® or similar equipment is suggested for this task.
- Drive the silt fence stakes into the ground until secure (≥6 inches below grade).
- If a hay bale or straw bale barrier is being used with the silt fence, position the silt fence downgradient of the bales.
- The silt fence should be as far away from downgradient sensitive areas, and as close to the work areas as construction limitations allow, in order to disturb as little area as possible.

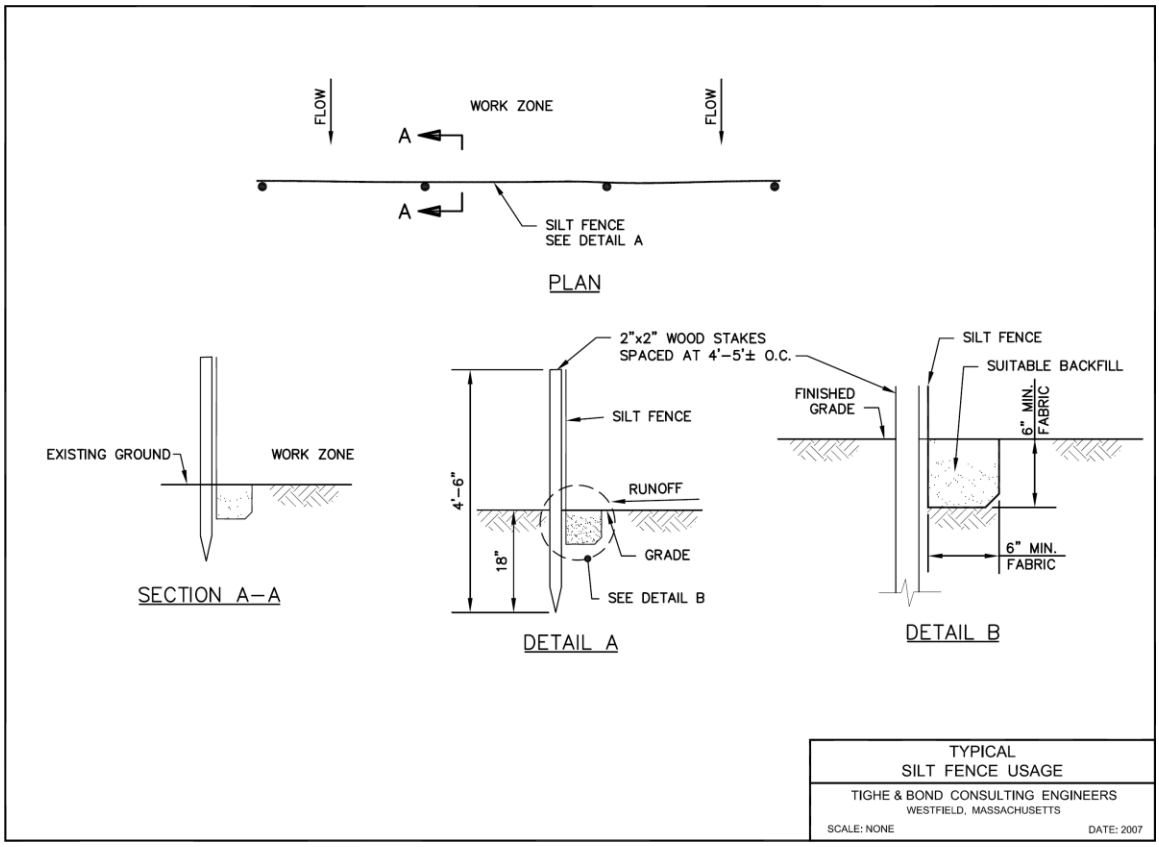
Maintenance:

- Inspect frequently and replace or repair as needed, especially during long-term projects.
- Routinely remove and properly dispose of sediment buildup in a stable upland area, outside of sensitive areas. Remove sediment when it has accumulated to a thickness of ½ the height of the silt fence.

Additional Comments:

A silt fence must be installed in an excavated trench and located where shallow pools can form so sediment can settle. The fence must be placed along the contour. If placed otherwise, water may concentrate to a low point and is likely to flow beneath the fence.

Properly installed and functioning silt fence. Direction of flow indicated by blue arrow.


FLOW
WORK ZONE
FLOW
A
A
SILT FENCE
SEE DETAIL A
PLAN
EXISTING GROUND
WORK ZONE
SECTION A–A
2"x2" WOOD STAKES
SPACED AT 4'–5'± O.C.
SILT FENCE
4'–6"
18"
RUNOFF
GRADE
SEE DETAIL B
DETAIL A
SILT FENCE
SUITABLE BACKFILL
FINISHED
GRADE
6" MIN.
FABRIC
6" MIN.
FABRIC
DETAIL B
TYPICAL
SILT FENCE USAGE
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2007

1.5 Syncopated Silt Fence

Applications: Sedimentation control, work limits, slow flows on steep slopes, and permit wildlife movement.

Limitations:

- Frozen or rocky ground (for installing stakes).
- Complex installation compared to standard silt fence.
- Disposal.

Overview:

Syncopated silt fence refers to silt fence that is installed in a specific layout that permits wildlife movement. Many construction projects continue over at least one wildlife activity season, and silt fence may impede the movement of animals. Syncopated silt fencing is to be installed in areas where silt fencing may impede wildlife access to a resource (i.e., vernal pool, wooded area). These areas will be identified when developing wetland protection measures.

Installation:

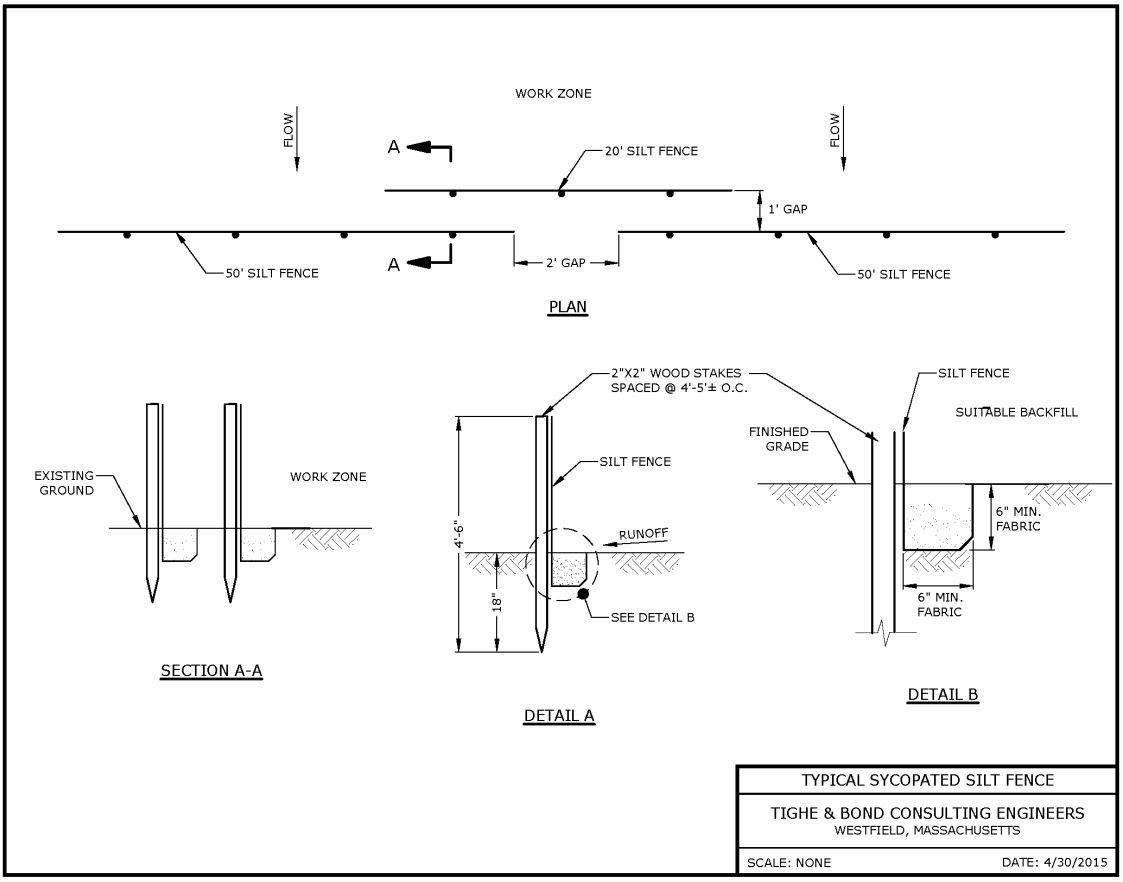
- The syncopated silt fence layout is shown on the typical below. For every 50 feet of siltation fence installed, allow for a gap of two feet before installing the next section. The gap allows wildlife movement One foot behind the main silt fence line, install a second row of silt fence approximately 20 feet in length and centered at the gap.
- Install silt fence along the toe of a slope or along a fairly level contour with the outermost ends directed upslope. The fabric should be laid into a 6-inch wide by 6-inch deep trench dug on the upslope side of the fence and tamped down with fill material to ensure a sturdy base and so sediments will not flow beneath the fabric. Use of a Ditch Witch® or similar equipment is suggested for this task.
- Drive the silt fence stakes into the ground until secure (≥6 inches below grade).
- If a hay bale or straw bale barrier is being used with the silt fence, position the silt fence downgradient of the bales.
- The silt fence should be as far away from downgradient sensitive areas, and as close to the work areas as construction limitations allow, in order to disturb as little area as possible.

Maintenance:

- Inspect frequently and replace or repair as needed, especially during long-term projects.
- Routinely remove and properly dispose of sediment buildup in a stable upland area, outside of sensitive areas. Remove sediment when it has accumulated to a thickness of ½ the height of the silt fence.

Additional Comments:

A silt fence must be installed in an excavated trench and located where shallow pools can form so sediment can settle. The fence must be placed along the contour. If placed otherwise, water may concentrate to a low point and is likely to flow beneath the fence.



1.6 Erosion Control Blankets

Applications: Slope stabilization, erosion and sedimentation control

Limitations:

- Can be used on steep (i.e. greater than 45°) slopes but not on rocky soils.
- Mulches may be more cost effective on flatter areas.

Overview:

Erosion control blankets are generally composed of biodegradable or synthetic materials and are used as a temporary or permanent aid in the stabilization of disturbed soil on slopes. These blankets are used to prevent erosion, stabilize soils, and protect seeds from foragers while vegetation is recolonized.

Installation:

- Always follow manufacturer's instructions for properly installing erosion control blankets. Different composition blankets are recommended for site-specific conditions (slope grades, contributing watershed areas) and use requirements (biodegradable, photodegradable, non-biodegradable).
- Prior to installation, clear the slope of any rocks, branches, or other debris.
- Rolled out blankets in a downward direction starting at the highest point of installation. Secure blankets above the crest of the slope using a berm tamped down along the top of the disturbed area.
- Tack down blankets with stakes or staples every 11 to 12 inches (or closer) horizontally and every 3 feet (or closer) vertically. Biodegradable staples are preferred.
- Overlap each blanket section horizontally with the next section by approximately 2 or 3 inches. Vertical overlaps should be approximately 6 inches, with the upslope section overlaying that of the down-slope section.

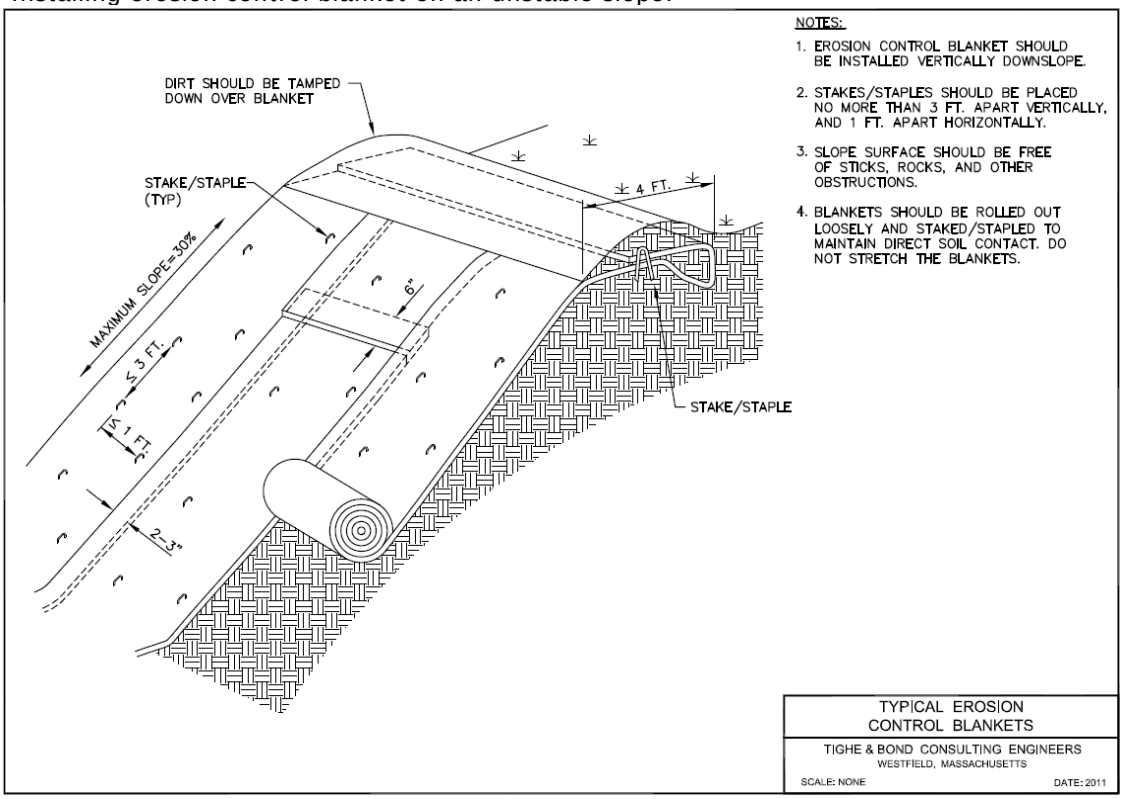
Maintenance:

- Inspect for movement of topsoil or erosion weekly and after major precipitation events. Inspect until vegetation is firmly established.
- Repair surface, reseed, replace topsoil, and install new netting if washout, breakage, or erosion occurs.

Additional Comments:

Additional materials used for erosion control with a continuous sheet or material include Jute Mats (sheets of woven jute fiber) and Turf Reinforcement Matting (geotextile matrix most effective for channels).

Installing erosion control blanket on an unstable slope.



1.7 Straw/Compost Wattles

Applications: Erosion and sedimentation control, work limits

Limitations:

- Not recommended for steep slopes.

Overview:

Straw wattles are used as an erosion control device to slow runoff velocities, entrain suspended sediments, and promote vegetation growth until an area is stabilized. They are not generally intended for steep slopes, but rather, to stabilize low to moderate grades where there is a broad area of disturbance. Straw wattles may also be used along small stream banks to protect areas before vegetation has stabilized the soils. The wattles are constructed from a biodegradable netting sock stuffed with straw and may be left to biodegrade in place once a project is complete.

Wattles should be placed lengthwise, perpendicular to the direction of runoff. The wattles are typically spaced about 10 to 40 feet apart, depending on the slope angle. Additionally, the soil texture should be considered – for soft, loamy soils, wattles should be placed closer together; for coarse, rocky soils, they may be placed further apart.

Installation:

- Install prior to disturbing soil in the upgradient drainage area.
- Install so that the ends of each row of wattles on a slope are slightly turned downhill to prevent ponding behind them.
- Where straw wattles are installed end-to-end, butt the wattles tightly together so as not to allow water/sediments to flow between them.
- Place straw wattles in a shallow trench to assure stabilization and soil should be packed against the wattle on the uphill side.
- Securely stake straw wattles to the ground by driving a stake directly through the wattle approximately every four feet. A portion of each stake should remain approximately 2 to 3 inches above the wattle.
- Use *without* silt fence reinforcement: at the base of shallow slopes, on frozen ground, bedrock, and rooted, forested areas.
- Use *with* silt fence reinforcement: at low points of concentrated runoff, below culvert outlets, at the base of slopes more than 50 feet long, and in places where standalone mulch wattles have failed.

Maintenance:

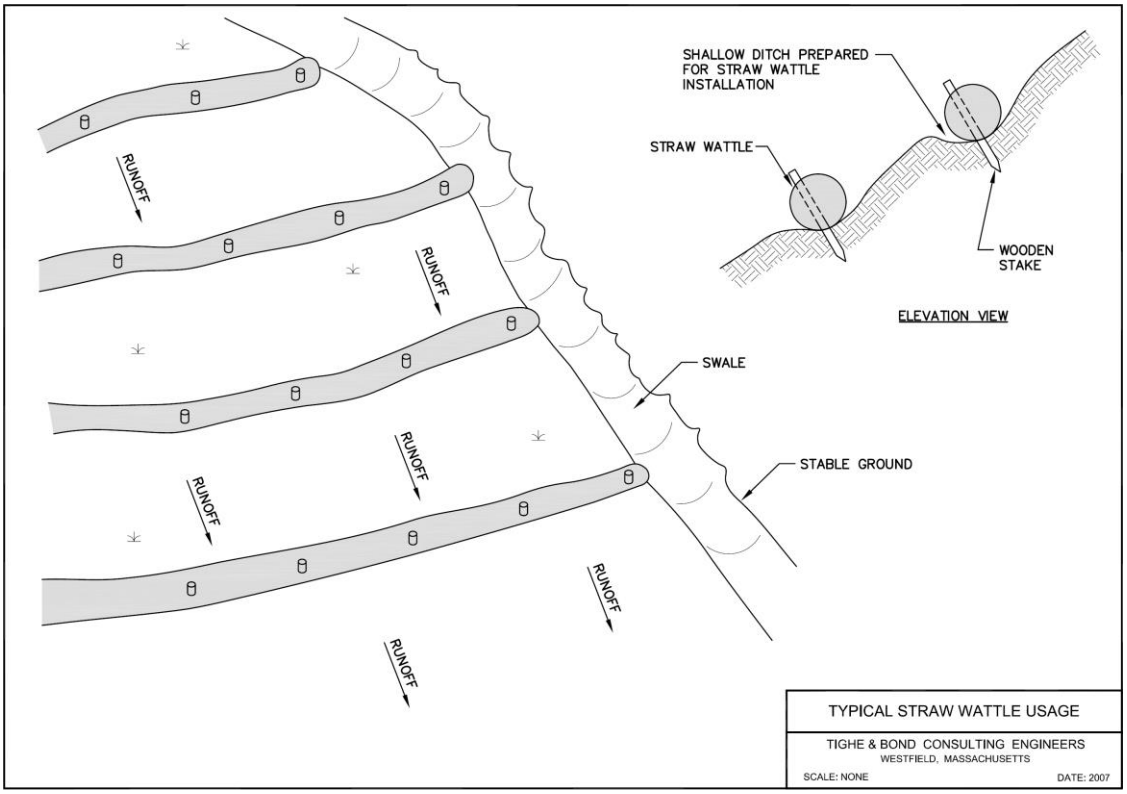
- Routinely inspect wattles and after rain events. Repair as needed with additional wattles and/or stakes.
- Remove sediment deposits when they reach half the height of the wattle. Repair or reshapes wattles when they have eroded or have become sediment clogged or ineffective.

- If flow is evident around the edges, extend the barriers or evaluate replacing them with temporary check dams.

- Reinforce the berm with an additional sediment control measure, such as silt fence or a temporary rock check dam, if there is erosion or undercutting at the base or sides of the berm or if large volumes of water are being impounded behind the berm.

Additional Comments:

Woody vegetation and tall grasses may need to be removed before installing the berm to prevent voids that allow sediment under the berm. Wattles can also be planted with woody vegetation and seeded with legumes for additional stability.


SHALLOW DITCH PREPARED FOR STRAW WATTLE INSTALLATION
STRAW WATTLE
WOODEN STAKE
ELEVATION VIEW
RUNOFF
SWALE
STABLE GROUND
TYPICAL STRAW WATTLE USAGE
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2007

1.8 Wood Chip Bags

Applications: Erosion and sedimentation control, mulch

Limitations:

- Frozen or rocky ground (for installing stakes).
- Can pose a barrier to small animal movements.
- Requires close attention for maintenance and repair.

Overview:

Wood chip bags are perimeter barriers that intercept, filter, and reduce the velocity of stormwater run-off. They may be used separately or in conjunction with hay/straw bales and are installed and maintained in a similar manner. Wood chip bags should be staked in a line around perimeters of disturbed areas, especially those adjacent to wetlands, waterways, roadways or at the base of slopes.

Installation:

- Install wood chip bags end-to-end lengthwise in a single row along the toe of a slope or along a slope contour. Ensure that the bags are butted tightly against each other without gaps between them.
- Entrench to a minimum depth of 4 inches and backfill around the base of the bag.
- Stake each hay/straw bale into the ground using two stakes each that are approximately 3 feet long.

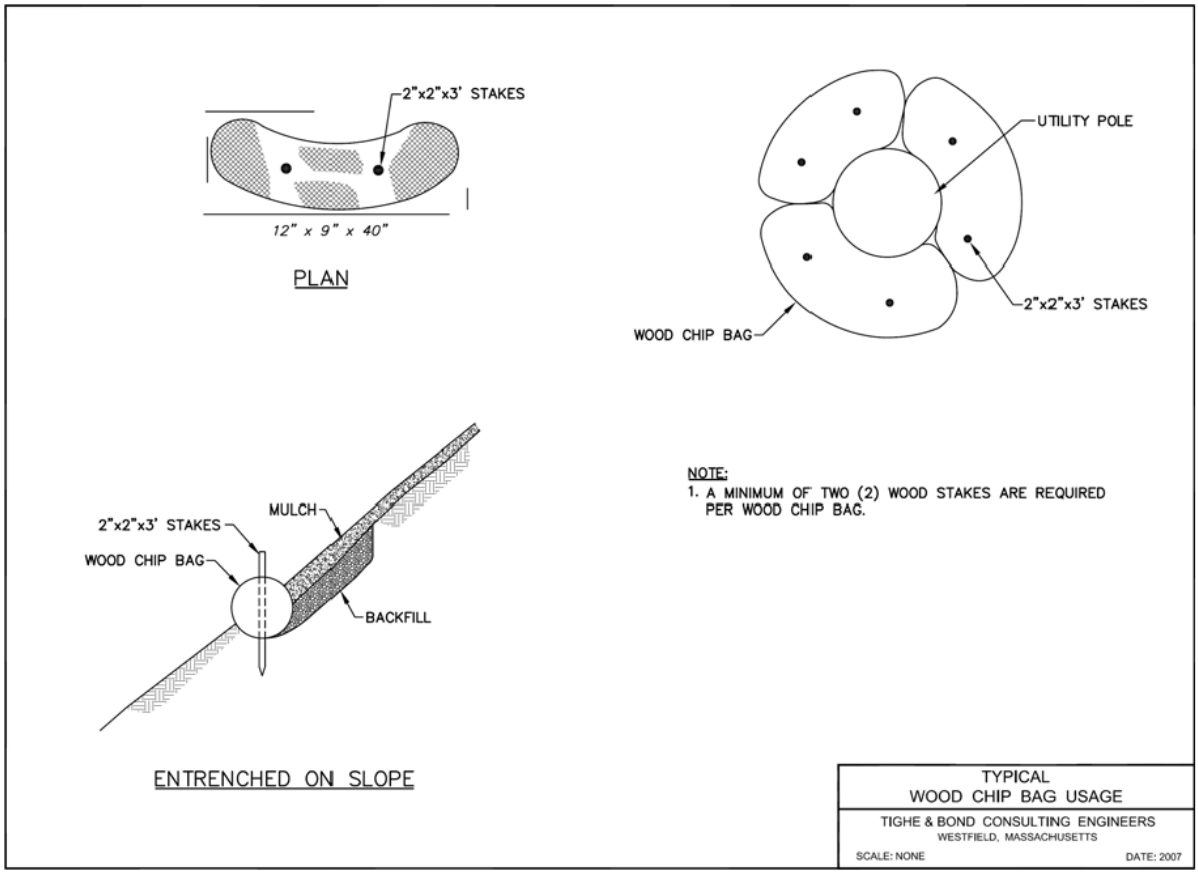
Maintenance:

- Inspect before a forecasted storm event and daily during a prolonged rain event.
- Remove accumulated sediment and properly disposed outside sensitive areas when it has reached a thickness of ½ to ⅔ the height of the bag.
- Replace rotted or sediment-covered bag when necessary.

Additional Comments:

Wood chip bags can stabilize soils in a number of applications. They may be left in place as they eventually photo-degrade, as long as they do not pose a barrier to small animal movements.

Wood chips in photo-degradable bags used to stabilize soils.



1.9 Catch Basin Protection

Applications: Erosion and sedimentation control

Limitations:

- For small quantity and low velocity stormwater flows.
- Hay/straw bales hard to stake into paved areas.
- Ineffective for very silty water.
- May require authorization from local government for discharge to municipal system.
- Fabric drop inlet should be used where stormwater runoff velocities are low and where the inlet drains a small, nearly level area.
- Undercutting and erosion under filter fabric if fabric is not buried at bottom.

1.9.1 Hay/Straw Bales, Filter Fabric, and Filter Baskets

Overview:

Hay bales, filter fabric, and filter baskets are all temporary devices placed around and within existing catch basin inlets to protect the stormwater management system from high sediment loads and high velocities during construction. Use in areas where stormwater runoff is relatively small and velocities are low and where shallow sheets of run-off are expected.

Hay/Straw Bales Installation: Hay/straw bales are recommended for areas which have the storage space to allow temporary ponding since they are one of the least permeable protection methods.

- Installation is similar to perimeter hay/straw bale barriers.
- Use bales that are wire bound or string tied. Place bales so that the bindings are on the sides of the bales rather than against the ground.
- Install hay/straw bales in a box configuration around the drop inlet with the ends of the bales placed tightly against each other.
- If the area is unpaved, anchor bales using two stakes driven through the bale and into the ground.
- Hay bales can be placed around the perimeter of the inlet in order to extend the life of the filter fabric and/or basket by removing much of the sediment before-hand.

Filter Fabric Installation: Filter fabric is used to protect catch basins from excessive sediment.

- Cut fabric from a single roll.
- Place fabric beneath catch basin grate.
- Avoid setting top of fabric too high, which will lead to flow bypassing the inlet.

Filter Baskets/Bags Installation: Install filter baskets/bags within catch basins in combination with hay bales, fabric, stone or sod drop inlets. They may be used alone where drainage area is small with shallow flows.

- Install per manufacturer's instructions.
- Filter baskets typically consist of a porous fabric bag which is fitted under the catch basin grate.
- Sediments are filtered out of the stormwater and accumulate in the basket or bag.

Maintenance:

- Inspect weekly and after each major rain event.
- Remove accumulated sediment on a regular basis.
- Replace or make repairs as needed.
- Remove after area is permanently stabilized.

Additional Comments:

Discharge of clean water into municipal system catch basins may be an option for certain sites. However, this activity must be coordinated with the municipality and shall not occur without their written consent.

1.9.2 Sod or Stone Mound Drop Inlets

Overview:

Sod or stone mound drop inlets are temporary devices placed around and within existing catch basin inlets to protect the stormwater management system from high sediment loads and high velocities. They are used in areas where stormwater run-off is relatively heavy and overflow capacity is necessary. Sod should only be used in well vegetated areas and when the general area around the inlet is planned for vegetation and is well suited for lawns. Stone mounds are well suited for the heaviest flows.

Installation:

- For Sod: Place a mound of permanently vegetated sod around the perimeter of the inlet to a minimum height of 6 inches.
- For Stone: Stone can be used alone or in combination with stacked concrete blocks. Gravel alone will slow drainage time and increase settlement.
- Place wire mesh with ½" openings over the inlet with 1 foot extending on each side. Overlay with filter fabric.
- Surround inlet with mound of gravel, 1" diameter or smaller, to a minimum height of 6", placed over the mesh.
- If blocks are used, stack them around the inlet, between 12 and 24" high, place mesh over the openings and pile the gravel against the outside face of the blocks.

Maintenance:

- Inspect weekly and after each major rain event.
- Remove accumulated sediment when it reaches ½ of the height of the filter mound. Stone especially must be regularly maintained.

- Repair erosion as necessary.
- If the storm flow bypasses inlet and causes erosion, the top of the structure is too high.
- If the trap is not efficient and/or there is sediment overload, the drainage area is too large to handle load. Consider constructing a temporary sediment trap.
- If scour holes develop (if blocks are being used), blocks are not placed snugly against the inlet grate.

Filter Baskets/Silt Bags

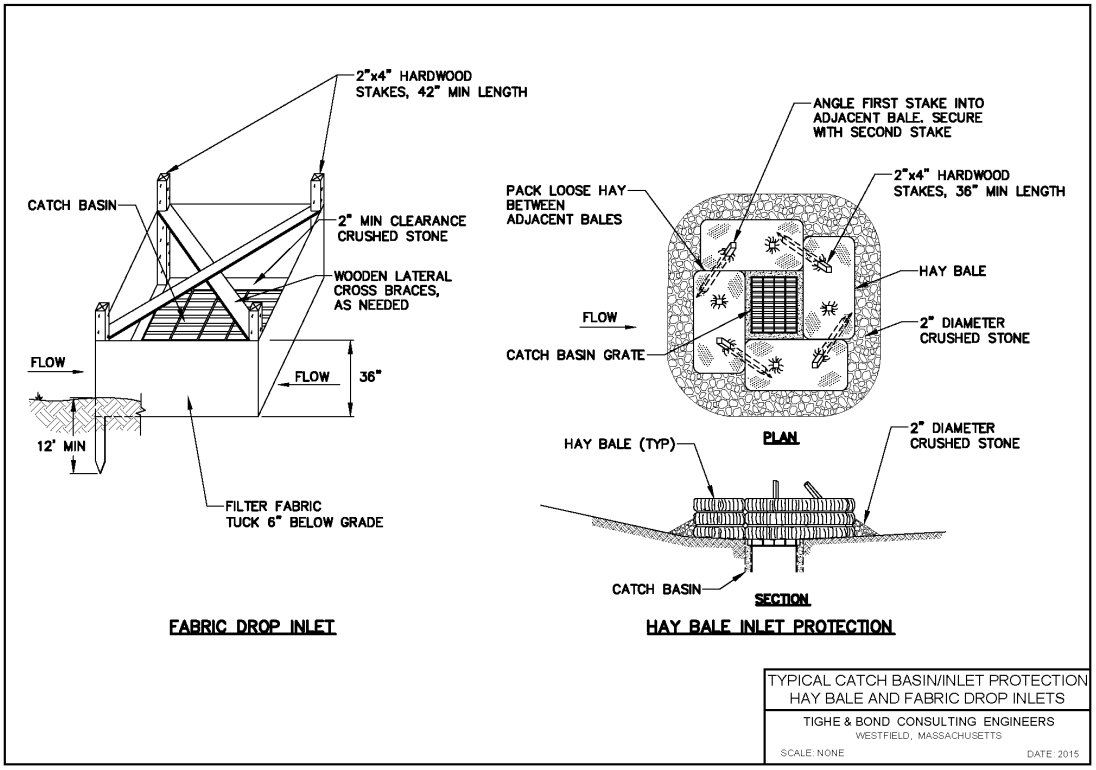
Filter baskets/silt bags are installed within catch basins in combination with hay bales, fabric, stone or sod drop inlets. They can potentially be used alone where drainage area is small with shallow flows. They may cause ponding or may rip under heavier flows without the additional external filtering method.

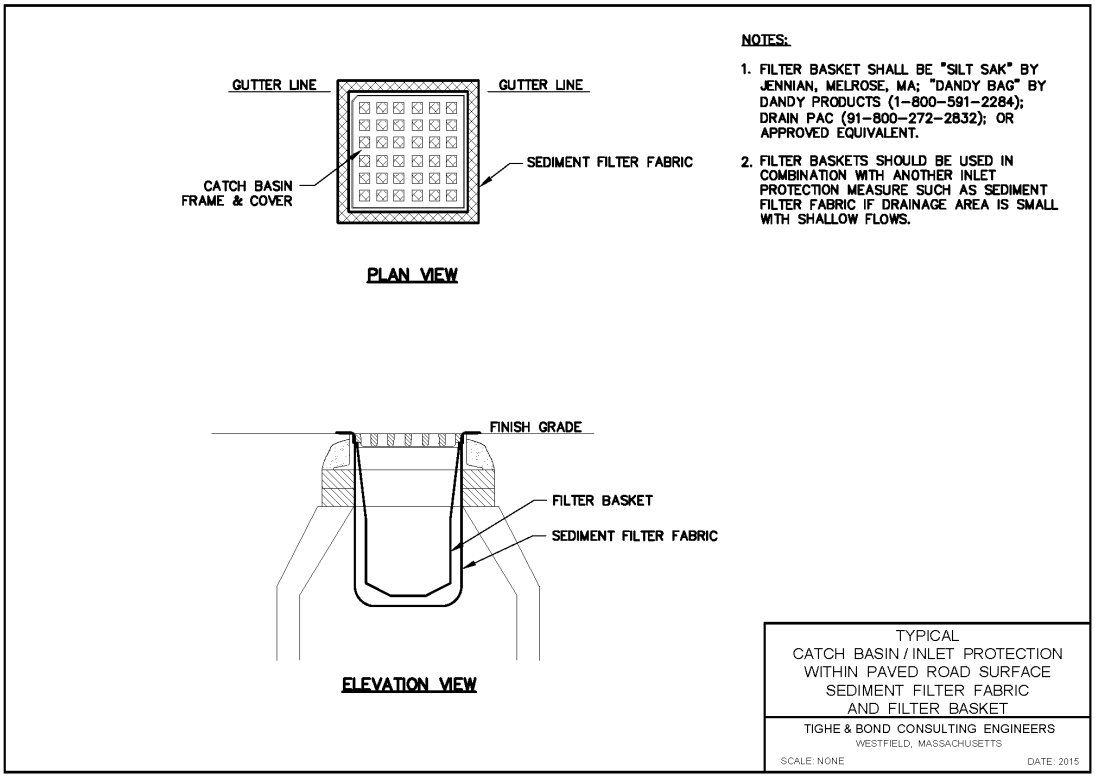
Installation:

- Several trademarked/name brand filter/silt bags exist and should be installed per the manufacturer's instructions. Almost all consist of a porous fabric bag which is fitted under the catch basin grate. Sediments are filtered out of the stormwater and accumulate in the bag.

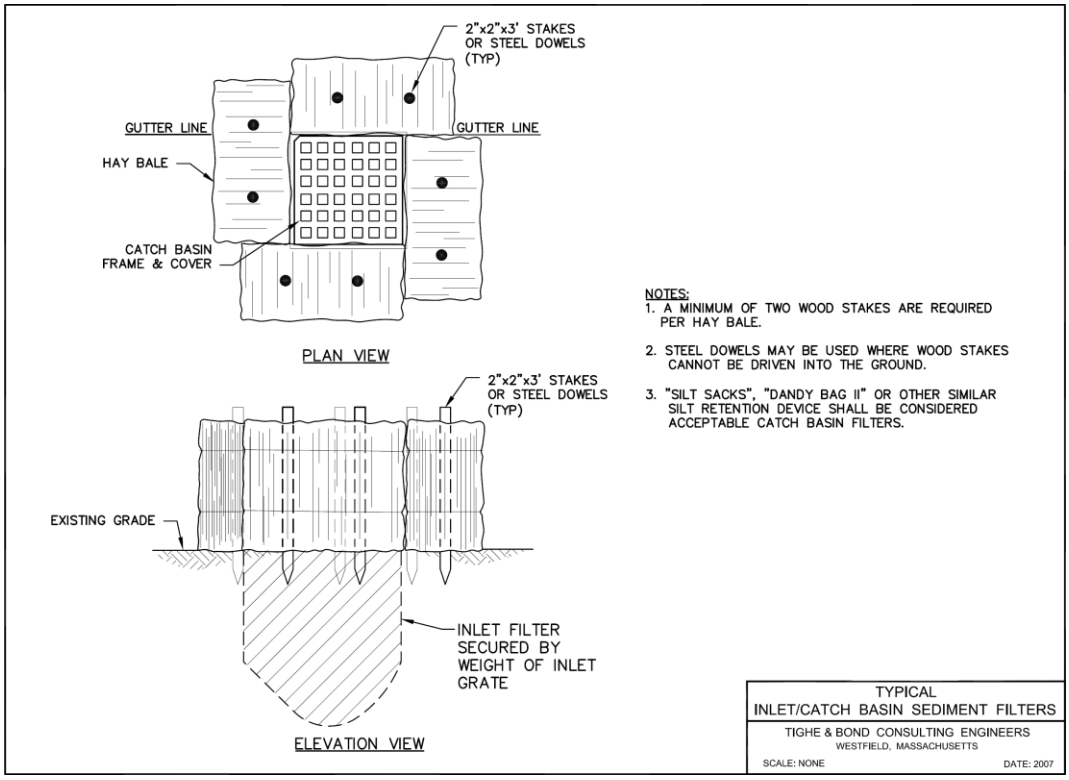
Maintenance:

- Inspect inlet and fabric weekly and after each major rain event.
- Remove sediment when the bag is halfway full.
- Replace bags as necessary due to wear or ripping.





Catchbasin protected from sedimentation by filter fabric.


2"x2"x3' STAKES
OR STEEL DOWELS
(TYP)
GUTTER LINE
GUTTER LINE
HAY BALE
CATCH BASIN
FRAME & COVER
PLAN VIEW
2"x2"x3' STAKES
OR STEEL DOWELS
(TYP)
EXISTING GRADE
INLET FILTER
SECURED BY
WEIGHT OF INLET
GRATE
ELEVATION VIEW
NOTES:
1. A MINIMUM OF TWO WOOD STAKES ARE REQUIRED PER HAY BALE.
2. STEEL DOWELS MAY BE USED WHERE WOOD STAKES CANNOT BE DRIVEN INTO THE GROUND.
3. "SILT SACKS", "DANDY BAG II" OR OTHER SIMILAR SILT RETENTION DEVICE SHALL BE CONSIDERED ACCEPTABLE CATCH BASIN FILTERS.
TYPICAL
INLET/CATCH BASIN SEDIMENT FILTERS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2007

1.10 Loaming and Seeding

Applications: Erosion control, soil stabilization, site restoration

Limitations:

- May be site specific limitations (e.g. permit or State requirements).
- Applies to upland areas only.

Overview:

Permanent seeding is appropriate for vegetated swales, steep slopes, or filter strips. Temporary seeding is used if construction has ceased and if an area will be exposed.

Installation:

- Apply loam/ topsoil prior to spreading seed mix per manufacturer's recommendations. Apply water, fertilizer, and mulch to seedbed, as needed.
- Plant native species of grasses and legumes where practicable.

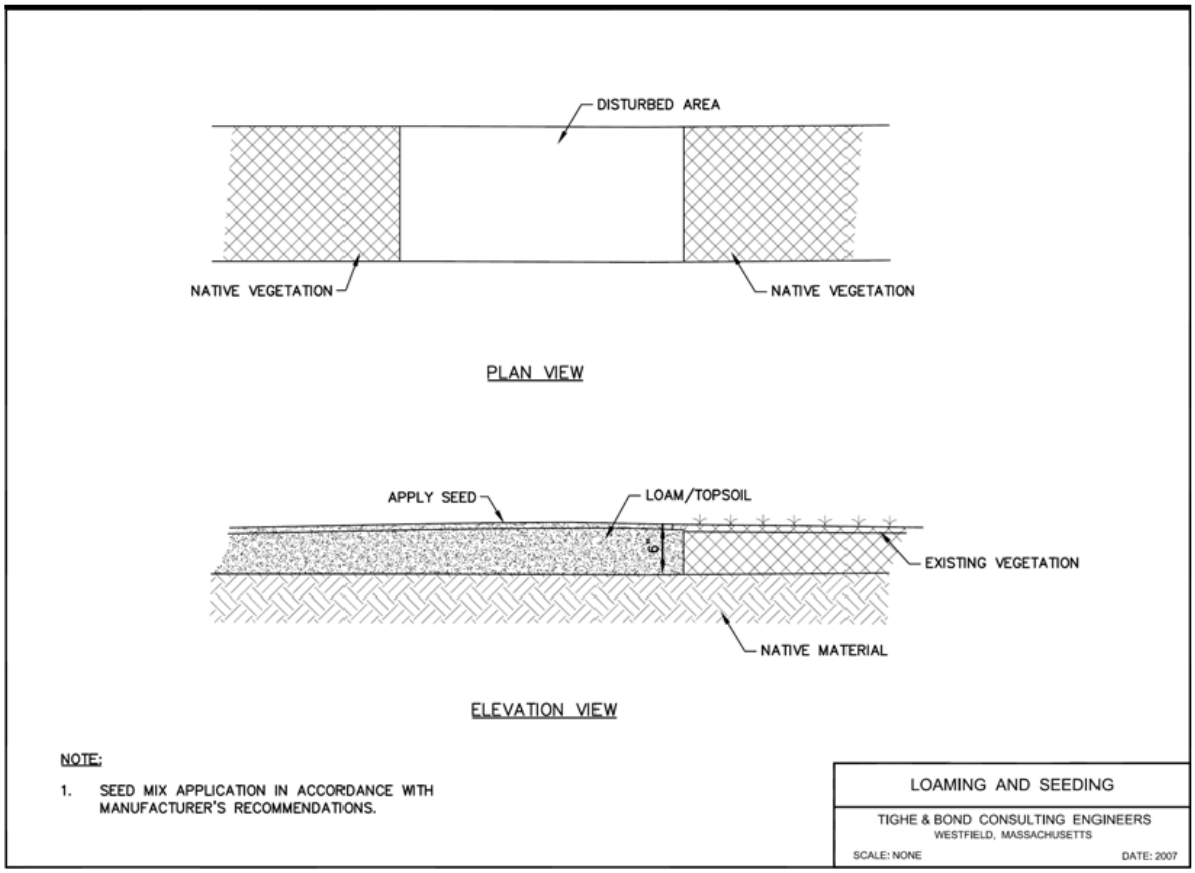
Maintenance:

- Inspect on regular basis until vegetation has established.
- If washout or erosion occurs, repair surface, re-seed, re-mulch and install new netting.
- Follow permit requirements regarding use of wetland seed mix in wetlands where required.

Additional Comments:

Cool Season Grasses	Warm Season Grasses
• Best growth in the cool weather of fall and spring, set seed in June and July. • Seed April 1-May 31 and Aug 1-Sept 10.	• Growth begins in the spring, accelerates in the summer, and plants set seed in the fall. • Seed April 1-May 15, dormant seeding Nov 1-Dec 15.

Loaming and seeding of recently disturbed right of way.



1.11 Mulching with Hay / Straw / Woodchips

Applications: Erosion control, soil stabilization, site restoration

Limitations:

- May be site specific limitations (e.g. permit or State requirements).
- Applies to upland areas only.
- Thick mulch may prevent seed germinations.
- Mulch on steep slopes must be secured with netting to prevent it from being washed away.

Overview:

Mulching consists of an application of a protective blanket of straw or other plant residue, gravel, or synthetic material to the soil surface to provide short term soil protection. It enhances plant establishment by conserving moisture and moderating soil temperatures, and anchors seed and topsoil in place. Mulch also reduces stormwater runoff velocity.

Application rates and technique depend on material used. Select mulch material based on soil type, site conditions and season. Straw/hay provides the densest cover if applied at the appropriate rate (at least ½ inch) and should be mechanically or chemically secured to the soil surface. Woodchip application can be less expensive if on-site materials are used.

Installation:

- Use in areas which have been temporarily or permanently seeded.
- Use mulch netting on slopes greater than 3% or in concentrated flows.
- Mulch prior to winter (ideally in mid-summer).

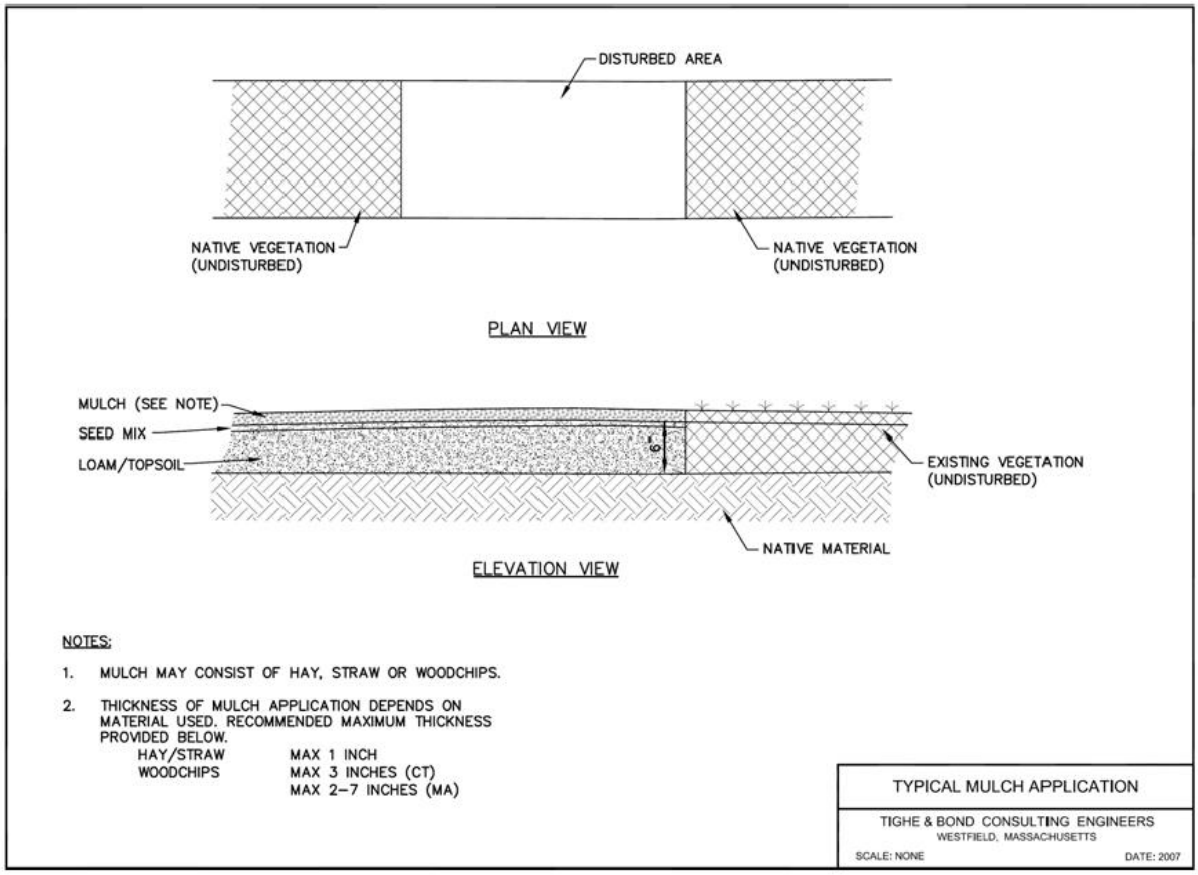
Maintenance:

- Inspect on regular basis until vegetation has established.
- If washout or erosion occurs, repair surface, re-seed, re-mulch, and install new netting.

Additional Comments:

Type	Description / Use
Straw/Hay	• Straw or hay applied to surface at 2-4 tons per acre • Mechanically or chemically secured to soil surface • Provides the densest cover to protect soil and seeds
Wood Fiber/Hydraulic Mulch	• Chopped up fibers applied to the soil surface with a hydroseeder • Tackifier when necessary can be applied with fiber, seeds and fertilizer in one step. This is best when done with fast growing seeds
Compost	• Compost acts as a soil amendment but is more expensive than most mulches • Its efficiency is comparable to wood fiber
Wood Chips	• Use of wood chips as a mulch saves money if on-site materials are used • Effective when applied at high levels (6 tons per acre) and on up to 35% slopes

Typical view of light mulching atop unstable, seeded soils.



1.12 Coir Log Use for Bank Stabilization

Applications: Bank stabilization, wetlands and watercourse restoration

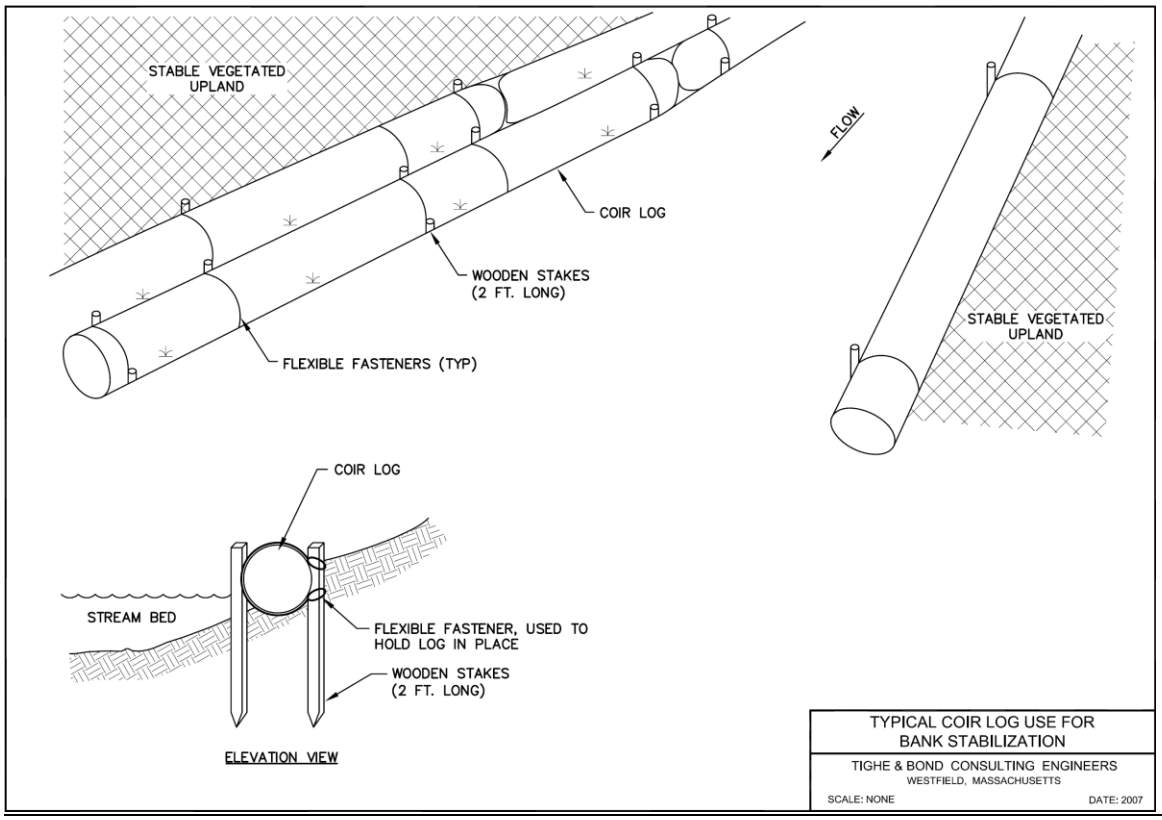
Limitations:

- Moderately expensive.

Overview:

- Refer to permit requirements (if applicable) and manufacturer's specifications.
- Install along banks between upland and watercourse using wooden stakes (2 foot long) and flexible fasteners (to hold log in place).

Coir logs used to restore a stream bed and banks.



1.13 Level Spreader

Applications: Erosion and sedimentation control

Limitations:

- Downgradient area must be adequately vegetated and have minimum width of 100 feet before surface water
- No vehicle traffic over level spreader

Overview:

Level spreaders, also called grade stabilization structures, are excavated depressions constructed at zero percent grade across a slope. They convert concentrated flow into sheet flow and discharges to stable areas without causing erosion.

Level spreaders are not applicable at all locations. Some general site requirements include:

- Drainage area of 5 acres or less
- Undisturbed soil (not fill)
- A level lip that can be installed without filling
- Area directly below is stabilized by existing vegetation
- At least 100 feet of vegetated area between the spreader and surface waters
- Slope of the area below the spreader lip is uniform and a 10% grade or less
- Water won't become concentrated below the spreader and can be released in sheet flow down a stabilized slope without causing erosion
- There will be no construction traffic over the spreader

Installation:

- Set the channel grade to be no steeper than 1% for the last 20 feet entering the level spreader.
- Install level spreader using the suggested dimensions: length—5 to 50 feet, width—at least 6 feet, and depth—approximately 6 inches (measured from the lip) and uniform.
- Stabilize the level spreader with an appropriate grass seed mixture and mulch, if necessary. Protect the level lip with an erosion stop and jute netting/excelsior matting. The downgradient area should have stable, complete, erosion resistant vegetative cover.

Maintenance:

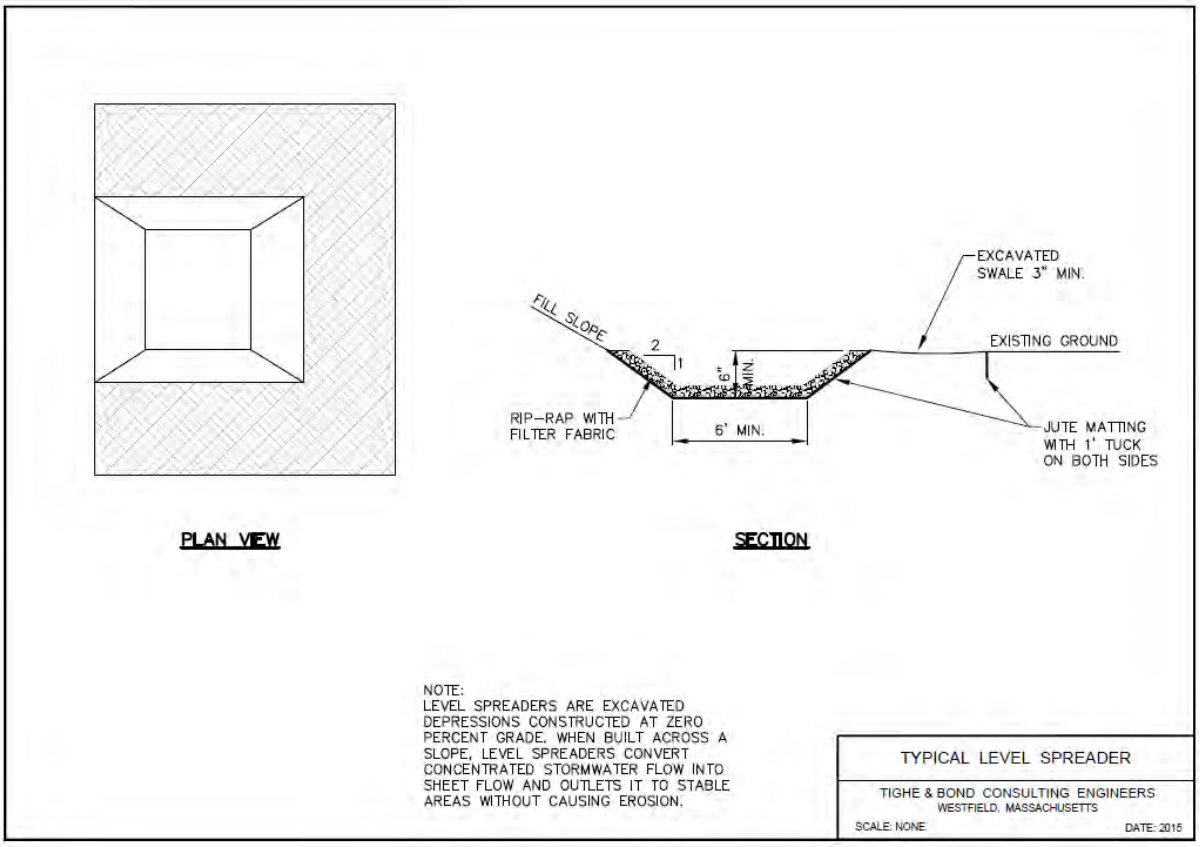
- Inspect after every rain event and remove accumulated sediment. Repair erosion damage and re-seed as necessary.

- Mow vegetation occasionally to control weeds and the encroachment of woody vegetation.

Additional Comments:

If channels form and erosion is evident in level spreader, the level spreader is not uniformly flat. Repair the low spots in the level spreader.

If erosion is occurring downgradient of the level spreader, the level spreader is not long enough or not wide enough. Alternatively, the vegetation is not stable. Re-seed the area.



1.14 Check Dams

Applications: Stormwater management, erosion control

Limitations:

- Need to be adequately sized based on expected rain events.

Overview:

Check dams are porous physical barriers placed across a drainageway to reduce the velocity of concentrated stormwater flows and erosion. Check dams also temporarily pond stormwater runoff to allow sediment in the water column to settle out. Permanent or long-term check dams are typically constructed of rip rap or other stone material. Short-term check dams can be constructed of rip rap. Rip rap check dams are preferred over hay bales.

Installation:

- Place stone by hand or machine, making side slopes no steeper than 1:1 and with a maximum height of 3 feet at the center of the check dam. A geotextile may be used under the stone to provide a stable foundation and/or to facilitate removal of the stone.
- The minimum height of the check dam shall be the flow depth of the drainageway, but shall not exceed 3 feet at the center.
- Install the check dam so that it spans the full width of the drainageway, plus 18 inches on each side. Leave the center of the check dam approximately 6 inches lower than the height of the outer edges.
- The maximum spacing between check dams should be such that the toe of the upstream check dam is at the same elevation as the top of the center of the downstream check dam.

Maintenance:

- For permanent stone check dams, inspect and maintain the check dam in accordance with the standards and specifications provided in the design for the site.
- For temporary check dams, inspect at least once per week and within 24 hours of the end of a precipitation event of 0.5 inches or more to determine maintenance needs.
- Maintenance may include, but are not limited to, the replacement of stone, repair of erosion around or under the structure, and/or the removal and proper disposal of accumulated sediment.

Problem	Solution / Explanation
Stone displaced from face of dam	Stone size too small and/or face too steep
Erosion downstream from dam	Install stone lined apron
Erosion of abutments during high flow	Rock abutment height too low
Sediment loss through dam	Inadequate layer of stone on inside face or stone too coarse to restrict flow through dam

Stone check dams at construction site.

Stone check dam at construction site.

1.15 Temporary and Permanent Diversions

Applications: Stormwater management, erosion control

Limitations:

- Need to be adequately sized based on expected rain events and the contributing drainage area.

Overview:

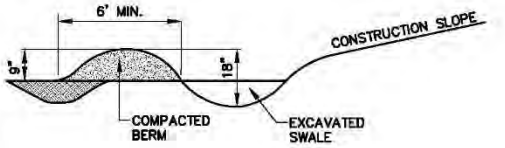
Temporary and permanent diversions are ridges or channels constructed across steep slopes that convey the runoff to a stable outlet at a non-erosive velocity. Use permanent diversions on slopes with high runoff velocities to break up concentrated flow. They can be installed as temporary diversion and completed as permanent when the site is stabilized or can be installed in the final form initially.

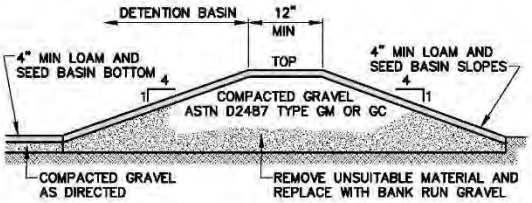
Installation:

- Remove woody vegetation and fill and compact the ditches and gullies that must be crossed before construction.
- Remove vegetation around the proposed location of the base of the diversion ridge to form a strong bond between the ground and fill material.
- Stabilize the outlet of the diversion channel using sediment traps, natural or constructed vegetated outlets, or level spreaders.
- Stabilize the diversion channel with riprap, vegetation, paving, or stone.
- Install a filter strip of close growing grass above the channel to prevent sediment accumulation.
- Seed and mulch diversions that are intended for use for more than 30 days.
- After the area has been permanently stabilized, remove the ridge and channel to blend with the natural ground level.

Maintenance:

- Inspect bi-weekly and repair any erosion problems.
- Remove accumulated sediment and debris.





DETENTION BERM

SLOPE %	DISTANCE APART
< 5	125
5–10	100
10–20	75
30–35	50
> 35	25

NOTE:
FILL FOR BERMS SHALL BE A COMBINATION OF GRAVEL, SAND AND SILT TO ENSURE WATER TIGHTNESS AND STABILITY.

TYPICAL TEMPORARY AND PERMANENT DIVERSIONS

TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE DATE: 2016

1.16 Temporary and Permanent Trench Breakers (Trench Plugs)

Applications: Keeping work areas dry, long-term stabilization of soil (prevents sinkholes)

Limitations:

- Water that accumulates behind the trench breaker requires pumping to a filtering device, preferable in a well-vegetated, upland area.

Overview:

Trench breakers (trench plugs) are temporary or permanent measures used to slow the movement of groundwater and surface runoff within a trench. They are often used when runoff draining to downgradient work areas causes problems within the trench. Trench breakers may be placed adjacent to waterways and wetlands to prevent water from seeping into work areas or disrupting the hydrology of the resource areas. They can be used on slopes throughout all types of land uses (including agricultural and residential). Trench breakers should be installed upslope of each permanent slope breaker or waterbar.

Temporary Trench Breakers (Trench Plugs)

Temporary trench plugs may consist of hard or soft plugs. Hard plugs leave small portions of the ditch unexcavated at certain intervals. Soft plugs involve placing compacted subsoil or sandbags into the ditch following excavation.

Installation:

- Install temporary trench plugs at the same intervals as temporary slope breakers or water bars (see table).

Maintenance:

- Inspect trench breakers regularly for signs of any instability, and repair any erosion problems.
- If water accumulates behind the trench breaker, pump to a filtering device, preferably in a well-vegetated, upland area.

Permanent Trench Breakers

Permanent trench breakers are left in the trench and backfilled to slow the movement of subsurface water along the trench. This helps prevent undermining the stability of the right of way that may lead to sinkholes or erosion.

Installation:

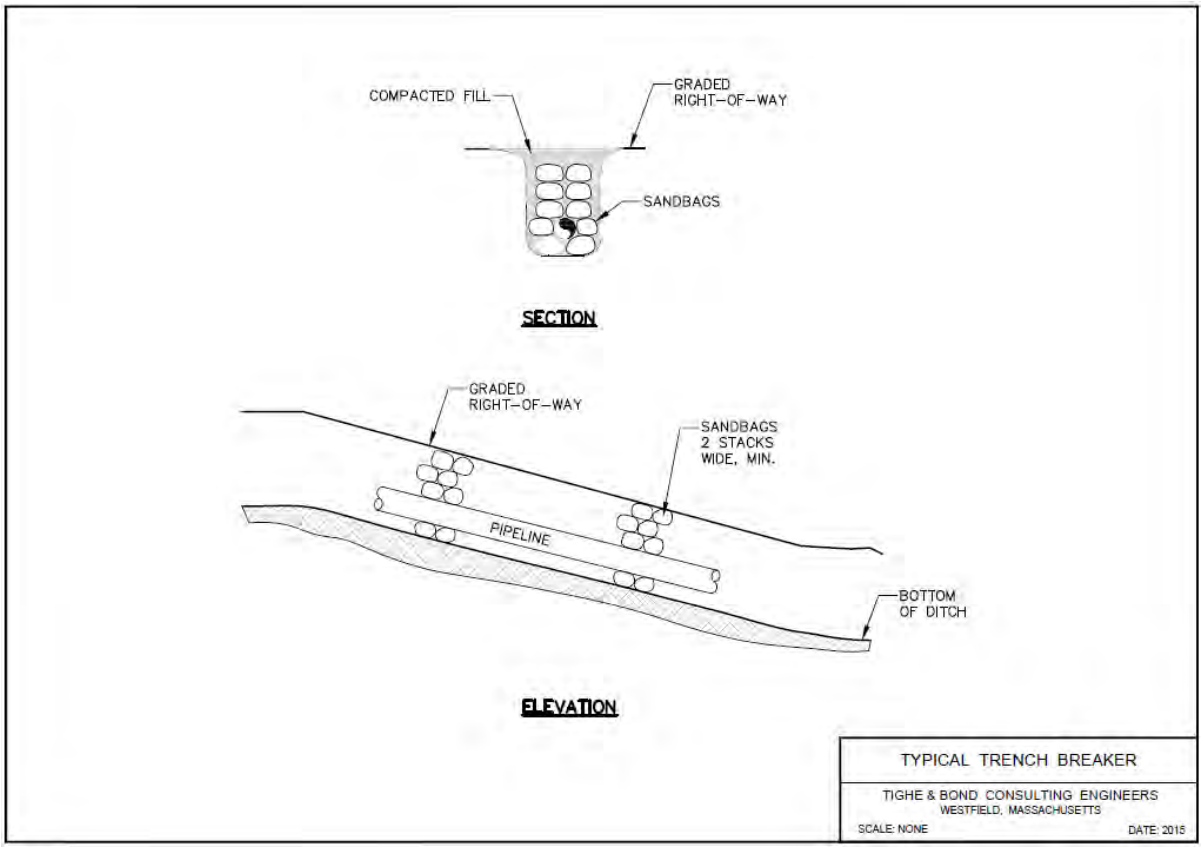
- Trench breakers can be composed of sandbags or polyurethane foam. Do not use topsoil to construct trench breakers.
- Build the trench breaker under and around the pipeline at intervals specified by the local soil conservation service or as shown in the table below.
- Install temporary trench plugs at the same intervals as temporary slope breakers or water bars (see table).
- When using sandbags, construct the trench breakers to be a minimum of two bags wide.
- Backfill the top of the trench breakers along with the rest of the trench. Grade the entire area to the original contours and stabilize.

Maintenance:

- Inspect trench breakers for stability and effectiveness before the trench is backfilled.
- During future inspections of the completed right of way, observe the ditch line for any unusual settling or erosion.
- Inspect wetlands and waterways for any change to their original hydrology.

Additional Comments:

Recommended Spacing	
Land Slope	**Spacing (ft)**
5-15%	300
>15-30%	200
>30%	100


COMPACTED FILL
GRADED RIGHT-OF-WAY
SANDBAGS
SECTION
GRADED RIGHT-OF-WAY
SANDBAGS 2 STACKS WIDE, MIN.
PIPELINE
BOTTOM OF DITCH
ELEVATION
TYPICAL TRENCH BREAKER
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2015

Appendix A

Section II

Section 2
Water Control

Several methods exist for temporarily diverting and dewatering surface water from work areas. No untreated groundwater shall be discharged to wetlands or water bodies. A variety of methods may be employed to prevent sedimentation due to dewatering. These methods, which are primarily appropriate during construction of capital projects, are described below.

2.1 Dewatering Activities

Applications: Dewatering

Limitations:

- Overland flow limited to sites with appropriate upland area.
- Frac tanks have limited capacity and are expensive.
- Pumps require oversight at all times.
- Filter bags clog and require replacement.

Overview:

Dewatering activities may be necessary to expose the ditch line and provide drier workspace when high groundwater or saturated soil is present. This condition often occurs in wetlands or near streambanks during excavation activities for installing or replacing utility poles or natural gas pipelines. *Under no circumstances should trench water or other forms of turbid water be directly discharged onto exposed soil or into any wetland or waterbody.*

2.1.1 Overland Flow

Applications: Dewatering

Limitations:

- Space constraints and adjacent wetlands or watercourses may prevent use of this dewatering method.

Overview:

Overland Flow may be used if a discharge location is available where there is no potential for discharged water to flow overland into wetlands or waterbodies. Discharge water overland without any filtering to well-drained, vegetated upland areas and allow to naturally infiltrate into soils.

2.1.2 Frac Tank

Applications: Dewatering, managing contaminated groundwater

Limitations:

- Expensive
- May be site specific limitations (e.g. extremely unlevel ground)
- May require proper disposal at a regulated facility (in cases of contaminated groundwater)

Overview:

Frac Tanks are pre-fabricated and self-contained units that contain a series of baffles that allow fine materials to settle out of the water column. Use frac tanks when the work requires dewatering in an area with very silt laden water and/or contaminated groundwater.

Frac tank on-site for dewatering activities.

2.1.3 Filter Bags and Hay Bale Containment Area

Applications: Dewatering

Limitations:

- Pumps require oversight at all times.
- Filter bags clog and require replacement.

Overview:

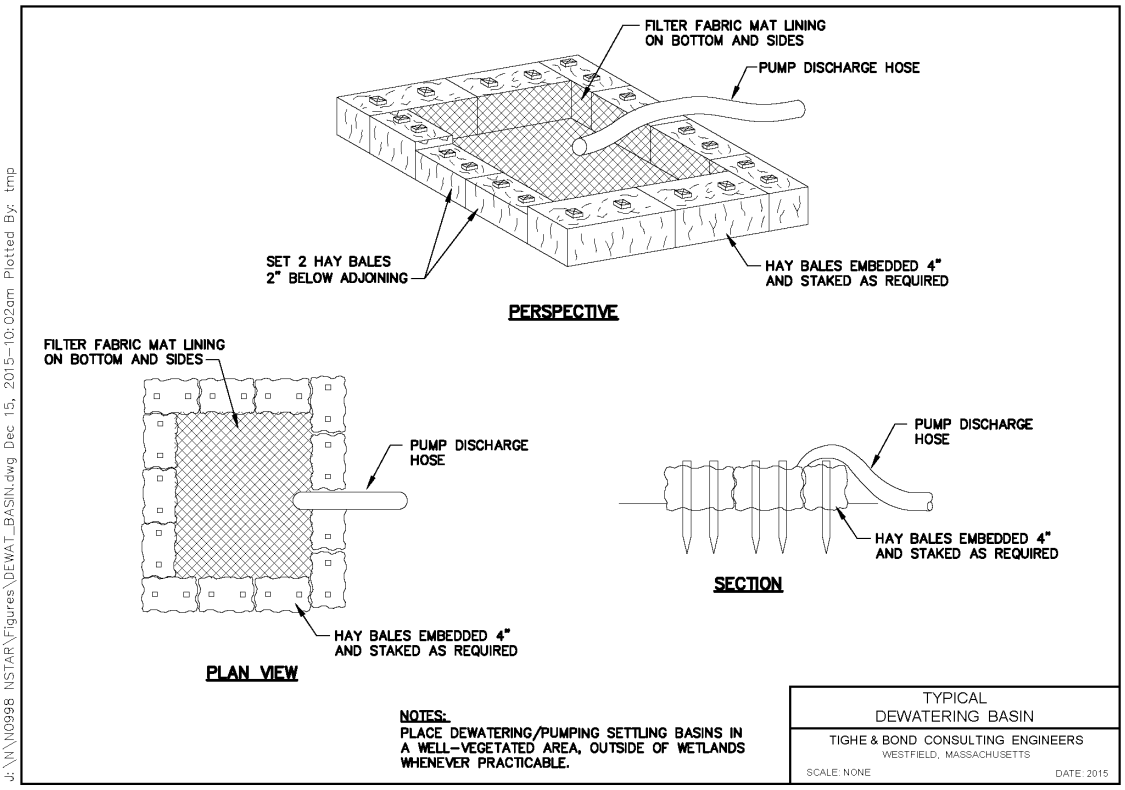
Use filter bags with hay bale containment area for dewatering when there is the potential for discharged water to flow overland into wetlands or waterbodies. Locate dewatering sites in well-vegetated areas within the right of way or approved work areas. Locate discharges outside of wetlands and over 100 feet from a streambank or waterbody, if practicable.

Installation:

- Place pump in a containment structure (i.e., child-sized plastic pool) to avoid fuel leakage to the wetlands or waterways.
- Properly place the discharge hose into a pre-manufactured, geotextile filter bag per the manufacturer's instructions.
- Place the filter bag in a well-vegetated area outside of a wetland area and over 100 feet from a waterbody, if practicable.
- Elevate the intake hose off the trench bottom and create a sump with clean rock in order to avoid pumping additional sediment.
- Build a hay bale corral for the filter bag if the water must be discharged within 100 feet of a wetland, waterbody, or other sensitive area.
- Stake a double vertical line of hay bales in an "L" or "U" shape on the downgradient sides of the bag to further filter the discharge water.

Maintenance:

- Man the pump at all times.
- Refuel pump within a plastic containment structure and/or over 100 feet from the wetland or waterbody.
- Routinely check the filter bag during pumping activities to ensure that it is not reaching its holding capacity.
- If the bag appears to be nearing its limits, stop dewatering until more water has filtered out and the bag can be replaced.
- Properly dispose of used filter bags and trapped sediment.


FILTER FABRIC MAT LINING
ON BOTTOM AND SIDES
PUMP DISCHARGE HOSE
SET 2 HAY BALES
2" BELOW ADJOINING
HAY BALES EMBEDDED 4"
AND STAKED AS REQUIRED
PERSPECTIVE
FILTER FABRIC MAT LINING
ON BOTTOM AND SIDES
PUMP DISCHARGE
HOSE
HAY BALES EMBEDDED 4"
AND STAKED AS REQUIRED
PLAN VIEW
PUMP DISCHARGE
HOSE
HAY BALES EMBEDDED 4"
AND STAKED AS REQUIRED
SECTION
NOTES:
PLACE DEWATERING/PUMPING SETTLING BASINS IN
A WELL-VEGETATED AREA, OUTSIDE OF WETLANDS
WHENEVER PRACTICABLE.
TYPICAL
DEWATERING BASIN
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2015
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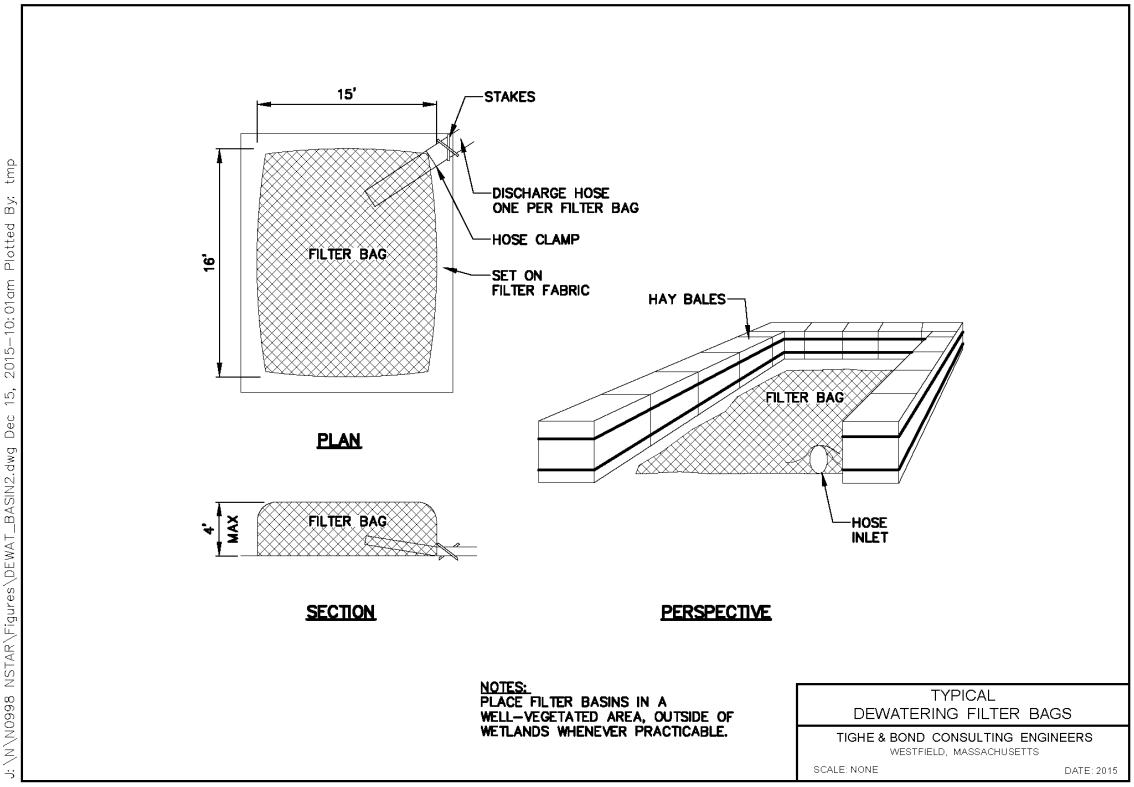

15'
STAKES
DISCHARGE HOSE
ONE PER FILTER BAG
HOSE CLAMP
16'
FILTER BAG
SET ON
FILTER FABRIC
PLAN
HAY BALES
FILTER BAG
HOSE
INLET
4'
MAX
FILTER BAG
SECTION
PERSPECTIVE
NOTES:
PLACE FILTER BASINS IN A
WELL-VEGETATED AREA, OUTSIDE OF
WETLANDS WHENEVER PRACTICABLE.
TYPICAL
DEWATERING FILTER BAGS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2015
J:\N\N0998 NSTAR\Figures\DEWAT_BASIN2.dwg Dec 15, 2015-10:01am Plotted By: tmp

2.1.4 Discharge Hose Filter Socks

Applications: Dewatering

Limitations:

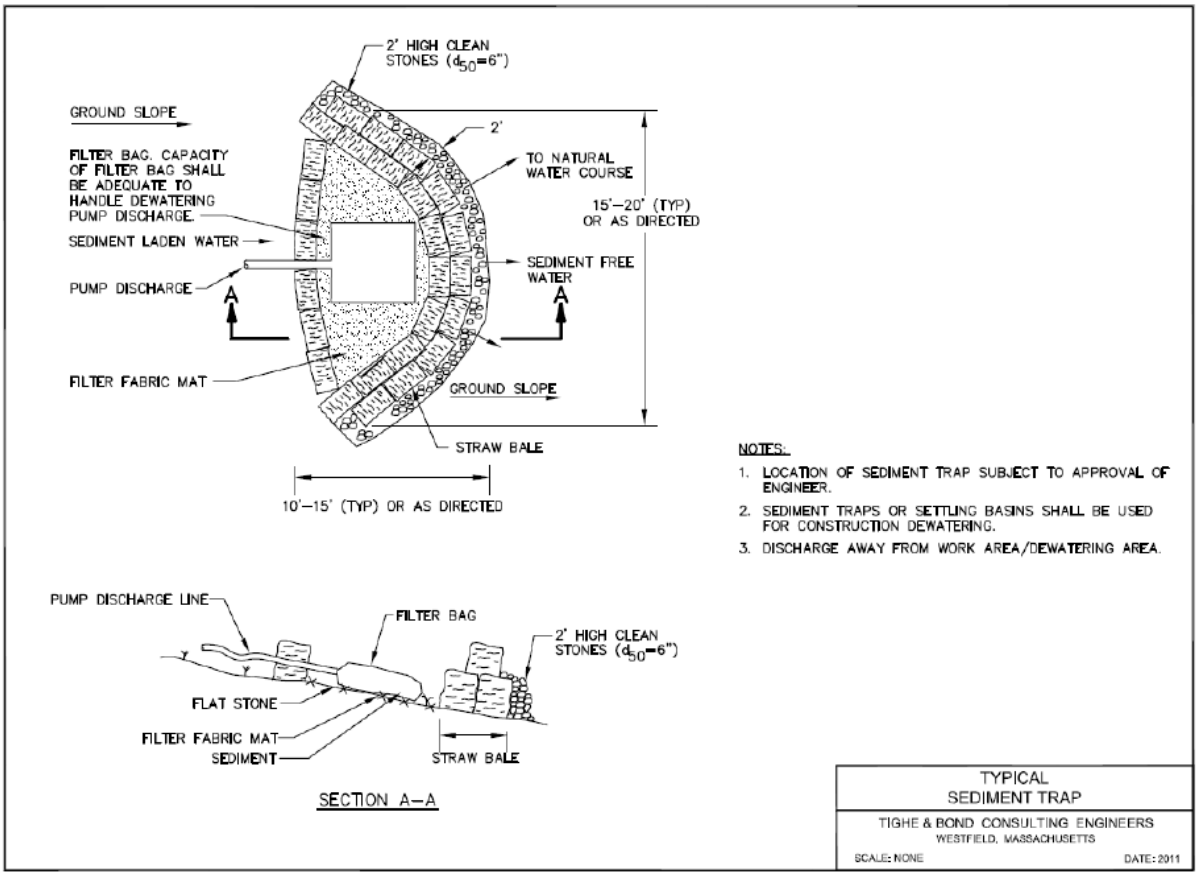
- Ineffective for very silty water

Overview:

Use discharge hose filter socks at sites where there is insufficient space to construct sediment basins or enough suitable uplands for overland flow and infiltration. Filter "socks" or bags may be affixed to the end for the discharge hose of the pump and used for dewatering. It is important that enough socks be on hand at the site to accommodate the anticipated need, as they fill fast with more turbid water. Additional measures such as hay or straw bales can be installed around the filter device for added protection.

Dewatering to filter "sock" surrounded by hay bales.

Riprap underlain by geotextile fabric



2.2 Coffer Dam and Stream Bypass Pumping

Applications: Dewatering/water diversion, turbidity control

Limitations:

- Pipes need to be adequately sized to accommodate heavy rain events.
- Coffer dams require careful maintenance at all times.

Overview:

A coffer dam is a temporary structure used during instream work to enclose a work area by diverting stream flow using pumps (or gravity) while containing sediment and turbidity. Coffer dams make an impoundment upstream of a work area and then use pumps to remove the water from inside the dammed (isolated) area to beyond the work area. They are used in areas with high flows where siltation barriers are not effective. Coffer dams can consist of sandbags, concrete structures, or pre-manufactured products and should be used on a site-by-site basis according to engineering specifications and/or manufacturer's instructions.

Dewatering measures may be necessary if groundwater is encountered within an excavation (e.g., during installation or repair of a buried cable, footings, foundations or structure replacement) or other area if the presence of water is incompatible with construction. In rare cases, surface water diversions will be necessary in order to create dry working conditions for subsurface work in water bodies.

Installation:

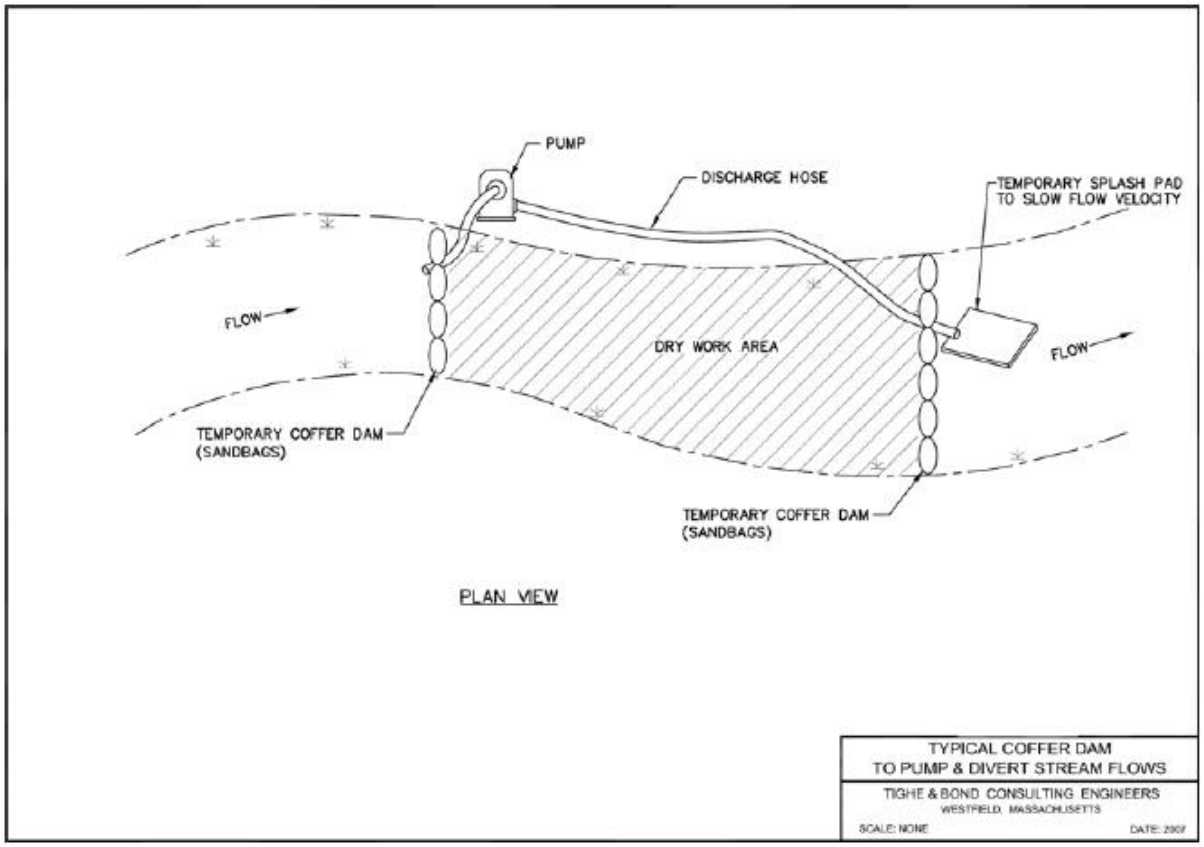
- All cofferdam installations should be designed and approved by engineering staff following geotechnical and hydrological studies. If using a pre-fabricated product, follow manufacturer's instructions and engineer's guidance.
- Place hay bales or silt fence along the streambanks approaching the edges of the workspace.
- Coffer dams should be a semicircle or U-shaped and lined with a geotextile. Use clean durable rockfill or large pre-cast concrete blocks for construction.
- Locate the geotextile outside of the dam for the upstream half and inside for the downstream half to prevent displacement of the geotextile. Place the geotextile with a short flap (1 foot) at the base of the dam, weighted down with clean rockfill.
- Dewatering of the isolated work area may or may not be necessary or even possible. If dewatering is necessary, install an impermeable liner or clay plug.
- After the sediment in suspension has settled out, remove the cofferdam carefully so that sediment disturbance is minimized.
- Do not install in channels where dams would hinder the passage of boats or fish.

Maintenance:

- Cofferdams require careful maintenance at all times.
- Observe the stream flow for any turbidity as a result of the construction activities.

Additional Comments:

Where use of pumps is impractical, coffer dams and temporary pipes can be used to divert flows via gravity and dry out a work area. The instream constriction caused by the cofferdam should be small in order to avoid generating unacceptable scour velocities in the remaining channel section.



2.3 Coffer Dam and Stream Bypass via Gravity

Applications: Dewatering/water diversion, turbidity control

Limitations:

- Pipes need to be adequately sized to accommodate heavy rain events.
- Coffer dams require careful maintenance at all times.

Overview:

A coffer dam is a temporary structure used during instream work to enclose a work area by diverting stream flow via gravity (or using pumps) while containing sediment and turbidity. Coffer dams make an impoundment upstream of a work area and then use a piping and gravity to remove the water from inside the dammed (isolated) area to beyond the work area. They are used in areas with high flows where siltation barriers are not effective. Coffer dams can consist of sandbags, concrete structures, or pre-manufactured products and should be used on a site-by-site basis according to engineering specifications and/or manufacturer's instructions.

Dewatering measures may be necessary if groundwater is encountered within an excavation (e.g., during installation or repair of a buried cable, footings, foundations or structure replacement) or other area if the presence of water is incompatible with construction. In rare cases, surface water diversions will be necessary in order to create dry working conditions for subsurface work in water bodies.

Installation:

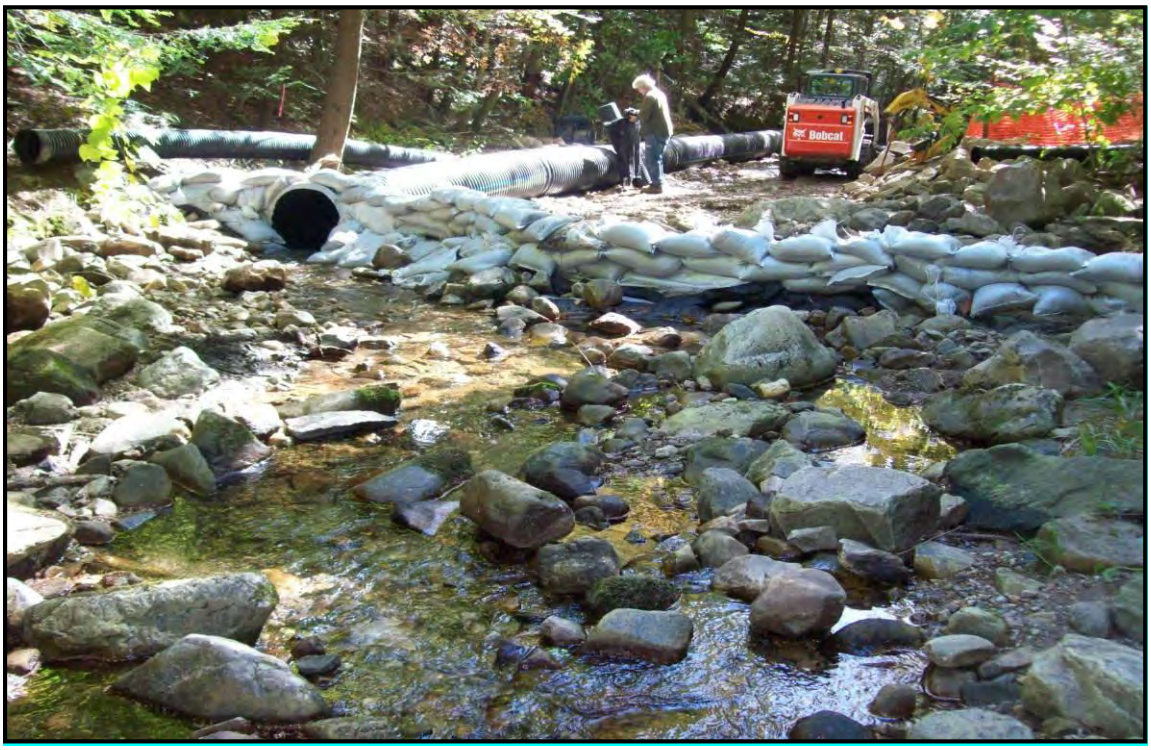
- All cofferdam installations should be designed and approved by engineering staff following geotechnical and hydrological studies. If using a pre-fabricated product, follow manufacturer's instructions and engineer's guidance.
- Place hay bales or silt fence along the streambanks approaching the edges of the workspace.
- Coffer dams should be a semicircle or U-shaped and lined with a geotextile. Use clean durable rockfill or large pre-cast concrete blocks for construction.
- Locate the geotextile outside of the dam for the upstream half and inside for the downstream half to prevent displacement of the geotextile. Place the geotextile with a short flap (1 foot) at the base of the dam, weighted down with clean rockfill.
- Dewatering of the isolated work area may or may not be necessary or even possible. If dewatering is necessary, install an impermeable liner or clay plug.
- After the sediment in suspension has settled out, remove the cofferdam carefully so that sediment disturbance is minimized.
- Do not install in channels where dams would hinder the passage of boats or fish.

Maintenance:

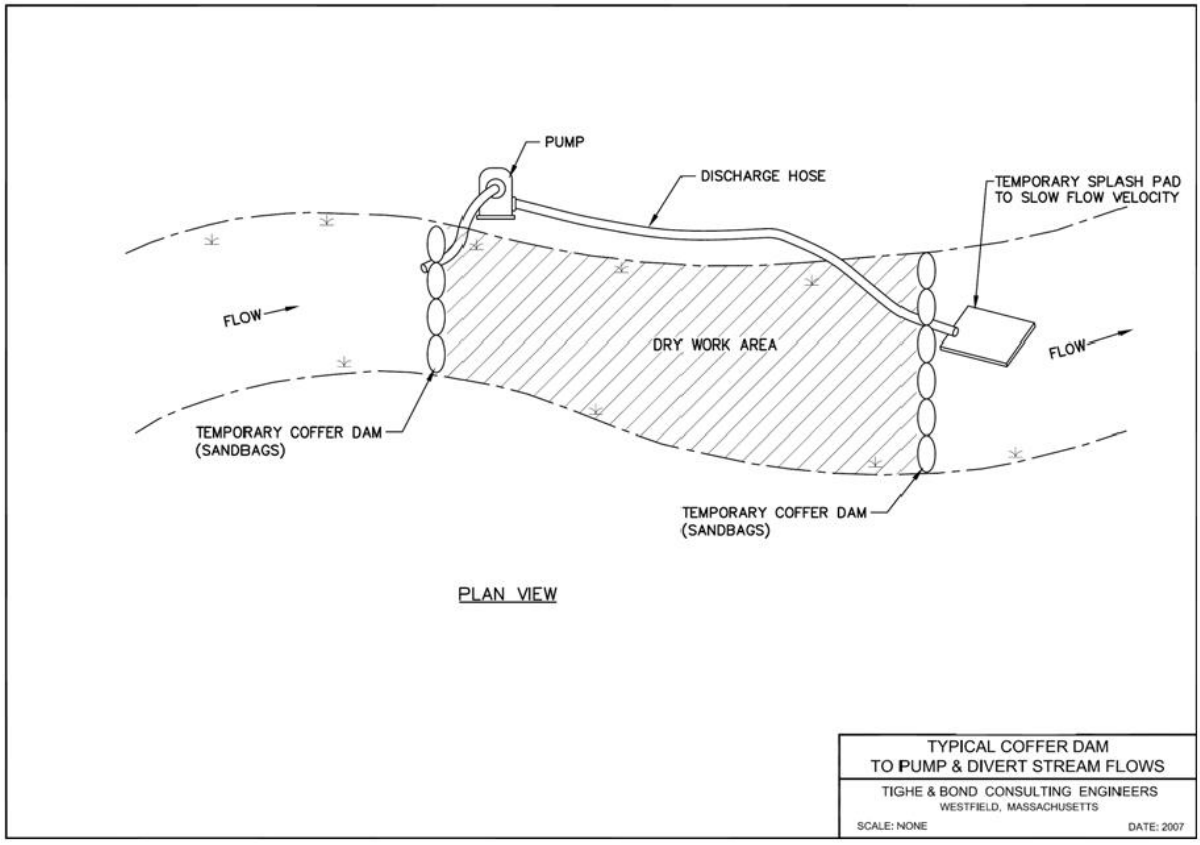
- Cofferdams require careful maintenance at all times.
- Observe the stream flow for any turbidity as a result of the construction activities.

Additional Comments:

Where gravity flows cannot be circumvented through a coffer dam and temporary flexible pipe via gravity, use a pump, discharge hose and downstream temporary splash pad to slow flow velocity can be used. The instream constriction caused by the cofferdam should be small in order to avoid generating unacceptable scour velocities in the remaining channel section.



Sand bag coffer dam and streamflow gravity bypass.


PUMP
DISCHARGE HOSE
TEMPORARY SPLASH PAD
TO SLOW FLOW VELOCITY
FLOW
DRY WORK AREA
FLOW
TEMPORARY COFFER DAM
(SANDBAGS)
TEMPORARY COFFER DAM
(SANDBAGS)
PLAN VIEW
TYPICAL COFFER DAM
TO PUMP & DIVERT STREAM FLOWS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2007

2.4 Silt Barriers

Applications: Turbidity control

Limitations:

- Must be rated to withstand anticipated flow velocity and quantity.

Overview:

Staked and floating silt barriers are temporary flexible barriers used within a waterbody to separate or deflect natural flow around a work area. Barriers are placed around the sediment source to contain the sediment-laden water, allowing suspended soil particle to settle out of suspension and stay in the immediate area. The staked barrier consists of geotextile fabric attached to support posts and a wire support fence and a chain sewn into a sleeve along the bottom edge to allow the barrier to conform to the channel.

The floating silt barriers are often called silt or turbidity curtains, and can be purchased from manufacturers or can be made on site. Construction generally includes a skirt (geotextile fabric) that forms the barrier, flotation segments such as styrofoam sealed in a seam along the top of the fabric, a ballast chain sealed into a sleeve along the bottom edge of the fabric, a loadline built into the barrier above or below the floatation segments, and piles or posts tied back to underwater or on shore anchor points.

Staked Silt Barriers

- For installations which only isolate a part of the stream, barriers can be used in higher flows (shallow streams with currents less than 0.5 ft/s).
- Do not use in streams/river with strong currents, strong waves, ice, floating debris, or boats and do not place barriers completely across stream channels unless they are minor or intermittent streams with negligible flow.

Installation:

- Place the staked barrier and wire support fence at least 1 foot above the waterline. Do not install in a waterbody deeper than 4 feet.
- Place support stakes 10 feet apart and drive them 2 feet into the channel bottom.
- Fasten the wire mesh securely against the fabric with heavy duty wire staples at least 1″ long. If possible, use a continuous roll of fabric and fasten securely to the posts with heavy duty staples with a maximum spacing of 2″.
- Where possible, prefabricate a staked barrier on shore. Carefully roll it up lengthwise and move it into place.
- Secure the bottom edge of fabric to the channel bottom by placing a heavy chain into a sewn sleeve along the fabric edge, or by placing clean rockfill over the edge.

Floating Silt Barriers

- Use only in negligible or low flow conditions. Can be used for instream areas between 2.6 feet and 6 feet deep and with waves potentially up to 10 feet.

- Do not use to stop, divert, or filter a significant volume of water.

Installation:

- Purchasing a pre-manufactured silt curtain such as Siltmaster® will save time constructing the barrier. Follow manufacturer's advice for the area.

- Enclose the smallest area as practicable. Locate the barrier far enough away from construction equipment to avoid damage.

- Launch the furled barrier from a ramp, pier or shore. Set the shore anchor points and tie off one end of the barrier to the stream anchor point and the downstream end to a boat. Bring to the downstream point to be anchored.

- Anchor the barrier in the desired formation and make sure the skirt is not twisted around the flotation.

- Cut the furling ties and let the ballast sink to its maximum depth.

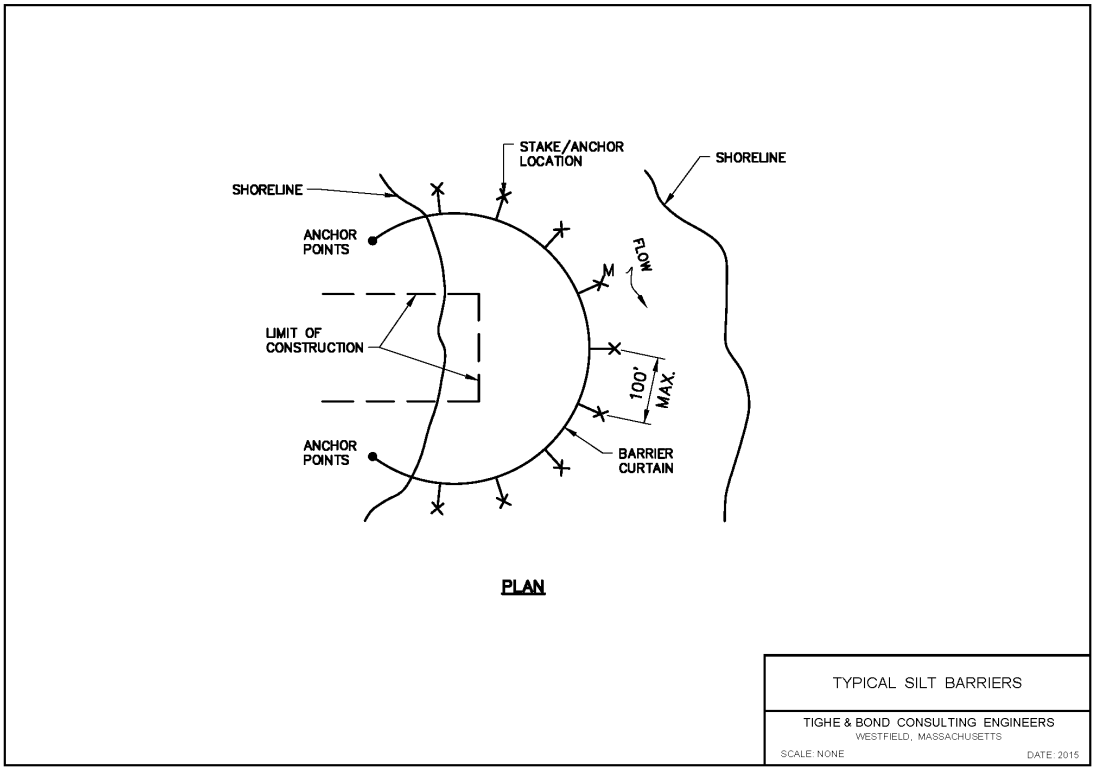
- Slant the barrier at an angle, not perpendicular to the flow. If the barrier will be exposed to reversing currents, anchor it on both sides.

Maintenance for both:

- Inspect daily for any rips or tears or turbidity in the stream flow. Repair immediately with overlapping pieces of geotextile fabric.

- Remove accumulated sediment from the base of the barrier. If necessary, dewater turbid water to an onshore filter bag before removing the barrier.

- Remove the barrier carefully when the work is completed and after suspended sediments have time to settle out.


STAKE/ANCHOR LOCATION
SHORELINE
SHORELINE
ANCHOR POINTS
FLOW
LIMIT OF CONSTRUCTION
100' MAX.
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BARRIER CURTAIN
PLAN
TYPICAL SILT BARRIERS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE
DATE: 2015

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APPENDIX B

Appendix B

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Appendix B

B.1 Applicable Laws/Regulations

In Connecticut, there are no fewer than eight potentially pertinent regulatory programs associated with activities proposed in environmentally sensitive areas. The following list of laws and regulations are most likely to apply to electrical utility projects in the State.

- Connecticut Inland Wetlands and Watercourses Act (C.G.S. §§ 22a-36 through 22a-45a)
- Municipal inland wetland and zoning regulations
- Connecticut General Permit for Water Resource Construction Activities (C.G.S. §§ 22a-6, 22a-45a and 22a-378a)
- Connecticut Environmental Policy Act (C.G.S. §§ 22a-1a through 22a-1h)
- Connecticut Coastal Management Act (C.G.S. §§ 22a-359 through 22a-363; 22a-28 through 22a-35; 22a-90 through 22a-112; 33 U.S.C. § 1314)
- Connecticut Water Diversion Policy Act (C.G.S. §§ 22a-365 through 22a-379)
- Connecticut Endangered Species Act (C.G.S. §§ 26-303 through 26-315)
- Section 10 of the Rivers and Harbors Act of 1899 (C.G.S. §§ 22a-426; 33 U.S.C. § 403)
- Section 401 of the Clean Water Act (33 U.S.C. § 1251)
- Section 404 of the Clean Water Act (33 U.S.C. § 1344)

B.2 Geographic Areas Subject to Jurisdiction

The following areas are subject to regulatory jurisdiction by at least one of the regulatory programs discussed in this section: It is important to note that more than one jurisdictional resource type may be present at any given location.

- Inland wetlands, watercourses (rivers, streams, lakes, ponds), and floodplains
- Areas subject to municipal wetlands bylaws or ordinances. (These vary by town.)
- Coastal Resource Areas (beaches, dunes, bluffs, escarpments, coastal hazard areas, coastal waters, nearshore waters, offshore waters, estuarine embayments, developed shorefront, intertidal flats, islands, rocky shorefronts, shellfish concentration areas, shorelands, and tidal wetlands)
- Navigable waters
- Essential Fish Habitat (EFH)
- Rare species habitat as mapped by the Connecticut Natural Diversity Database

B.3 Applicable Regulatory Agencies

Activities subject to jurisdiction under the above-referenced programs will generally be subject to review by one or more regulatory agencies (refer to list below). Most stream and wetland crossings will require notification or consultation with municipal Inland Wetland and Watercourses Agencies, and may require permitting with the U.S. Army Corps of Engineers (Corps) and Connecticut Department of Energy & Environmental Protection (CT DEEP) under Sections 404 and 401 of the Clean Water Act. Coordination with CT DEEP may also be required for projects located within areas mapped by the Connecticut Natural Diversity Database. For work within tidal, coastal or navigable waters or in tidal wetlands, permitting will be required with the Connecticut Department of Energy & Environmental Protection (CT DEEP) Office of Long Island Sound Program (OLISP).

- Municipal Conservation Commissions
- Connecticut Department of Energy & Environmental Protection (CT DEEP) Bureau of Water Management, Inland Water Resources Division
- CT DEEP Wildlife Division
- CT DEEP Office of Environmental Review
- CT DEEP Office of Long Island Sound Programs (OLISP)
- United States Army Corps of Engineers (Corps) New England District

The State of Connecticut and the Federal Government define wetlands differently. According to the Inland Wetlands and Watercourses Act, inland wetlands are defined as "land, including submerged land, not regulated pursuant to Sections 22a-28 through 22a-35 of the Connecticut General Statutes, as amended, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soil Survey, as it may be amended from time to time by the United States Department of Agriculture Natural Resource Conservation Service. Such areas may include filled, graded, or excavated sites which possess an aquic (saturated) soil moisture regime as defined by the National Cooperative Soil Survey." State wetland identification is based solely on the presence of these soil types.

"Watercourses" means rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon this state or any portion thereof. Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation.

The Federal Government defines wetlands as "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Federal wetland identification is based on a three parameter approach, where a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology is used to make a wetland determination.

B.4 Maintenance, Repair, or Emergency Projects

Most regulatory programs contain provisions that allow normal maintenance of existing structures and/or response to emergency situations that require immediate attention.

Prior to commencement of new construction, all jurisdictional wetland areas within the work corridor should be delineated by a qualified wetland and soil scientist. The specialist shall delineate areas in accordance with the General Statutes of Connecticut (revised January 1, 2007) as set forth at Title 22a Chapter 440 "Inland Wetlands and Watercourses Act", the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual, and any local inland wetland regulations, ordinances or bylaws that may exist. Refer to each set of regulations regarding applicable wetland definitions. Wetland areas shall be clearly demarcated using appropriate flagging tape or similar means. It is important to note that certain jurisdictional wetland areas in Connecticut can actually occur in uplands, such as floodplains. In addition, Upland Review Areas generally apply to work activities and vary in each community. This makes consultation with a wetland specialist particularly important.

B.4.1 Maintain, Repair and/or Replace

Exemptions or considerations for maintenance, repair, and/or replacement of existing electrical utility structures exist in some environmental regulations, but not all. The exemptions are limited to work related to existing and lawfully located structures where no change in the original structure or footprint is proposed. It is not for the selected contractor of a particular project to make a determination as to whether an activity is exempt. This determination will be made prior to work by the Eversource project manager, in consultation with Eversource environmental staff.

These exemptions/considerations are afforded at:

- CT Inland Wetlands & Watercourses Act (RCSA § 22a-39-4)
- CT General Permit (Section 3)
- CT Coastal Management Act (RCSA § 22a-363b)
- CT GP [33 CFR 323.4(a)(2)]
- CT Water Diversion Policy Act (RCSA § 22a-377(b)1)

B.4.2 Emergency Projects

Emergency provisions are generally afforded to activities that need to abate conditions that pose a threat to public health or safety. These provisions generally do not allow work beyond what is necessary to abate the emergency condition, and will generally require an after-the-fact permit. It is not for the selected contractor of a particular project to make a determination as to whether an activity is an emergency. This determination will be made prior to work by the Eversource project manager, in consultation with Eversource environmental staff.

It is important to note that invocation of an emergency provision does not release the project proponent from reporting requirements.

Emergency provisions are afforded at:

- CEPA (RCSA § 22a-1a-3)
- CT Coastal Management Act (RCSA § 22a-29)
- CT GP [33 CFR Part 323.4(a)(2)]

B.5 Municipal Permitting

Work within wetlands, watercourses and designated Upland Review Areas typically requires notification to municipal staff, (Department of Public Works and/or the Inland Wetland and Watercourse Agency staff). In October 1996 the Connecticut Department of Public Utility Control opened a docket (Docket Number 95-08-34) to conduct a generic investigation on the allocation of siting jurisdiction over utility plant facilities. This included an investigation as to whether local authorities (including local Inland Wetlands and Watercourses Agencies) have jurisdiction over public utility projects.

The investigation resulted in several orders which provide guidance on how public utility companies should coordinate with municipalities on the construction of new facilities, upgrades, significant maintenance activities, and routine maintenance activities.

- For the construction of new facilities, alterations to existing facilities (including upgrades) or significant maintenance involving substantial disturbance of soil, water or vegetation which would regularly fall under the review requirements of certain local authorities (ie. Planning and Zoning Authority; Inland Wetlands Commission; Public Works Department; Historic District Commission), the utility shall at least notify and consult with such local authority, or its designated agent or staff, toward the development of mutually agreeable schedules and procedures for the proposed activity.
- For routine maintenance activities or alterations to existing facilities (including upgrades) involving minor disturbance of soil, water or vegetation which would regularly fall under the review and approval requirements of certain local authorities, the utility shall make local authorities or their designated agent or staff aware of such ongoing activities.

B.6 CT Department of Energy & Environmental Protection

If the project requires formal permitting with the Corps (Category 2 or Individual Permit), copies of the application should be forwarded to CT DEEP for review under Section 401 of the Clean Water Act. The CT DEEP requires that a GP Addendum form be completed and submitted along with the Corps application. If the project qualifies as Category 1 under the Corps GP, the project also is granted authorization (Water Quality Certification, WQC) with no formal application under Section 401 of the Clean Water Act, provided the project meets the additional WQC general conditions. The general conditions commonly applicable to utility projects include:

- Prohibiting dumping of any quantity of oil, chemicals, or other deleterious material on the ground;

- Immediately informing the CT DEEP Oil and Chemical Spill Response Division at (860) 424-3338 (24 hours) of any adverse impact or hazard to the environment including any discharge or spillage of oil or chemical liquids or solids;

- Separating staging areas at the site from the regulated areas by silt fences or stray/hay bales at all times;

- Prohibiting storage of any fuel and refueling of equipment within 25 feet from any wetland or watercourse;

- Following the document "Connecticut Guidelines for Soil and Erosion Control," inspecting employed controls at least once per week, after each rainfall, and at least daily during prolonged rainfall, and correcting any deficiencies within 48 hours of being found.

- Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the 500 year flood. Any other material or equipment stored at the site below this elevation must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel for equipment at the site stored below such elevation shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.

- Immediately informing DEEP at (860) 424-3019 and the Corps at (617) 647-8674 of the occurrence of pollution or other environmental damage in violation of the WQC, and within 48 hours support a written report including information specified in the general conditions.

If the project falls within areas mapped by the Connecticut Natural Diversity Database, or is less than 0.50 miles upstream or downstream of a mapped area, a data request and possible coordination will be required with the Natural Diversity Database.

If a project is located within tidal, coastal or navigable waters of the state or in tidal wetlands, permitting may be required with the CT DEEP OLISP. For the routine maintenance of previously permitted structures or structures that were in place prior to June 24, 1939, no permitting is required. For significant maintenance of previously permitted structures or structures that were in place prior to June 24, 1939, a Certificate of Permission is required. For new projects a Structures, Dredging and Fill Permit and/or a Tidal Wetlands Permit may be required. The CT DEEP OLISP should be consulted prior to preparing permits to conduct a pre-application meeting and determine the appropriate permitting route.

B.7 U.S. Army Corps of Engineers

Work within wetlands and waters of the United States is subject to jurisdiction under Section 404 of the Clean Water Act, which is administered by the Corps. Work within navigable waters is also administered by the Corps under Section 10 of the Rivers and Harbors Act of 1899. The Corps has issued a General Permit (GP) which establishes categories for projects based on their nature of impacts. The current permit was issued on July 15, 2011, and expires on July 15, 2016. The permit will be reissued by July 15, 2016 for another five years. Applications are not required for Category 1 projects, but

submittal of a Category 1 Form before the work occurs and submittal of a Compliance Certification Form within one month after the work is completed is required. The Category 1 Form and Compliance Certification Form entails self-certification by applicants that their project complies with the terms and conditions of Category 1 of the GP. Category 2 projects require the submittal of an application to the Corps, followed by a screening of the application by the Corps, the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, National Marine Fisheries Service and CT DEEP, and consultation with the Connecticut Commission on Culture and Tourism and Tribal Historic Preservation Officers. Category 2 projects may not proceed until written approval from the Corps is received. Written approval is generally provided within 45 days of the multi-agency screening. After written approval is received, a Work-Start Notification Form must be submitted before the work occurs, and a Compliance Certification Form must be submitted within one month after the work is completed.

For work proposed within a FEMA floodway or floodplain, the Corps recommends that the applicant apply for and receive a Flood Management Certification (if required), prior to applying to the Corps. Additionally, applications for Category 2 inland projects that propose fill in Corps jurisdiction must include an Invasive Species Control Plan (ISCP), unless otherwise directed by the Corps.

An Individual Permit requires a formal permit application to be submitted to the Corps. The application is reviewed in detail by both state and federal agencies, and a Public Notice is released for public comment. Projects which trigger an Individual Permit generally result in significant impacts to wetlands and/or watercourses.

Stream and wetland crossings are only subject to jurisdiction under the Corps if there is **a discharge of dredge or fill material into wetlands or waters of the United States**. Equipment access through a stream or wetland with no structural BMP is not regulated by the Corps if there is no discharge of dredge or fill material (note that equipment rutting as a result of not using an appropriate BMP can be considered a "discharge of dredge material"). Similarly, the use of a timber or rail car bridge that extends from bank to bank with no stream impacts is not regulated by the Corps. Additionally, the use of timber mats and stone is considered "fill material" by the Corps, and must be calculated to determine overall impacts. Temporary mats are not counted towards the 1 acre threshold under Category 2 if they are adequately cleaned after previous use, removed immediately after completion of construction and disposed of at an upland site.

Maintenance, including emergency reconstruction of currently serviceable structures, is exempt from Corps jurisdiction and does not require formal permitting. Maintenance does not include any modification that changes the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs to qualify for this exemption.

Stream and wetland crossings that involve the discharge of dredge and fill material may be conducted under Category 1 if the work complies with the general conditions and Category 1 criteria of the GP. The following are Category 1 criteria that are commonly applicable to stream and wetland crossings in utility rights of way. See Section 1.8 for additional criteria for culvert crossings:

- The work results in less than 5,000 square feet of impacts to wetlands or waters of the United States. Replacement of utility line projects with impacts solely

within wetlands greater than 5,000 square feet may be eligible for Category 1 Authorization after consultation with the Corps about the specific project;

- Temporary fill, with the exceptions of swamp and timber mats, discharged to wetlands shall be placed on geotextile fabric laid on the pre-construction wetland grade. Unconfined temporary fill discharged into flowing water (rivers and streams) shall consist only of clean stone. All temporary fill shall be removed as soon as it is no longer needed, and disposed of at an appropriate upland site.
- Any unconfined in-stream work, including construction, installation or removal of sheet pile cofferdam structures, is conducted during the low-flow period between July 1 and September 30. However, installation of cofferdams, other than sheet pile cofferdams, is not restricted to the low-flow period;
- No work will occur in the main stem or tributary streams of the Connecticut River watershed that are being managed for Atlantic salmon (*Salmo salar*). (Work of this nature requires screening for potential impacts to designated Essential Fish Habitat.);
- The work does not result in direct or secondary impacts to Special Wetlands, Threatened, Endangered or Special Concern Species, or Significant Natural Communities identified by the Connecticut Natural Diversity Database. Work within 750 feet of vernal pools shall be minimized;
- The project does not require a Corps permit with associated construction activities within 100 feet of Special Wetlands;
- The project does not result in fill placed within a FEMA established floodway, unless the applicant has a State of Connecticut Flood Management Certification pursuant to Section 25-68d of the Connecticut General Statutes;
- The project does not result in fill placed within a FEMA established floodplain that would adversely affect the hydraulic characteristics of the floodplain;
- The project does not entail stormwater detention or retention in inland waters or wetlands;
- The project is not located in a segment of a National Wild and Scenic River System (includes rivers officially designated by Congress as active study status rivers for possible inclusion) or within 0.25 miles upstream or downstream of the main stem or tributaries to such a system;
- The project has no potential for an effect on a historic property which is listed or eligible for listing in the National Register of Historic Places;
- The project does not impinge upon the value of any National Wildlife Refuge, National Forest, or any other area administered by the U.S. Fish and Wildlife Service, U.S. Forest Service or National Park Service;
- Section 106 needs to be taken into account for all work that requires federal permitting – including Category 1;
- The project does not use slip lining, plastic pipes, or High Density Polyethylene Pipes (HDPP).
- Appropriate BMPs are employed in regards to heavy equipment in wetlands (General Condition 16) and sedimentation and erosion controls (General Condition 20).

- Disturbed inland wetland areas are restored in accordance with General Condition 18.

Stream and wetland crossings that involve the discharge of dredge and fill material may be conducted under Category 2 if the work complies with the general conditions and Category 2 criteria of the GP. The following are Category 2 criteria that are commonly applicable to stream and wetland crossings in utility right of ways. See Section 1.8 for additional criteria for culvert crossings:

- The work results in less than one acre of impacts to wetlands or waters of the United States;
- The project does not result in fill placed within a FEMA established floodplain that would adversely affect the hydraulic characteristics of the floodplain;
- The project does not entail stormwater detention or retention in inland waters or wetlands.
- Temporary fill, with the exceptions of swamp and timber mats, discharged to wetlands shall be placed on geotextile fabric laid on the pre-construction wetland grade. Unconfined temporary fill discharged into flowing water (rivers and streams) shall consist only of clean stone. All temporary fill shall be removed as soon as it is no longer needed, and disposed of at an appropriate upland site.
- Appropriate BMPs are employed in regards to heavy equipment in wetlands (General Condition 16) and sedimentation and erosion controls (General Condition 20).
- Disturbed inland wetland areas are restored in accordance with General Condition 18.

Stream and wetland crossings that cannot meet Category 1 or Category 2 criteria may require review under an Individual Permit. The Corps should be consulted before assuming an Individual Permit will be required, as exceptions can be made under certain circumstances.

B.8 Culvert Installation

New culvert installation or existing culvert replacements will require notification or consultation with municipal staffers which might include the Department of Public Works and/or the inland wetlands officer, and may require permitting with the Corps under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899, and the CT DEEP under Section 401 of the Clean Water Act. Coordination with CT DEEP may also be required for projects located within areas mapped by the Connecticut Natural Diversity Database. For work within tidal, coastal or navigable waters or in tidal wetlands, permitting will be required with the CT DEEP Office of Long Island Sound Program (OLISP).

B.8.1 Municipal Permitting

See Section 1.5 for general local permitting guidance.

- For the installation of new culverts and the replacement of culverts that involve substantial disturbance of soil, water or vegetation which would regularly fall under the review and approval requirements of certain local authorities (ie.

Planning and Zoning Authority; Inland Wetlands Commission; Public Works Department; Historic District Commission), the utility shall at least notify and consult with such local authority, or its designated agent or staff, toward the development of mutually agreeable schedules and procedures for the proposed activity.

- For the replacement of culverts involving only minor disturbance of soil, water or vegetation which would regularly fall under the review and approval requirements of certain local authorities, the utility shall make local authorities or their designated agent or staff aware of such ongoing activities.

B.8.2 CT Department of Energy & Environmental Protection

If the project requires formal permitting with the Corps, copies of the application should be forwarded to CT DEEP for review under Section 401 of the Clean Water Act. The CT DEEP requires that a PGP Addendum form be completed and submitted along with the Corps application.

If a culvert project falls within areas mapped by the Connecticut Natural Diversity Database, or falls within 0.50 miles upstream or downstream of a mapped area, a data request and possible coordination will be required with the Natural Diversity Database.

If a culvert project is located within tidal, coastal or navigable waters of the state or in tidal wetlands, permitting will be required with the CT DEEP OLISP. For new projects a Structures, Dredging and Fill Permit and/or a Tidal Wetlands Permit will be required. For replacement structures which were previously permitted, or which were in place prior to June 24, 1939, a Certificate of Permission may only be required, which entails a shorter permitting process.

B.8.3 U.S. Army Corps of Engineers

See Section 1.7 for general Corps permitting requirements. Open bottom arches, bridge spans or embedded culverts are preferred over traditional culverts and are required for Category 1 projects. However, where site constraints make these approaches impractical, the Corps should be consulted.

New bridge or open-bottom structure crossings may be conducted under Category 1 or Category 2 if the following criteria are met in addition to meeting any applicable general criteria listed in section 1.7 of this manual:

- The work spans at least 1.2 times the watercourse bank full width;
- The structure has an openness ratio equal to or greater than 0.25 meters;
- The structure allows for continuous flow of the 50-year frequency storm flows.

New culvert installations may be conducted under Category 1 if the work complies with the general conditions and Category 1 criteria of the GP. The following are Category 1 criteria that are commonly applicable to new culvert installations in utility right of ways:

- Work is conducted in accordance with the design requirements listed in Section 3.1.3 of the Best Management Practices Manual;
- Plastic and High Density Polyethylene Pipes (HDPE) are not used;

- The work results in less than 5,000 square feet of impacts to wetlands or waters of the United States;
- Any unconfined in-stream work, including construction, installation or removal of sheet pile cofferdam structures, is conducted during the low-flow period between July 1 and September 30, except in instances where a specific written exception has been issued by the Connecticut Department of Energy & Environmental Protection. However, installation of cofferdams, other than sheet pile cofferdams, is not restricted to the low-flow period;
- No open trench excavation is conducted within flowing waters. Work within flowing waters can be avoided by using temporary flume pipes, culverts, cofferdams, etc. to isolate work areas and maintain normal flows;
- The tributary watershed to the culvert does not exceed 1.0 square mile (640 acres);
- The culvert gradient (slope) is not steeper than the streambed gradient immediately upstream or downstream of the culvert;
- For a single box or pipe arch culvert crossing, the inverts are set not less than 12 inches below the streambed elevation;
- For a multiple box or pipe arch culvert crossing, the inverts of one of the boxes or pipe arch culverts are set not less than 12 inches below the elevation of the streambed;
- For a pipe culvert crossing, the inverts are set such that not less than 25% of the pipe diameter or 12 inches, whichever is less, is set below the streambed elevation;
- The culvert is backfilled with natural substrate material matching upstream and downstream streambed substrate;
- The structure does not otherwise impede the passage of fish and other aquatic organisms;
- The structure allows for continuous flow of the 50-year frequency storm flows;
- The work does not result in direct or secondary impacts to Special Wetlands, Threatened, Endangered or Special Concern Species, or Significant Natural Communities identified by the Connecticut Natural Diversity Database. Work within 750 feet of vernal pools shall be minimized;
- The project does not require a Corps permit with associated construction activities within 100 feet of Special Wetlands;
- The project does not result in fill placed within a FEMA established floodway, unless the applicant has a State of Connecticut Flood Management Certification pursuant to section 25-68d of the Connecticut General Statutes;
- The project does not result in fill placed within a FEMA established floodplain that would adversely affect the hydraulic characteristics of the floodplain;
- The project does not entail stormwater detention or retention in inland waters or wetlands;
- The project is not located in a segment of a National Wild and Scenic River System (includes rivers officially designated by Congress as active study status

rivers for possible inclusion) or within 0.25 miles upstream or downstream of the main stem or tributaries to such a system;

- The project has no potential for an effect on a historic property which is listed or eligible for listing in the National Register of Historic Places;
- The project does not impinge upon the value of any National Wildlife Refuge, National Forest, or any other area administered by the U.S. Fish and Wildlife Service, U.S. Forest Service or National Park Service.
- Appropriate BMPs are employed in regards to sedimentation and erosion controls (General Condition 20).

New culvert installations may be conducted under Category 2 if the work complies with the general conditions and Category 2 criteria of the GP. The following are Category 2 criteria that are commonly applicable to new culvert installations in utility right of ways:

- Work is conducted in accordance with the design requirements listed in Section 3.1.3 of the Best Management Practices Manual;
- The work results in less than one acre of impacts to wetlands or waters of the United States;
- The project does not result in fill placed within a FEMA established floodplain that would adversely affect the hydraulic characteristics of the floodplain;
- There is no practicable alternative location for the crossing that would have less environmental impacts;
- The use of a bridge or open-bottom structure is determined to be not practicable;
- For a single box or pipe arch culvert crossing, the inverts are set not less than 12 inches below the streambed elevation;
- For a multiple box or pipe arch culvert crossing, the inverts of one of the boxes or pipe arch culverts are set not less than 12 inches below the elevation of the streambed;
- For a pipe culvert crossing, the inverts are set such that not less than the pipe diameter or 12 inches, whichever is less, is set below the streambed elevation;
- The culvert is backfilled with natural substrate material matching upstream and downstream streambed substrate;
- The culvert has an openness ratio equal to or greater than 0.25 meters;
- The structure does not result in a change in the normal water surface elevation of the upstream waters or wetlands;
- The structure allows for continuous flow of the 50-year frequency storm flows;
- Appropriate BMPs are employed in regards to sedimentation and erosion controls (General Condition 20).

New culvert installations that cannot meet Category 1 or Category 2 criteria may require review under an Individual Permit. The Corps should be consulted before assuming an Individual Permit will be required, as exceptions can be made under certain circumstances.

In-kind replacement of culverts using the same materials is exempt from Section 404 of the Clean Water Act, and does not require permitting with the Corps. The Corps, however, should be consulted before assuming an activity is exempt from their jurisdiction. Consult with Siting and Permitting.

Bridge or open-bottom structure replacements may be conducted under Category 1 if the conditions for a new bridge or open-bottom structure replacement have been met. In addition, bridge or open-bottom structure replacements should not result in a change in the normal surface elevation of the upstream waters or wetland, and the replacement structure should have a riparian bank on one or both sides for wildlife passage. Culvert replacements may be conducted under Category 1 if the conditions for new culvert installation are met.

Bridge or open-bottom structure replacements may be conducted under Category 2 if the conditions for a new bridge or open-bottom structure replacement have been met. Culvert replacements may be conducted under Category 2 if the following conditions are met:

- The work results in 5,000 square feet to less than one acre of impacts to wetlands or waters of the United States;
- The use of a bridge or open-bottom structure is determined to be not practicable;
- For a single box or pipe arch culvert crossing, the inverts are set not less than 12 inches below the streambed elevation;
- For a multiple box or pipe arch culvert crossing, the inverts of one of the boxes or pipe arch culverts are set not less than 12 inches below the elevation of the streambed;
- For a pipe culvert crossing, the inverts are set such that not less than the pipe diameter or 12 inches, whichever is less, is set below the streambed elevation;
- The culvert is backfilled with natural substrate material matching upstream and downstream streambed substrate;
- The culvert has an openness ratio equal to or greater than 0.25 meters;
- The structure does not result in a change in the normal water surface elevation of the upstream waters or wetlands;
- The structure allows for continuous flow of the 50-year frequency storm flows.
- Appropriate BMPs are employed in regards to sedimentation and erosion controls (General Condition 20).

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APPENDIX C

Appendix C

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Appendix C

C.1 Applicable Laws/Regulations

In Massachusetts, there are no fewer than seven potentially pertinent regulatory programs associated with activities proposed in environmentally sensitive areas. The following list of laws and regulations are most likely to apply to electrical utility projects in the Commonwealth.

- Massachusetts Wetlands Protection Act (M.G.L. 131 § 40) (MA WPA)
- Municipal wetland bylaws (varies by town)
- Massachusetts Endangered Species Act (M.G.L. 131A) (MESA)
- "Chapter 91" Public Waterfront Act (M.G.L. c. 91 §§ 1 through 63)
- Massachusetts Environmental Policy Act (M.G.L. c. 30 §§ 61 through 62H) (MEPA)
- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403)
- Section 401 of the Clean Water Act (33 U.S.C. § 1251)
- Section 404 of the Clean Water Act (33 U.S.C. § 1344)
- Massachusetts Watershed Protection Act (M.G.L. 92A §1/2) (MA WsPA)

C.2 Geographic Areas Subject to Jurisdiction

The following areas are subject to regulatory jurisdiction by at least one of the regulatory programs discussed in this section: It is important to note that more than one jurisdictional resource type may be present at any given location. Further, while coastal wetland resource areas are jurisdictional under the Massachusetts Wetlands Protection Act (MAWPA), Eversource's territory does not extend into these areas at the present time. Therefore, these areas are not discussed in detail below.

- Massachusetts Wetlands Protection Act Resource Areas:
    - (Inland). Bordering Vegetated Wetland; Bank; Land Under Water Bodies and Waterways; Land Subject to Flooding; 200-foot Riverfront Area and associated 100-foot Buffer Zones.
- Areas subject to municipal wetlands bylaws or ordinances. (These vary by town.)
- Estimated and/or Priority Habitat of State-listed Rare Species
- Outstanding Resource Waters (ORWs = certified vernal pools and public surface drinking waters)
- Essential Fish Habitat (EFH)
- Cold Water Fisheries Resources (CFRs)
- Areas of Critical Environmental Concern (ACECs)
- Great Ponds
- Navigable waterways

- Quabbin Reservoir, Ware River and Wachusett Reservoir watersheds

C.2.1 Endangered Species

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) maintains the current list of rare and endangered species and species of special concern in Massachusetts. Publically available data only allows for identification of Priority Habitats for the listed species, not specific species information. Priority Habitat location information is available on the NHESP website.

Species specific information is provided for planned linear maintenance activities which are submitted to NHESP in WMECO's annual O&M Plan. Projects/ activities which are not covered in the O&M Plan must file an independent request for information.

Applicable regulations and agency are listed below:

- Massachusetts Endangered Species Act: 321 CMR 10.00 – Division of Fish and Wildlife – NHESP

C.2.2 Vernal Pools

NHESP maintains a database of certified and potential vernal pools in Massachusetts. These data are available on the NHESP website and MassGIS. Certified vernal pools are considered Outstanding Resource Waters. The Corps' GP modified July 28, 2011 includes provisions for protection of certified vernal pools and potential vernal pools, including the vernal pool depression, the vernal pool envelope (area within 100 feet of the vernal pool depression's edge), and the critical terrestrial habitat (area within 100-750 feet of the vernal pool depression's edge). Temporary impacts associated with timber (construction) mats in previously disturbed areas of existing utility projects rights-of-way are exempt from GP requirements regarding work in the vernal pool envelope or critical terrestrial habitat, provided that a Vegetation Management Plan exists that avoids, minimizes and mitigates impacts to aquatic resources. Applicable regulations and agencies for certified vernal pools are listed below:

- Wetlands Protection Act: 310 CMR 10.00 – MassDEP and local Conservation Commissions

- 401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the U.S. within the Commonwealth: 314 CMR 9.00 – MassDEP

- Department of the Army General Permit Commonwealth of Massachusetts - Corps

C.2.3 Essential Fish Habitat and Wild & Scenic River Designation

Essential Fish Habitat is a habitat essential for spawning, breeding, feeding, or growth to maturity of federally managed species. This website provides more information: www.greateratlantic.fisheries.noaa.gov/habitat. Consultation with the Corps is recommended to confirm the location of Essential Fish Habitat with respect to a proposed project.

Currently portions of the Westfield River and its tributaries, the Farmington River, West Branch, portions of the Sudbury, Assabet, and Concord Rivers, and the Taunton River are designated as National Wild and Scenic Rivers (www.rivers.gov/wildriverslist.html) in

Massachusetts. The Lower Farmington and Salmon Brook and Nashua Rivers are under study to determine consideration for National Wild and Scenic designation (www.rivers.gov/study.html). The Corps reviews projects for impacts to both Essential Fish Habitat and National Wild & Scenic Rivers.

- Department of the Army General Permit Commonwealth of Massachusetts – Corps

C.2.4 Cold Water Fisheries Resources

The Massachusetts Division of Fisheries and Wildlife maintains a list of waters that are known to have cold water fisheries resources (CFRs). This list is useful in highlighting environmental sensitive areas which could be avoided during project planning. The MassDEP reviews projects for potential impacts to CFRs.

- 401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the U.S. within the Commonwealth: 314 CMR 9.00 – MassDEP

C.2.5 Outstanding Resource Waters

Outstanding Resource Waters include Certified Vernal Pools (CVPs), surface drinking water supplies and tributaries to surface drinking water supplies. CVPs are determined by NHESP and locations are available through MassGIS. Locations of surface water supplies and other Outstanding Resource Waters are also available through MassGIS. The applicable regulations and agency are listed below:

- 401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the U.S. within the Commonwealth: 314 CMR 9.00 – MassDEP

C.2.6 Historic and Cultural Resources

The Massachusetts Historic Commission (MHC) is the State Historic Preservation Office (SHPO) and is responsible for protecting the state's historic and cultural resources. In addition, four Native American tribes have interests in Massachusetts, and the Board of Underwater Archaeological Resources (BUAR) protects underwater resources in Massachusetts' lakes, ponds, rivers and coastal waters. Historic and cultural concerns are typically associated with maintenance activities that may require excavation (i.e. new poles, new roads, guy wire installations, etc.).

C.3 Applicable Regulatory Agencies

Activities subject to jurisdiction under the above-referenced programs will generally be subject to review by one or more regulatory agencies (refer to list below). New stream and wetland crossings not related to maintenance will require permitting with municipal Conservation Commissions, and may require permitting with the U.S. Army Corps of Engineers (Corps) and Massachusetts Department of Environmental Protection (MassDEP) under Sections 404 and 401 of the Clean Water Act. Any non-maintenance work within Land Under Water will require permitting with the MassDEP Wetland and Waterways Division. Coordination with the NHESP may also be required for projects located within areas mapped as priority and/or estimated habitat for state-listed rare species. For work within navigable waters, consultation may be required with the Massachusetts Office of Coastal Zone Management (MA CZM).

- Municipal Conservation Commissions
- Massachusetts Department of Environmental Protection (MassDEP) Wetlands and Waterways Program
- Massachusetts Division of Fish and Wildlife: Natural Heritage and Endangered Species Program (NHESP)
- Massachusetts Executive Office of Environmental Affairs (EOEA)
- United States Army Corps of Engineers (Corps) New England District
- Massachusetts Office of Coastal Zone Management (MA CZM)
- Massachusetts Division of Conservation and Recreation (MA DCR)

C.4 Maintenance, Repair, or Emergency Projects

Most regulatory programs contain provisions that allow normal maintenance of existing structures and/or response to emergency situations that require immediate attention.

C.4.1 Maintain, Repair and/or Replace

Exemptions or considerations for maintenance, repair, and/or replacement of existing electrical utility structures exist in some environmental regulations, but not all. The exemptions are limited to work related to existing and lawfully located structures where no change in the original structure or footprint is proposed. It is not for the selected contractor of a particular project to make a determination as to whether an activity is exempt. This determination will be made prior to work by the Eversource project manager, in consultation with Eversource environmental staff.

These exemptions/considerations are afforded at:

- MAWPA (M.G.L Chapter 131, § 40, paragraph 1)
- MAWPA regulations for Riverfront Area (310 CMR 10.58(6))
- MEPA regulations (301 CMR 11.01(2)(b)(3))
- 33 CFR Part 323.4(a)(2)
- MA 401 WQC (314 CMR 9.03(1))
- MESA (M.G.L. Chapter 131A, § 3; 321 CMR 10.14(5-7) and (12)
- MAWPA (350 CMR 11.05(11) and (12))
- National Pollutant Discharge Elimination System (NPDES), Construction General Permit (as modified effective February 16, 2012)

However, certain operations and maintenance activities which impact Waters of the United States are subject to Sections 401 and 404 of the Clean Water Act, per Sections 1.6 and 1.7 below.

C.4.2 Emergency Projects

Emergency provisions are generally afforded to activities that need to abate conditions that pose a threat to public health or safety. These provisions generally do not allow work beyond what is necessary to abate the emergency condition, and will generally require an after-the-fact permit. It is not for the selected contractor of a particular

project to make a determination as to whether an activity is an emergency. This determination will be made prior to work by the Eversource project manager, in consultation with Eversource environmental staff.

It is important to note that invocation of an emergency provision does not release the project proponent from reporting requirements.

Emergency provisions are afforded at:

- MAWPA regulations (310 CMR 10.06)
- MEPA (301 CMR 11.00)
- MA 401 WQC (314 CMR 9.12)
- Chapter 91 (310 CMR 9.20)
- MESA (321 CMR 10.15)

C.5 Municipal Permitting

Work within wetlands, watercourses and Buffer Zones typically requires permitting with municipal Conservation Commissions. Work that entails "maintaining, repairing or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public and used to provide electric service" is exempt under the Massachusetts Wetlands Protection Act (MA WPA) per MGL Chapter 131 Section 40. However, individual municipalities may establish their own wetlands bylaws under Home Rule authority which could require permitting for operation and maintenance activities. The table below lists communities which have a wetland bylaw in which Eversource Energy operates and maintains infrastructure. Appropriate municipal permitting or notification should be completed in these towns as required prior to conducting operation and maintenance activities.

TABLE C-1
Eversource Energy Communities with Municipal Wetland Bylaws[1]

Community	Date of Bylaw	Utility Maintenance Exemption	Notification Required
Acton	7/8/2003	Yes	No
Amherst	9/27/2006	Yes	Yes
Ashland	5/6/2009	Yes	Yes
Auburn	5/1/2012	Yes	Yes
Bedford	1987/rev. 1995	Yes	Yes
Belchertown	5/3/2006	Yes	No
Bellingham	As of 12/2015	No	Yes
Bolton	5/7/2012	Yes	No
Brookline	12/2009 (regs)	Yes	Yes
Burlington	5/20/2013	Yes	Yes
Canton	4/29/1989	Yes	Yes
Carlisle	2009	Yes	No
Carver	As of 12/2015	Yes	Yes
Chicopee	4/3/2002	Yes	No
Chilmark	10/12/1993	No	Yes
Dedham	11/182013	Yes	Yes
Deerfield	11/6/1989	Yes	Yes
Dover	5/2/1994	Yes	Yes
East Longmeadow	10/1992	Yes	Yes
Framingham	4/26/2005	Yes	Yes
Grafton	5/11/1987	Yes	Yes
Greenfield	11/23/2001	Yes	No
Hadley	5/1/2008	No	Yes
Holden	2011	Yes	Yes
Hopkinton	5/2/1995	Yes	Yes
Hampden	8/5/1992	Yes	Yes
Holyoke	11/2005	Yes	Yes
Kingston	2004	No	Yes
Leicester	11/2015	Yes	Yes
Lexington	5/3/1982	No	Yes
Lincoln	3/24/2007	No	Yes
Longmeadow	10/2000	Yes	No
Ludlow	5/1/2002	Yes	No
Maynard	12/3/2005	Yes	Yes
Medway	7/2014	Yes	Yes
Milford	5/2010	Yes	No
Millis	5/13/1191	Yes	No
Millville	5/13/2013	Yes	Yes

Community	Date of Bylaw	Utility Maintenance Exemption	Notification Required
Natick	4/27/2000	Yes	No
Needham	9/1/1988	Yes	Yes
Norfolk	11/9/2010	Yes	Yes
Northampton	8/17/1989	Yes	Yes
Northborough	5/21/1990	Yes	Yes
Northbridge	5/6/2008	Yes	Yes
Pelham	5/2/1987	Yes	Yes
Pembroke	4/22/2008	Yes	No
Plympton	5/16/2012	Yes	Yes
Richmond	5/2015	Yes	Yes
Rochester	As of 12/2015	Yes	Yes
Sharon	As of 12/2015	Yes	No
Sherborn	2013	Yes	No
Shutesbury	5/2/1987	Yes	Yes
Southborough	4/10/1995	Yes	Yes
South Hadley	12/27/2005	No	Yes
Southwick	6/6/1989	Yes	Yes
Springfield	5/5/1993	Yes	Yes
Stoneham	4/2013	Yes	Yes
Stow	5/21/2003	No	Yes
Sunderland	4/27/1990	Yes	Yes
Sutton	5/11/2015	Yes	Yes
Truro	9/30/2010	No	Yes
Upton	2009	Yes	Yes
Walpole	2002	Yes	Yes
Wayland	5/1/2002	Yes	No
Wendell	3/10/1988	Yes	Yes
West Tisbury	6/3/2004	Yes	Yes
Westborough	10/20/2008	Yes	Yes
Westfield	5/20/2003	Yes	Yes
Westwood	1989	Yes	Yes
Wilbraham	5/27/1997	Yes	Yes
Worcester	7/1/2007	Partial	Yes

[1]According to Massachusetts Association of Conservation Commissions website as of December, 2015 and Town/City websites.
[2]Refer to municipal bylaws prior to conducting work in the community.

C.6 MA Department of Environmental Protection

Review and approval under the Commonwealth's Water Quality Certification Regulations is required for "*discharge of dredged or fill materials, dredging, and dredged material disposal activities in waters of the United States within the Commonwealth which require federal licenses or permits and which are subject to state water quality certification*

under 33 U.S.C. 1251, et seq. The federal agency issuing a permit initially determines the scope of geographic and activity jurisdiction" (314 CMR 9.01(2)). An individual Water Quality Certification is required from the Massachusetts Department of Environmental Protection (MassDEP) for any activity identified at 314 CMR 9.04. In accordance with 314 9.04 (4) activities which are exempt from MGL Chapter 131 Section 40 but are subject to 33 U.S.C. 1251, *et seq*., and will result in any discharge of dredge or fill material to bordering vegetated wetlands or land under water require an individual 401 Water Quality Certification. Temporary fill placed within an Outstanding Resource Water shall require the filing of an Individual WQC and a Variance Request when required pursuant to 314 CMR 9.06(3). Activities which are exempt from Section 404 of the Clean Water Act and any other federal permit or license do not require 401 authorization.

Work within certain Outstanding Resource Waters, such as certified vernal pools, are prohibited unless a variance is obtained under 314 CMR 9.08. However, under 314 CMR 9.06(3)(c), maintenance, repair, replacement and reconstruction but not substantial enlargement of existing and lawfully located structures or facilities including roads and utilities are allowed to occur within ORWs when authorized by a Water Quality Certification.

C.7 U.S. Army Corps of Engineers

Work within wetlands and waters of the United States is subject to jurisdiction under Section 404 of the Clean Water Act, which is administered by the Corps. Work within navigable waters is also administered by the Corps under Section 10 of the Rivers and Harbors Act of 1899. The Corps has issued a General Permits (GPs) for Massachusetts which establishes categories for projects based on their nature of impacts. The General Permits were issued on February 4, 2015, and expire on February 4, 2020. Certain minor activities are eligible for Self-Verification, which requires submittal of a Self-Verification Notification Form (SVNF) before the work occurs. Activities eligible for Self-Verification are authorized under the general permit and may proceed without written verification from the Corps as long as the SVNF has been submitted and the activity meets the terms and conditions of the applicable GPs. Activities requiring Pre-Construction Notification (PCN) require the submittal of an application to the Corps, followed by a screening of the application by the Corps, the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, National Marine Fisheries Service, MassDEP, and consultation with the Massachusetts Historical Commission, Tribal Historic Preservation Officers and the Massachusetts Board of Underwater Archaeological Resources (BUAR). PCN projects may not proceed until written verification from the Corps is received. An Individual Permit requires a formal permit application to be submitted to the Corps. The application is reviewed in detail by both state and federal agencies, and a Public Notice is released for public comment. Projects which trigger an Individual Permit generally result in significant impacts to wetlands and/or watercourses.

Corps permitting does not apply to activities that fall under the maintenance exemption set forth at 33 CFR 323.4(a)(2) – Discharges Not Requiring Permits:

"Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character,

scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs in order to qualify for this exemption."

Maintenance projects that occurred prior to the Corps jurisdiction over fill activities, or that were properly permitted, can proceed under the maintenance exemption noted above, provided that the same temporary fill areas are used. However, it is recommended that a formal determination be requested from the Corps to confirm these activities are exempt. The repair, rehabilitation or replacement of a previously authorized, currently serviceable structure or fill (with some minor deviations in the structure's configuration or filled area) are regulated under GP1 and subject to Self-Verification or Pre-Construction Notification.

Also, operation and maintenance related activities that do not meet the above exemption may qualify for Self-Verification. In that case, it is recommended that a copy of the SVNF be submitted to MassDEP.

The Massachusetts General Permits are listed below. GPs specifically applicable to utility projects are bolded and italicized:

GP1. Repair, Replacement and Maintenance of Authorized Structures and Fills
GP2. Moorings
GP3. Pile-Supported Structures, Floats and Lifts
GP4. Aids to Navigation, and Temporary Recreational Structures
GP5. Dredging, Disposal of Dredged Material, Beach Nourishment, and Rock Removal and Relocation
GP6. Discharges of Dredged or Fill Material Incidental to the Construction of Bridges
GP7. Bank and Shoreline Stabilization
GP8. Residential, Commercial and Institutional Developments, and Recreational Facilities
GP9. Utility Line Activities
GP10. Linear Transportation Projects Including Stream Crossings
GP11. Mining Activities
GP12. Boat Ramps and Marine Railways
GP13. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects
GP14. Temporary Construction, Access, and Dewatering
GP15. Reshaping Existing Drainage Ditches, New Ditches, and Mosquito Management
GP16. Response Operations for Oil and Hazardous Substances
GP17. Cleanup of Hazardous and Toxic Waste
GP18. Scientific Measurement Devices
GP19. Survey Activities
GP20. Agricultural Activities
GP21. Fish and Wildlife Harvesting and Attraction Devices and Activities
GP22. Habitat Restoration, Establishment and Enhancement Activities
GP23. Previously Authorized Activities

In general the following cumulative thresholds apply for determining the level of Corps permitting required:

Table C-2
Corps Permits Limits

Resources	SV Limits (SV Eligible)	PCN Limits (PCN Eligible)	IP Limits (IP Required)
Non-tidal waters of the US	0 to 5,000 sf	5,000 sf to 1 acre	>1 acre
Tidal waters of the US	Not eligible	All discharges ≤1/2 acre	>1/2 acre
SAS in tidal waters of the US excluding vegetated shallows	Not eligible	All discharges ≤1,000 sf	>1,000 sf
SAS in tidal waters of the US consisting of vegetated shallows only	Not eligible	All discharges ≤100 sf (compensatory mitigation is required	>100 sf

*Special Aquatic Sites (SAS) consist of wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, and riffle and pool complexes. These are defined at 40 CFR 230 Subpart E.

Stream and wetland crossings are only subject to jurisdiction under the Corps if there is **a discharge of dredge or fill material into wetlands or waters of the United States**. Equipment access through a stream or wetland with no structural BMP is not regulated by the Corps if there is no discharge of dredge or fill material (note that equipment rutting as a result of not using an appropriate BMP can be considered a "discharge of dredge material"). Similarly, the use of a timber or rail car bridge that extends from bank to bank with no stream impacts is not regulated by the Corps. The use of timber mats, stone, and log corduroy is considered "fill material" by the Corps MA GPs, and must be calculated to determine overall impacts.

Maintenance, including emergency reconstruction of currently serviceable structures, is exempt from Corps jurisdiction and does not require formal permitting. Maintenance does not include any modification that changes the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs to qualify for this exemption.

New culvert installation or existing culvert replacements may require permitting with local Conservation Commissions under the MA WPA, and may also require permitting with the Corps under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899, and the MassDEP under Section 401 of the Clean Water Act.

Stream and wetland crossings (including culvert installations) that involve the discharge of dredge and fill material may be conducted under Self-Verification if the following criteria are met.

- The use of construction mats of any area can be used to conduct activities that were previously authorized, authorized under Self-Verification, or not subject to regulation. Other temporary or permanent fill and associated secondary impacts must meet the SV limits.
- Authorized construction mats must be removed immediately upon work completion, and the wetlands must be restored per the General Conditions.
- The project has no potential for an effect on a historic property within the permit area or any known historic property that may occur outside the permit area.

- Any in-water work is limited to Time of Year windows appropriate for the spawning, breeding and migration of present species specified by the Massachusetts Division of Marine Fisheries. The TOY restriction for any inland stream not specified by MA DMF is October 1 to June 30. Activities within water proposed during these TOY restrictions are ineligible for Self-Verification authorization.
- The work does not result in direct or secondary impacts to Special Aquatic Sites.
- No work occurs in navigable waters of the U.S.
- Span streams or size culverts or pipe arches such that they are wider than bankfull width (BFW). Spans are strongly preferred as they avoid or minimize disruption to the streambed, and avoid entire streambed reconstruction and maintenance inside the culvert or pipe arch, which may be difficult in smaller structures. Footings and abutments for spans and scour protection should be landward of 1.2 times BFW. The width of culverts and arches at bankfull elevation should be ≥1.2 times BFW.
- Embed culverts or pipe arches below the grade of the streambed. This is not required when ledge/bedrock prevents embedment, in which case spans are required. The following depths are recommended to prevent streambed washout, and ensure compliance and long-term success:
    - ≥ 2 feet for box culverts and pipe arches, or
    - ≥ 2 feet and at least 25% for round pipe culverts.
- Match the culvert gradient (slope) with the stream channel profile.
- Construct crossings with a natural bottom substrate within the structure matching the characteristics of the substrate in the natural stream channel and the banks (mobility, slope, stability, confinement, grain and rock size) at the time of construction and over time as the structure has had the opportunity to pass substantial high flow events.
- Construct crossings with appropriate bed forms and streambed characteristics so that water depths and velocities are comparable to those found in the natural channel at a variety of flows at the time of construction and over time. In order to provide appropriate water depths and velocities at a variety of flows and especially low flows, it is usually necessary to reconstruct the streambed (sometimes including a low flow channel), or replicate or preserve the natural channel within the structure. Otherwise, the width of the structure needed to accommodate higher flows will create conditions that are too shallow at low flows. Flows could go subsurface within the structure if only large material is used without smaller material filling the voids.
- Openness, which is the is the cross-sectional area of a structure opening divided by its crossing length when measured in consistent units, is > 0.82 feet (0.25 meters).
- Banks on each side of the stream inside the crossing matching the horizontal profile of the existing stream and banks outside the crossing are recommended. To prevent failure, all constructed banks should have a height to width ratio of no greater than 1:1.5 (vertical:horizontal) unless the stream is naturally incised. Tie these banks into the up and downstream banks and configure them to be stable during expected high flows.

- The project is not located within a vernal pool depression, or vernal pool envelope, and does not individually or cumulatively impact greater than 25% of the vernal pool critical terrestrial habitat. It is feasible for some temporary impacts associated with the use of construction mats in previously disturbed right-of-ways to occur within the vernal pool envelope or critical terrestrial habitat if a Vegetation Management Plan demonstrates avoidance, minimization and mitigation impacts to aquatic resources.
- Culvert extensions do not qualify for Self-Verification.
- Culvert projects using slip lining do not qualify for Self-Verification, either as new work or maintenance activities.
- No open trench excavation in flowing waters. No work in riffles and pools.
- The project does not entail stream relocation.
- Work is not conducted within riffles or pools.
- Normal flows within the stream boundary's confines must be maintained, i.e., temporary flume pipes, culverts, cofferdams, etc.
- Water diversions (i.e., bypass pumping or water withdrawals) may be used immediately up and downstream of the work footprint.
- The project is (a) not located in the designated main stem of, or within 0.25 miles up or downstream of the designated main stem of, or in tributaries within 0.25 miles of the designated main stem of a National Wild and Scenic River System; (b) not in "bordering or contiguous wetlands" that are adjacent to the designated main stem of a National Wild and Scenic River; or (c) does not have the potential to alter flows within a river within the National Wild and Scenic River System.
- The project is not located within areas containing USFWS or National Marine Fisheries Service (NMFS)-listed species or critical habitat. The project is not "likely to adversely affect" listed species or habitat per the federal Endangered Species Act (ESA) or result in a "take" of any federally-listed threatened or endangered species of fish or wildlife.
- The project does not impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, or any other area administered by the U.S. Fish and Wildlife Service, U.S. Forest Service or National Park Service.
- The project is not located on Corps properties and Corps-controlled easements.
- The project does not propose temporary or permanent modification or use of a federal project beyond minor modifications required for normal operation and maintenance.
- The project minimizes use of heavy construction equipment, and, where required, either has low ground pressure (typically less than 3 psi) or it must be placed on construction mats.
- Construction mats must be placed in the wetland from the upland or from equipment positioned on swamp mats if working within a wetland.
- Temporary fill must be stabilized. Unconfined, authorized temporary fill must consist of clean material that minimizes impacts to water quality. Temporary fill

placed during the growing season must be removed before the beginning of the next growing season. If temporary fill is placed during the non-growing season, it may remain throughout the following growing season but must be removed before the beginning of the next growing season.

- Appropriate erosion, sedimentation and turbidity controls are used and maintained during construction.

- Appropriate measures must be taken to minimize flooding to the maximum extent practicable.

Wetland and stream crossings may be authorized under Pre-Construction Notification if the following criteria are met:

- The work results in less than one acre of impacts to inland, non-tidal, wetlands or waters of the United States.

Stream and wetland crossings that cannot meet Self-Verification or Pre-Construction Notification criteria may require review under an Individual Permit. The Corps should be consulted before assuming an Individual Permit will be required, as exceptions can be made under certain circumstances.

C.8 Temporary Stream Crossings

C.8.1 U.S. Army Corps of Engineers

See Section C.7 for general Corps permitting requirements for stream crossings. To qualify for Self-Verification, temporary stream crossings (typically culverts) that are not spans must be designed in accordance with below.

1) Installed outside of the TOY restrictions and must be removed before the beginning of the TOY restriction of that same season. Temporary crossings that must remain into the TOY restriction will require Pre-Construction Notification review.

2) Impacts to the streambed or banks require restoration to their original condition (see "Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings," for stream simulation restoration methods). Use geotextile fabric or other appropriate bedding for stream beds and approaches where practicable to ensure restoration to the original grade. The requirements in GCs 17, 18 and 19 are particularly relevant.

3) Avoid excavating the stream or embedding crossings.

4) For Culverts:

    a. The water height should be no higher than the top of the culvert's inlet and the culvert is large enough to pass debris.

    b. Install energy dissipating devices downstream if necessary to prevent scour.

c. The TOY restrictions in GC 18 and the restrictions in GC 17(f) are particularly relevant.

5) Removed upon the completion of work. Impacts to the streambed or banks requires restoration to their original condition using stream simulation methods.

In-kind repair, replacement and maintenance of currently serviceable, authorized fills are eligible for Self-Verification. However, the conditions of the original authorization apply, and minor deviations in fill design are allowed. In-kind repair and maintenance of culverts that includes an expansion or change in use requires Pre-Construction Notification. Replacement of non-serviceable fills, including an expansion or change in use, also requires Pre-Construction Notification. In-kind replacement using the same materials is exempt from Section 404 of the Clean Water Act, and does not require permitting with the Corps. The Corps, however, should be consulted before assuming an activity is exempt from their jurisdiction.

J:\N\N0915 Northeast Utilities-PSNH\N0915-60 BMP Manual Updates\BMP Report\Appendix\Appendix C - MA Specific Info December 2015.doc

APPENDIX D

Horizontal directional drilling (HDD) for subsurface utility installations is considered to be the most effective and least environmentally damaging technique when compared to traditional mechanical dredging and trenching. This method ensures the placement of the pipeline at the target burial depth with no wetland or water body disturbance. HDD installation is the preferred method for crossing sensitive resources–the alternative is open cut trenching.

The HDD procedure uses bentonite slurry, a fine clay material as a drilling lubricant. Directional drilling has the small potential to release bentonite slurry into the surface environment through frac-outs. This term describes the situation caused when the drilling head and its accompanying inert clay lubricant slurry, hits a subterranean fractured substrate. When the pressurized lubricant slurry reaches the fracture it can follow the fracture up or otherwise force itself to the surface or into the water if drilling is occurring under a waterbody. If a "frac-out" occurs under these water features, the potential exists for the inert clay (a non-toxic bentonite-based substance) to be released into the water column. In large quantities, the release of drilling mud into a waterbody could affect fisheries or other aquatic organisms by settling and temporarily inundating the habitats used by these species. Properly monitoring the slurry pressures and amounts significantly decreases risk of significant quantities of drilling fluid being released into the environment.

Frac-out is most likely to occur near the bore entry and exit points where the drill head is shallow. Should a frac-out occur during HDD operations, the following measures will be taken.

- Temporarily suspend forward drilling progress.
- Monitor frac-out for 4 hours to determine if the drilling mud congeals. (Bentonite will usually harden, effectively sealing the frac-out location.)
- If drilling mud congeals, take no other action that would potentially suspend sediments in the water column.
- If drilling mud does not congeal, erect appropriate isolation/containment measures (i.e. turbidity curtains and/or underwater boom and curtain).
- If the fracture becomes excessively large, a spill response team would be called in to contain and clean up excess drilling mud in the water. Phone numbers of spill response teams in the area will be on site.
- Following containment, evaluate the current drilling profile (i.e. drill pressures, pump volume rates, drilling mud consistency) to identify means to prevent further frac-out events.
- If the fracture is mitigated and controlled, forward progress of the drilling may resume.

Corridor Management Plan for
Massachusetts Central Rail Trail-Wayside Section and
Sudbury-Hudson Transmission Reliability Project

This Corridor Management Plan (CMP) is consistent with DCR's standard operations and maintenance plan for shared use pathway / rail trails. This plan has been developed specifically for those portions of the existing MBTA corridor where DCR's proposed Massachusetts Central Rail Trail Project will be located along Eversource's proposed Sudbury-Hudson Transmission Reliability Project in the towns of Sudbury, Marlborough, Stow, and Hudson. This CMP will be shared with DCR and Eversource staff engaged in management activities.

The construction of the MCRT is anticipated to begin within one year of the completion of the Sudbury to Hudson Transmission Reliability Project and as such, DCR plans to take responsibility for the following along this corridor following construction of both the Sudbury to Hudson Transmission Reliability Project and the MCRT:

Every two weeks, or as needed, between Memorial Day and Columbus Day DCR will:

- Pick up trash along the multi-use path
- Mow the 2-foot wide shoulders on each side of the paved multi-use trail
- Blow plant debris (leaves, branches, etc.) from paved shared use path (avoid blowing directly into vernal pools)
- Inspect for and remove fallen or immediate hazard trees and limbs that impede safe use of the multi-use trail
- Remove graffiti and illegal dumping, if it has occurred

Once a year (typically following Columbus Day weekend) DCR will:

- Mow the areas over the Eversource duct bank and stormwater swales (if mowing occurs between April 1 and November 1, then areas within mapped habitat for state-listed turtles will require "turtle sweeps" by trained individuals ahead of the mower and mower deck heights shall be set higher than 10 inches above the ground)
- Follow its best management practices for managing terrestrial invasive plants

Annually DCR will:

- Inspect culverts, swales and other drainage structures and clean as needed (see O&M/LTPPP below)
- Inspect existing paved surfaces of the multi-use trail to identify areas where root damage to pavement is beginning to occur. As appropriate pick / dig / remove roots causing the damage.
- Trim/remove potential hazard trees and those that appear to be causing root damage to the existing pavement of the multi-use trail
- Inspect trail signs and replace as needed, avoid "sign clutter" and remove excess /old signage

***Every 10-15 years, depending on resources, DCR plans to:**

- Saw-cut, excavate and repave targeted areas of root damage or cracks
- Consider mill and overlay to extend pathway life (no expansion or widening of multi-use trail; these activities require agency consultations and potential permitting)

- Repair deteriorated decking on bridges as needed
- Re-loam and re-seed shoulders to address edge issues

**If heavy equipment is used for any of these activities between April 1 and November 1 then "turtle sweeps" by trained individuals are required immediately ahead of any equipment. Conservation Commission will be contacted for activities that may be jurisdictional.*

Every 25-35 years, depending on resources, DCR plans to:

- Design and implement full pathway reconstruction (if required). This requires agency consultations and permitting and would require the development of turtle protection measures specific to the proposed reconstruction activities.

In the absence of Phase 2 Initiation:

If DCR's MCRT is not constructed, then every four years from completion of Eversource's transmission line project, Eversource plans to:

- Manage the herbaceous community over the duct bank only. All other previously disturbed areas, outside of the 14-foot-wide gravel access road associated with the Project will be allowed to revegetate with woody species.
    - Vegetation management will be conducted as part of the Company's Vegetation Management Plan that is approved by the Massachusetts Department of Agricultural Resources in compliance with 333 CMR 11.00. In accordance with the EFSB's Final Decision issued December 18, 2019, Eversource will utilize mechanical vegetation management withis this corridor.

    - The Company is required to present annual Vegetation Management Plans (VMP) to the NHESP for review and approval as per 321 CMR 10.14 (16). MNHESP sends a formal written response and attaches management guidelines that the Company must follow when performing routine vegetation management activities. In general, routine vegetation management is completed by mechanical means. As per past management guidelines related to state-listed turtle species imposed by NHESP along other utility corridors, the Company will avoid mowing between April 1 and November 1, conduct turtle sweeps prior to mowing, and set mower blades 10 inches above the ground.

Attachment: MassCentral Rail Trail – Wayside Section, Operations and Management Plan and Long Term Pollution Prevention Plan

MassCentral Rail Trail (MCRT) – Wayside Section
Stormwater Management System
Operation and Maintenance Plan (O&M)
and
Long Term Pollution Prevention Plan (LTPPP)

June 2020

This Stormwater Management System Operation and Maintenance Plan provides for the inspection and maintenance of structural Best Management Practices (BMPs) and for measures to prevent pollution associated with the Stormwater Management System on the MassCentral Rail Trail Wayside Section (in Hudson, Stow and Sudbury).

This document has been prepared in accordance with the requirements of the Stormwater Regulations included in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.05(6)(k)).

Responsible Party

Department of Conservation and Recreation (DCR) office will be responsible for the maintenance of the shared-use facility and associated stormwater management features, in accordance with DCR standards. The facility will be maintained by DCR maintenance staff from:

DCR's Maintenance Facility
Hopkinton Complex
164 Cedar St,
Hopkinton MA 01748
Jeff Cate
Field Operation Team Leader
(508) 435-4303

Maintenance Measures

The stormwater management system covered by this Operation and Maintenance Plan consists of the following components:

- Swales – Dry with check dams
- Areas of increased infiltration
- Drainage structures
  Hudson
  - Sta. 119+25 LT – Catch basin (Str 3)
  - Sta. 119+25 RT – Headwall (Str 4)
  - Sta. 126+70 RT – Catch basin (Str 5)
  - Sta. 126+70 LT – Headwall (Str 6)
  - Sta. 182+55 RT – Catch basin (Str 8)

Sudbury

- Sta. 530+80 RT – Catch basin (Str 9)
- Sta. 533+46 RT – Flared End Section (Str 10)
- Sta. 713+63 LT – Headwall (Str 12)
- Sta. 713+63 RT – Headwall (Str 13)

DCR Operations to maintain swales and the drainage culverts.

DCR Engineering to maintain listed catch basins, flared end section, and headwalls. Engineering can assist with blocked culverts if major blockage or structural concern.

Maintenance of these components will be conducted annually in accordance with DCR standard maintenance practices, as noted in the attached Operation and Maintenance table summarizing the pertinent inspection and maintenance activities.

If inspection indicates the need for major repairs of structural surfaces, the inspector should contact the DCR maintenance supervisor to initiate procedures to effect repairs in accordance with DCR standard construction practices.

Practices for Long Term Pollution Prevention

In general, long term pollution prevention and related maintenance activities will be conducted consistent with DCR's NPDES Stormwater MS4 Permit(s), and the measures outlined in the Stormwater Management Plans (SWMP). Information about the DCR permit and the SWMP are available at the following website:

http://www.mass.gov/eea/agencies/dcr/conservation/stormwater-mgmnt/

For the facilities covered by this Operation and Maintenance Plan, long term pollution prevention includes the following measures:

Litter Pick-up
DCR will conduct litter pick-up from the stormwater management facilities in conjunction with routine maintenance activities.

Routine Inspection and Maintenance of Stormwater BMPs
DCR will conduct inspection and maintenance of the stormwater management practices in accordance with the guidelines discussed above.

Spill Prevention and Response
DCR will implement its standard response procedures in the unlikely event of releases of significant materials such as fuels, oils, or chemical materials onto the ground or other areas that could reasonably be expected to discharge to surface or groundwater.

- Reportable quantities will immediately be reported to the applicable Federal, State, and local agencies as required by law. The applicable DCR office should also be notified.
- Applicable containment and cleanup procedures will be performed immediately. Impacted material collected during the response must be removed promptly and disposed of in accordance with Federal, State, and local requirements. A licensed

emergency response contractor may be required to assist in cleanup of releases depending on the amount of the release and the ability of the responsible party to perform the required response.
- Reportable quantities of chemical, fuels, or oils are established under the Massachusetts Contingency Plan (MCP) and enforced through MassDEP.

Maintenance of Landscaped Areas

DCR will mow and/or weed whack the shoulders adjacent to the rail trail biweekly or as needed between Memorial Day and Columbus Day. Outside of the 2-foot shoulders on either side of the rail trail, DCR will mow the 5-foot herbaceous area over the duct bank no more than once annually. Outside of the 19-foot maintained area (paved rail trail, 2-foot shoulders on either side and 5-foot area over the duct bank) woody vegetation will be allowed to naturally revegetate and DCR will not implement vegetation management unless it poses a risk to MCRT users. The limit of work, outside of the 19-foot maintained area, will be restored with loam and seed to provide a vegetated surface, but will not be maintained. The vegetated shoulders/slopes outside the maintained area will help to disperse and infiltrate disconnected drainage although no stormwater management benefit is identified. The swales and areas of increased infiltration outside of the 19-foot area will be inspected and mowed as needed or annually at a minimum to maintain proper water quality treatment function.

Eversource inspection vehicles will use the paved MCRT to access the transmission line facility approximately once every three years, or as needed for maintenance of the transmission line.

Within the Priority Habitat areas, the vegetation will not be trimmed lower than 10 inches along the shoulders or over the duct bank.

Fertilizers will not be used.

If DCR finds it necessary to use chemical treatment for invasive species vegetation control, this work will be done in compliance with MDAR regulations at 333 CMR 11.00, which will limit impacts to sensitive areas such as groundwater and drinking water wells. The MCRT is part of the DCR Yearly Operational Plan regarding vegetation maintenance along their bike path and recreational corridors.

Snow and Ice Management

There are no plans for snow and ice removal, nor de-icing (i.e., sanding, salting) of the bike path surface during winter months.

Prohibition of Illicit Discharges

The DEP Stormwater Management Standards prohibit illicit discharges to the storm water management system. Illicit discharges are discharges that do not entirely consist of stormwater, except for certain specified non-stormwater discharges.

Discharges from the following activities are not considered illicit discharges:

firefighting	foundation drains
water line flushing	footing drains
landscape irrigation	individual resident car washing
uncontaminated groundwater	flows from riparian habitats and wetlands

potable water sources	dechlorinated water from swimming pools
water used to clean residential buildings without detergents	water used for street washing
	air conditioning condensation

There are no known or proposed illicit connections associated with this project. If a potential illicit discharge to the facilities covered by this plan is detected (e.g., dry weather flows at any pipe outlet, evidence of contamination of surface water discharge by non-stormwater sources), the DCR shall be notified for assistance in determining the nature and source of the discharge, and for resolution through DCR's IDDE program.

Public Access

The MCRT Wayside Section is a public access facility. The facility is typically open dawn to dusk every day. Members of the Sudbury Planning Board or Conservation Commission are free to access the rail trail at any time the facility is open. Periodically the facility may be closed for maintenance construction (repairs, resurfacing, etc.) and for the safety of the public, access to the rail trail will be restricted.

Easements

The DCR holds an easement for construction and operation of the MCRT over the Massachusetts Department of Transportation – MBTA rail corridor. Within the rail corridor there are the following existing easements or license agreements by others:

- NSTAR Electric Company d/b/a Eversource Energy ("Eversource") to construct and operate the transmission powerline;
- Sudbury Lumber for access and storage of materials (off Union Avenue);
- Tennessee Gas Transmission Company to install and operate an underground natural gas transmission pipeline (east of Marlborough/Hudson town line);
- Town of Sudbury (east of Route 20 – building license);
- Douglas P. Webb lease for South Sudbury Station (off Union Avenue)

Appendix: Best Management Practices: Operation & Maintenance Measures

Best Management Practice*	Sweep	Mow	Inspect	Clean	Repair
Swales*	NA	Mow swales as needed or annually (minimum)	Annually	As needed	As needed
Check Dams	NA	String trim as needed (Not to be mowed) or annually (minimum)	Annually	As needed	As needed
Areas of increased infiltration*	NA	Mow as needed or annually (minimum)	Annually	As needed	As needed
Drainage structures	NA	NA	Annually	As needed	As needed

*If mowing occurs between April 1 and November 1, then areas within mapped habitat for state-listed turtles will require "turtle sweeps" by trained individuals ahead of the mower and mower deck heights shall be set lower than 10 inches above the ground or string trimmers can be used.

Best Management Practices – Maintenance/ Evaluation Checklist

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed	Date of Cleaning/Repair	Performed by
Swales	Annually			• Accumulated sand and sediment • Accumulated debris • Erosion of swale	☐**yes** ☐**no** ☐**yes** ☐**no** ☐**yes** ☐**no**		
Check Dams	Annually			• Accumulated sand and sediment • Accumulated debris • Erosion of surface	☐**yes** ☐**no** ☐**yes** ☐**no** ☐**yes** ☐**no**		
Areas of increased infiltration	Annually			• Accumulated sand and sediment	☐**yes** ☐**no**		
Drainage structures	Annually			• Accumulated sand and sediment • Floatables • Inlets free of debris	☐**yes** ☐**no** ☐**yes** ☐**no** ☐**yes** ☐**no**		

Notes on Stormwater / Drainage Issues:

_____

_____

_____

_____

Stormwater Control Manager _____

Project Plans Attached

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/15/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

LOCATION ID: SB/MW42

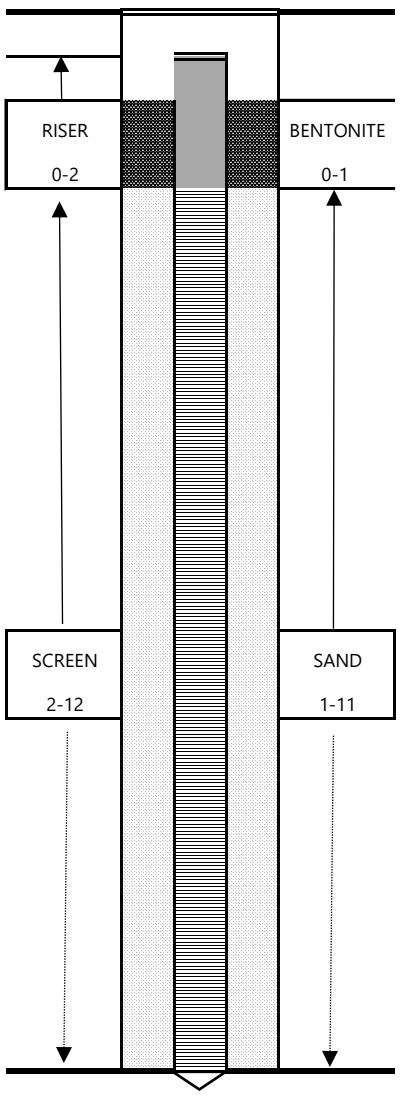
ESTIMATED DEPTH TO WATER (ft.):5'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: Continuous
TIME OF SAMPLE COLLECTION: 1400
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

5-6 Thermal and Proctor

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		1 3 3 4	15	0.0	12" Dark brown fine sand, silt, some gravel 3" Tan, fine-medium sand, silt, bright orange stain
2-4		5 5 4 5	1	0.0	Same as above bright orange stain noted at 4'
4-6	VOC	4 4 4 4	4	0.0	Dark brown, moist, medium-fine sand, salt, loose
6-8		6 14 21 17	15	0.0	12" same as above, saturated 3" clay/silt, grey, dense

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/15/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

LOCATION ID: SB41

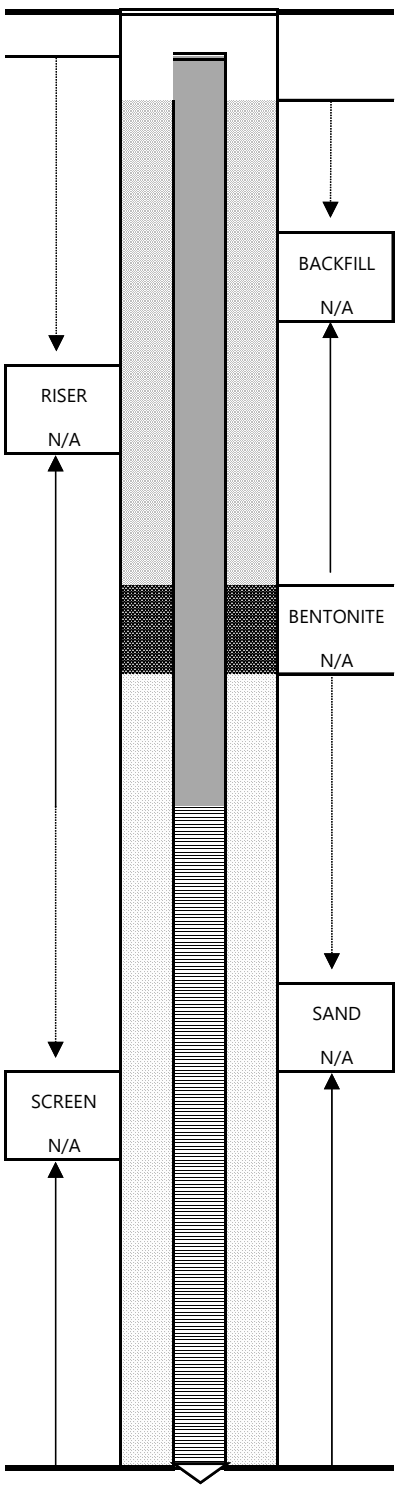
ESTIMATED DEPTH TO WATER (ft.):5'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: Continuous
TIME OF SAMPLE COLLECTION: 1200
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

5-6 Thermal and Proctor

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		1 1 2 4	19	0.0	6" Forest mat 13" Tan med-coarse sand, loose
2-4		2 2 2 2	11	0.0	Same as above
4-6		1 2 1 1	15	0.0	8" Same as above, wet 5" brown, fine sand, silt, dense, no odor
6-8	VOC	1 1 1 5	11	0.0	Brown, fine-medium sand, silt, loose, some gravel, loose

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/15/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

LOCATION ID: SB40

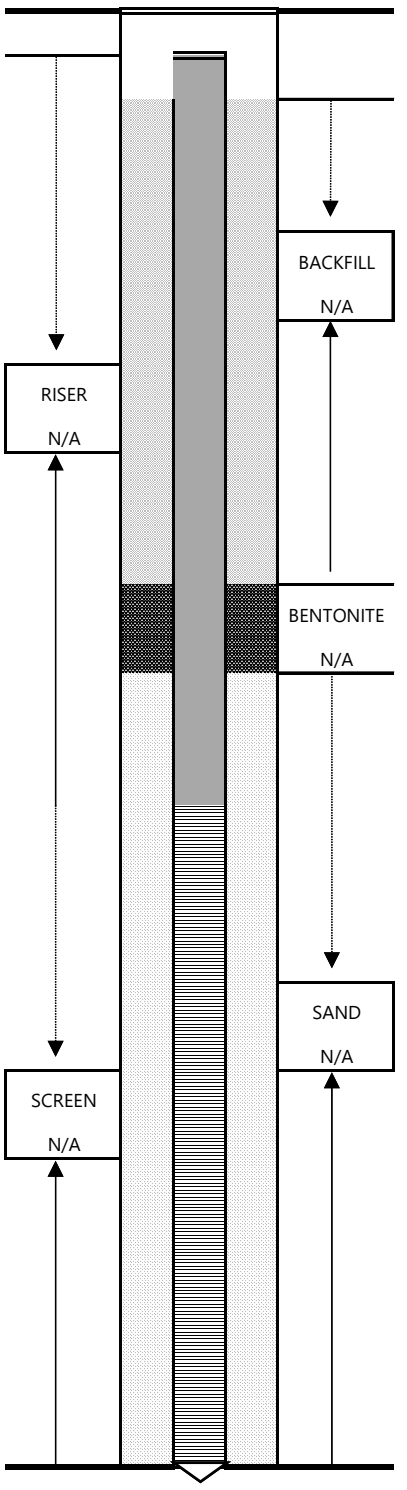
ESTIMATED DEPTH TO WATER (ft.):6'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: Continuous
TIME OF SAMPLE COLLECTION: 1000
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

5-6 Thermal and Proctor

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		1 4 11 25	10	0.0	1" Forest mat, black 9" medium sand, fine, loose, dry, no odor or staining
2-4	VOC	4 11 2 11	12	0.0	Tan fine-medium sand, silt, loose, dry
4-6		5 4 5 4	13	0.0	5" gray, fine-medium sand, silt, loose, wet 5" orange fine-med sand, wet, dense
6-8		4 6 14 15	21	0.0	16" gray-brown, fine-med sand, 1"silt, wet 1" Rock 4" Gray brown, fine-med, sand

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/15/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

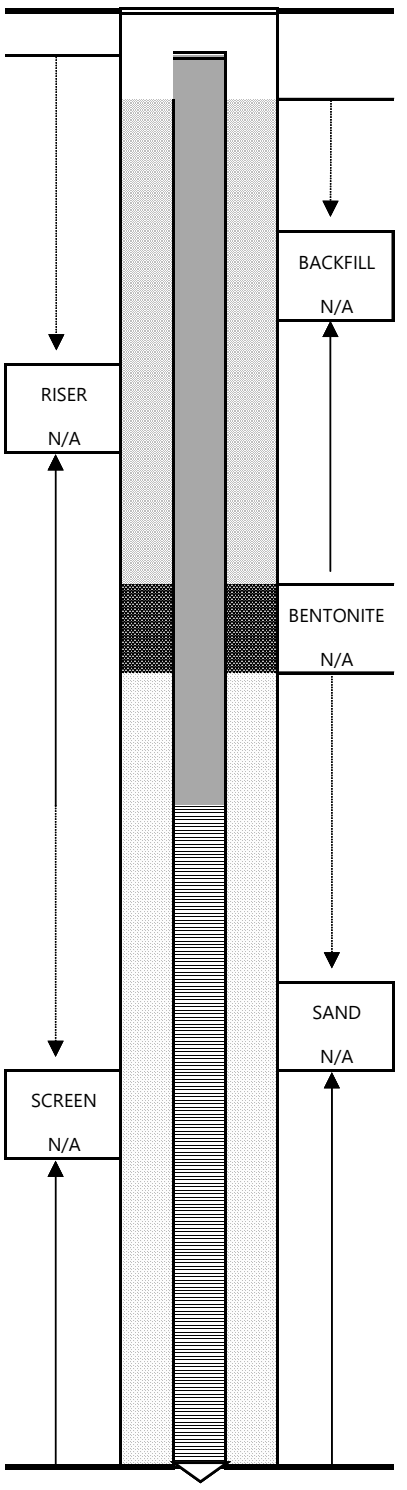
LOCATION ID: SB48

ESTIMATED DEPTH TO WATER (ft.):7'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: Continuous
TIME OF SAMPLE COLLECTION: 0900
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM only
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		7 7 6 4	10	0.0	2" forest mat, gravel 8" tan loose medium sand, silt, no odor, no stain
2-4		4 2 2 3	21	0.0	12" same as above 9"Dark black fine sand, silty, loose, no odor
4-6		1 1 10 11	21	0.0	13" same as above 8" gray silt, clay, dense
6-8	VOC	6 12 15 13	13	0.0	brown fine sand, silt, loose, wet, no odor
					End

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/13/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Proctor 5-6'
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

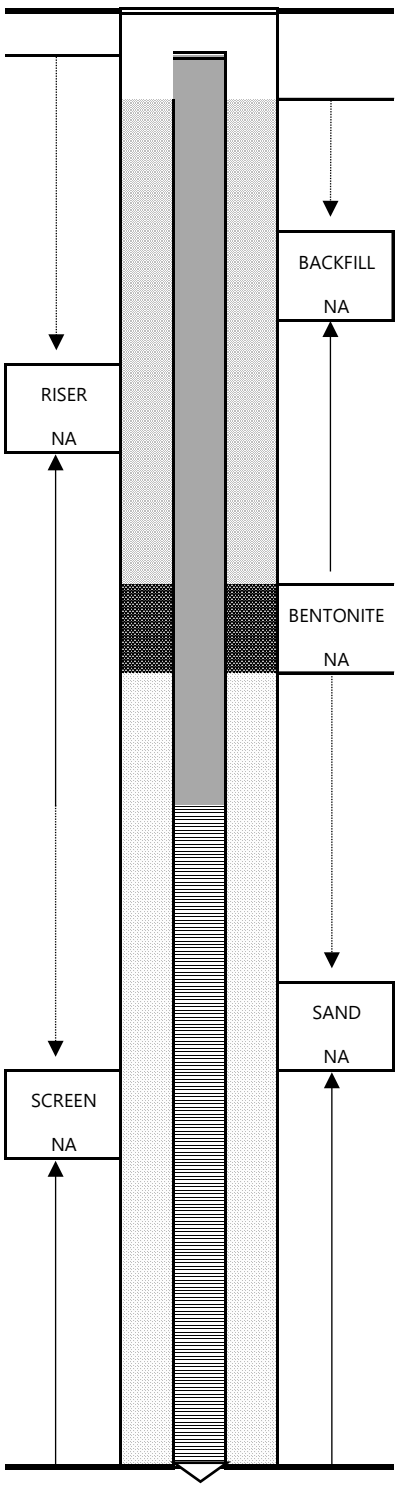
LOCATION ID: B28

ESTIMATED DEPTH TO WATER (ft.):6'
TOTAL BORING DEPTH (ft.): 10'
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: Continuos
TIME OF SAMPLE COLLECTION: 1300
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		3 2 7 2	17	0.0	Dark brown fine to medium sand with trace gravel, low density, low plasticity, no odor
2-4		19 33 62 59	20	0.0	Light brown fine to medium sand with trace gravel, medium density, low plasticity, dry, no odor
4-6	VOC	15 50 64 71	21	0.0	Light brown fine to medium sand with trace gravel, medium density, low plasticity, moist, no odor
6-8		58 61 72 -	6	0.0	Light brown fine to medium sand with trace gravel, medium density, low plasticity, wet, no odor

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/7/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC

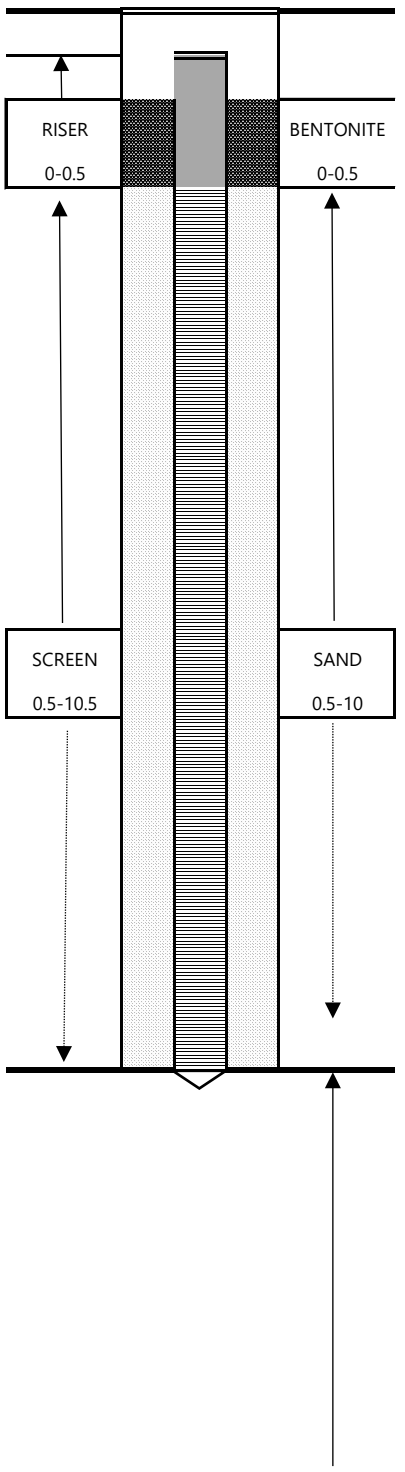
LOCATION ID: SB/MW35

ESTIMATED DEPTH TO WATER (ft.):3
TOTAL BORING DEPTH (ft.): 10
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8 bsg
TIME OF SAMPLE COLLECTION: 14:50
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM only
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2	VOC	25 25 25 15	24	0	Dark/black medium-coarse sand w/ angular rocks and coal ash, medium density, low plasticity, dry
2-4		12 12 8 7	9	0	Brown medium-fine sand with some rounded gravel, medium density, low plasticity, wet
4-6		3 10 13 19	19	0	Light brown fine-medium sand with trace silt, medium density, high plasticity, wet
6-8		18 15 20 15	24	0	Light brown fine-medium sand with trace silt, medium density, high plasticity, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/7/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC

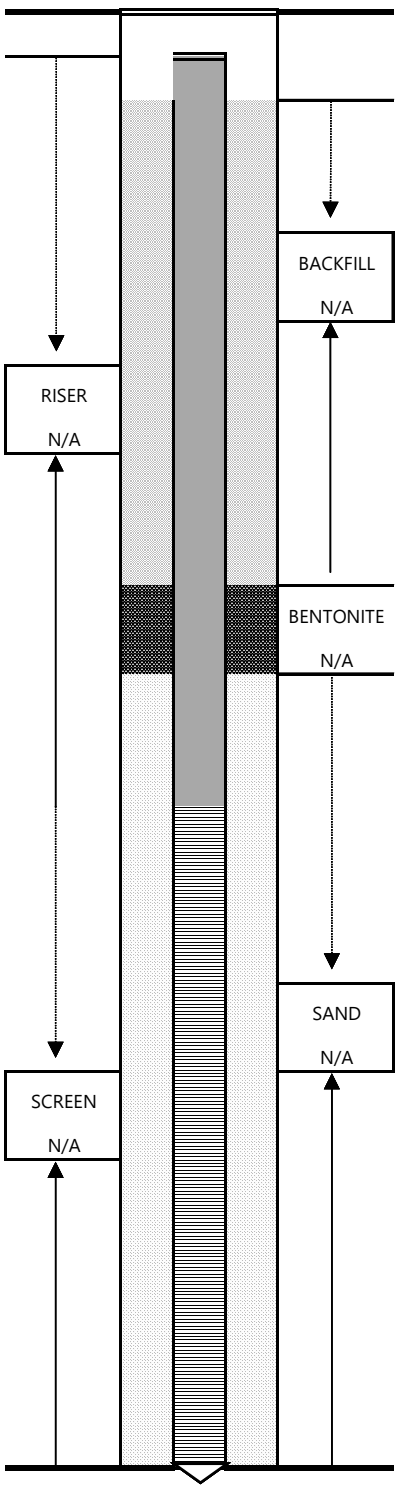
LOCATION ID: SB34

ESTIMATED DEPTH TO WATER (ft.):6
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8 bsg
TIME OF SAMPLE COLLECTION: 14:45
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM only
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2	VOC	3 4 3 N/A	24	0	6" Dark brown/black coarse-med sand underlain by medium brown medium fine sand, low density, medium plasticity, dry
2-4		5 4 4 3	20	0	Medium-dark brown, medium fine sand with trace sub-rounded rocks, low density, medium plasticity, dry
4-6		4 2 3 4	22	0	Medium-dark brown, medium fine sand with trace sub-rounded rocks, low density, high plasticity, damp
6-8		4 5 6 8	17	0	Brown fine-medium samd with trace coarse sand and silt, low density, high plasticity, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/7/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC

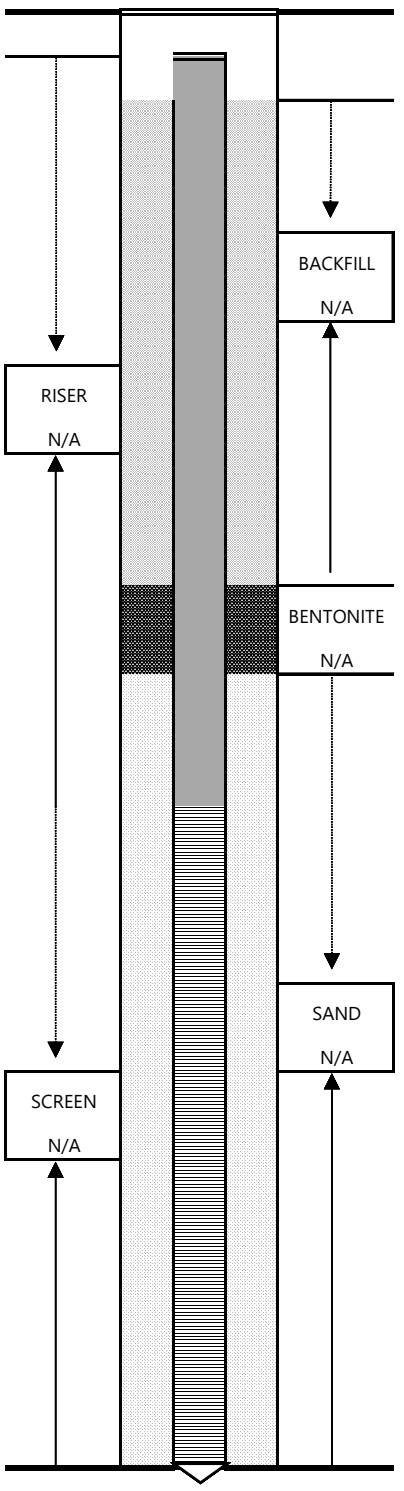
LOCATION ID: SB36

ESTIMATED DEPTH TO WATER (ft.):6
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8 bsg
TIME OF SAMPLE COLLECTION: 14:45
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) OHM only
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		7 3 5 7	23	0.0	3" Dark brown/black medium coarse sand underlain by light brown medium-fine sand with trace sub-rounded gravel, low density, medium plasticity, dry
2-4		7 9 8 8	23	0.0	light brown/gray very fine-fine sand w/ orange streaks, low density, high plasticity, dry
4-6		4 5 8 9	24	0.0	6" fall back, underlain by same material from 2'-4'
6-8	VOC	8 8 8 7	20	0.0	Same as above but moist, wet at 8'

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/7/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC

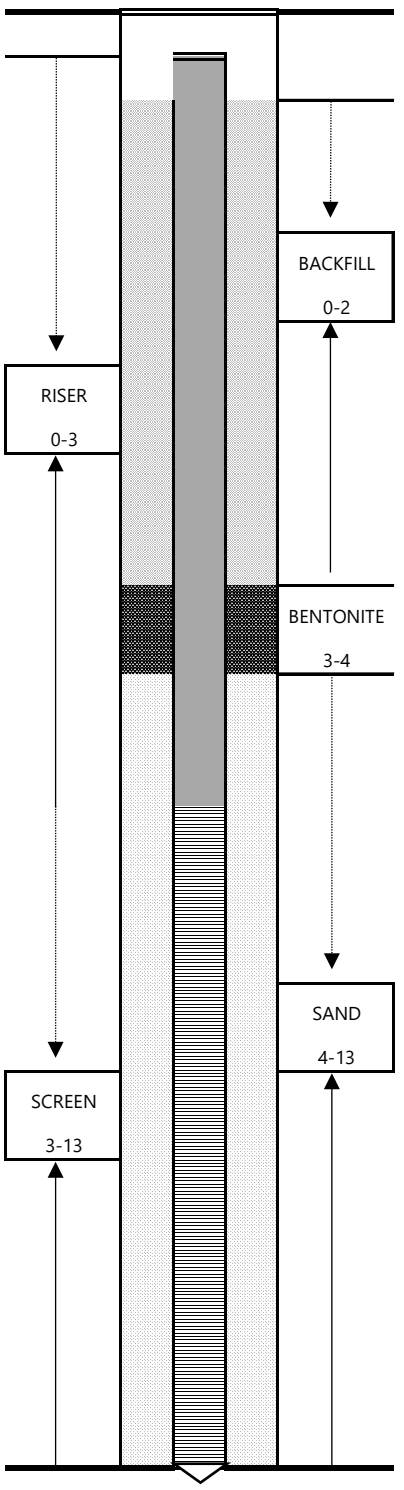
LOCATION ID: SB/MW33

ESTIMATED DEPTH TO WATER (ft.):6
TOTAL BORING DEPTH (ft.): 13'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X Well
DEPTH OF SAMPLE COLLECTED: 0-8 bsg
TIME OF SAMPLE COLLECTION: 14:36
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Well
FINISH DEPTH: 13'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		1 2 5 6	18	0.0	4" Dark brown med-coarse sand underlain by light brown finemed sand, low density, low plasticity, dry
2-4		8 9 10 10	20	0.0	light brown w/ orange streaks with trace fine sand, high plasticity, low density, dry
4-6	VOC	8 10 10 7	10	0.0	light brown/gray with fine medium sand w/ trace silt and orange streaks ar 6', low density, high plasticity, moist
6-8		6 6 6 6	11	0.0	light brown/gray with very fine-fine sand with trace silt and orange streaks, low density, medium plasticity, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/6/18
DRILLING METHOD: Hollow Stem A
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

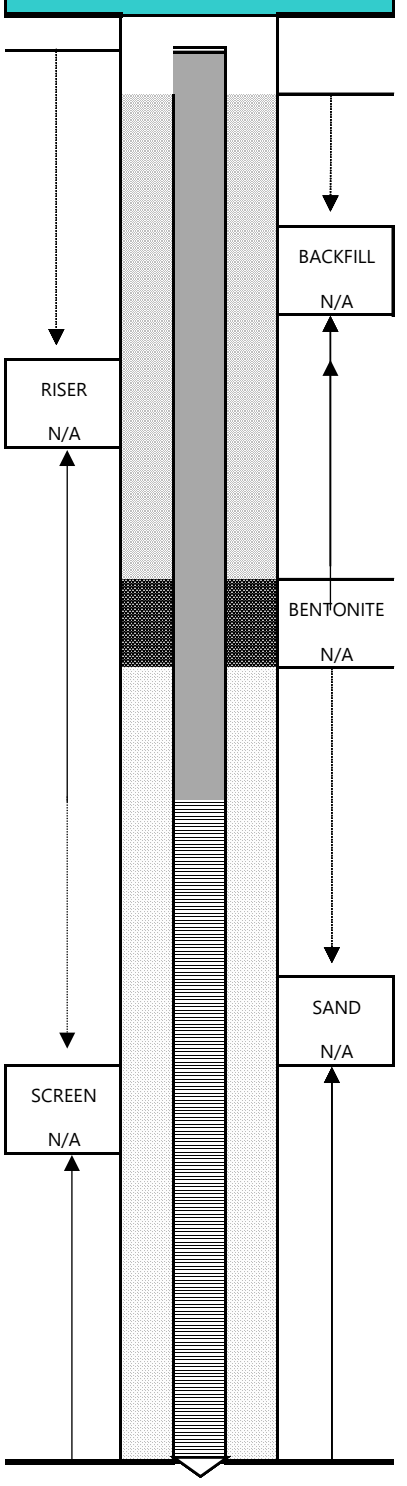
LOCATION ID: MP35

ESTIMATED DEPTH TO WATER (ft.):7
TOTAL BORING DEPTH (ft.): 15'
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 15' (proct
TIME OF SAMPLE COLLECTION:
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...)
FINISH DEPTH:
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 6 6 6	24	0.0	4" Black/Dark Brown, Fine Sand and silt, some organic 20" Tan/brown, silt and fine sand, little rounded gravel
2-4	VOC	3 5 8 12	16	0.0	16" Tan, fine sand and silt
4-6		5 6 7 8	14	0.0	14" Tan/light grey, Fine-Medium sand, little silt
6-8		10 12 8 8	16	0.0	6" same as above 10" Tan/light gray. Silt, light fine sand, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/6/18
DRILLING METHOD: Hollow Stem A
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

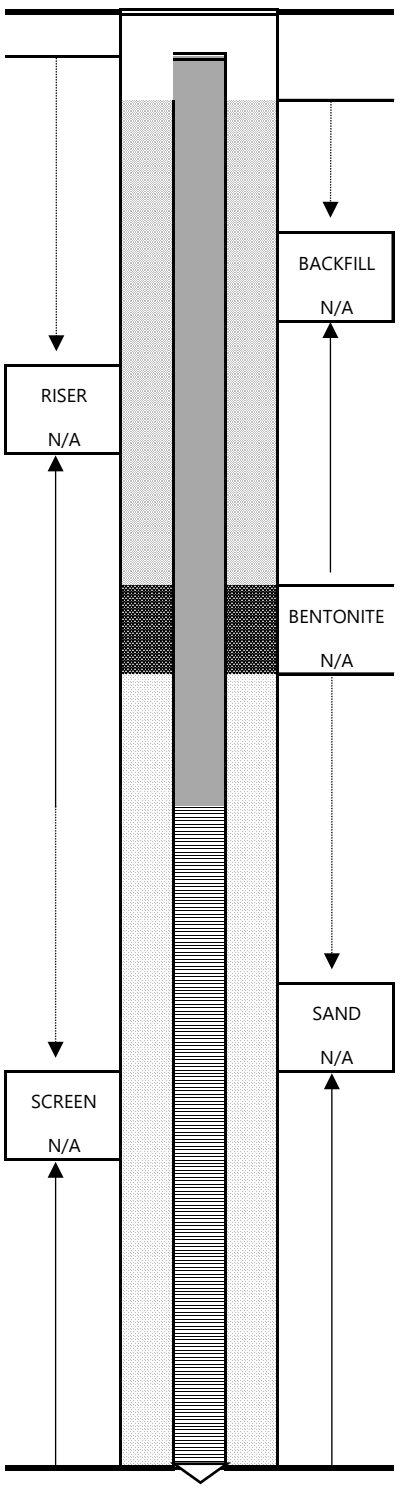
LOCATION ID: MP31

ESTIMATED DEPTH TO WATER (ft.):2
TOTAL BORING DEPTH (ft.): 15'
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 15' (proct
TIME OF SAMPLE COLLECTION:
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Manhole
FINISH DEPTH: 15'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2	VOC	3 4 3 3	8"	0.0	4" Black, fine-medium sand, little silt, little organic 4" Tan, fine-medium sand, little silt, moist
2-4		3 3 11 8	6"	0.0	6" Tan, sand, trace silt, gravel, wet
4-6		1 3 5 5	16"	0.0	16" Tan, fine-medium sand, little silt, wet
6-8		5 7 7 8	24"	0.0	10" same as above 14" Tan/light grey, silt, trace fine sand, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/6/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

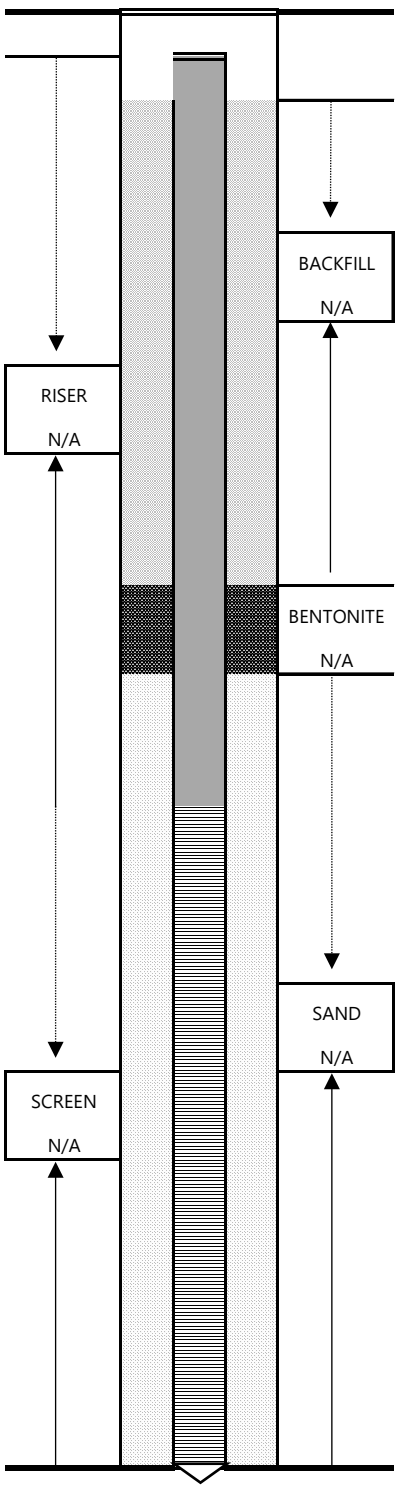
LOCATION ID: MP30

ESTIMATED DEPTH TO WATER (ft.):8
TOTAL BORING DEPTH (ft.): 10'
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 5-6 (proctor, thermal) 0-8 (OHM)
TIME OF SAMPLE COLLECTION: 1315
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 2 3 5	24	0.0	6" Black/Brown, fine sand, little silt 18" Tan, fine sand, little silt
2-4		6 5 4 3	20	0.0	12" Tan/Reddish tan, fine sand, little silt 8"Brown/tan, fine sand, some silt
4-6	VOC	2 2 2 6	24	0.0	4" Black, fine sand, little silt 16" Tan, brown, fine sand, trace silt 4" Black, silt, some fine sand, little organic
6-8		6 6 7 8	20	0.0	20" Brown/Tan, fine sand and silt, moist

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/5/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

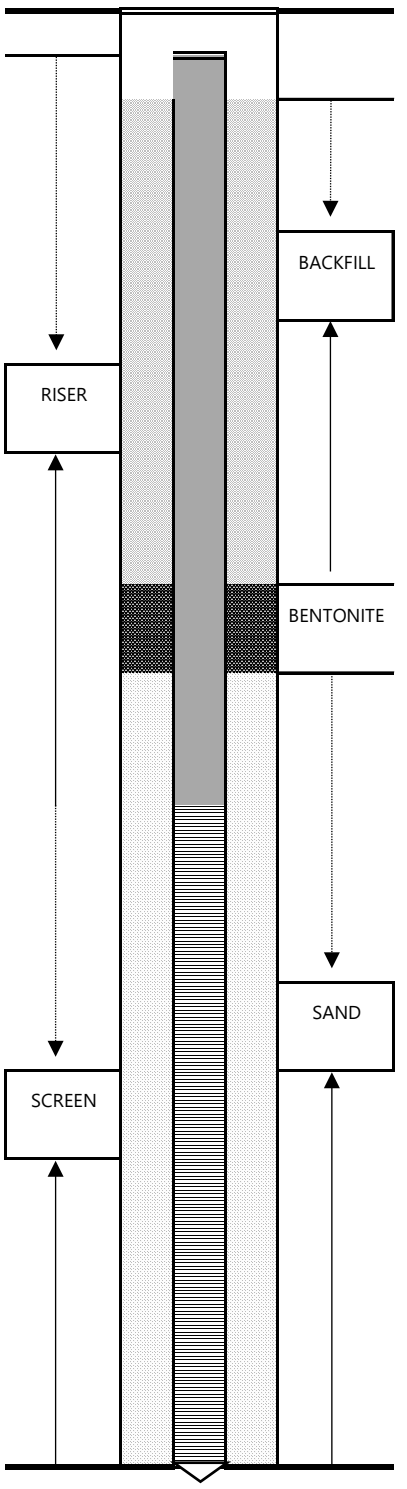
LOCATION ID: MP29

ESTIMATED DEPTH TO WATER (ft.):
TOTAL BORING DEPTH (ft.): 15'
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 15' (proctor) 0-8, 6-8) OHM
TIME OF SAMPLE COLLECTION: 1315
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Manhole
FINISH DEPTH: 15'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 6 9 8	24	0.0	10" black, sand, little silt, trace debris (glass) some org @ surface, fine gravel 14" bright brown, sand, trace silt
2-4		7 8 7 7	18	0.0	8" same as above 10" light tan/light grat, sand, trace silt
4-6		3 5 6 6	18	0.0	18" Same as above
6-8	VOC Grab		20	0.0	20" light brown/reddish brown, fine sand, some silt, moist, possible redox
					End boring @ 15'

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/5/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

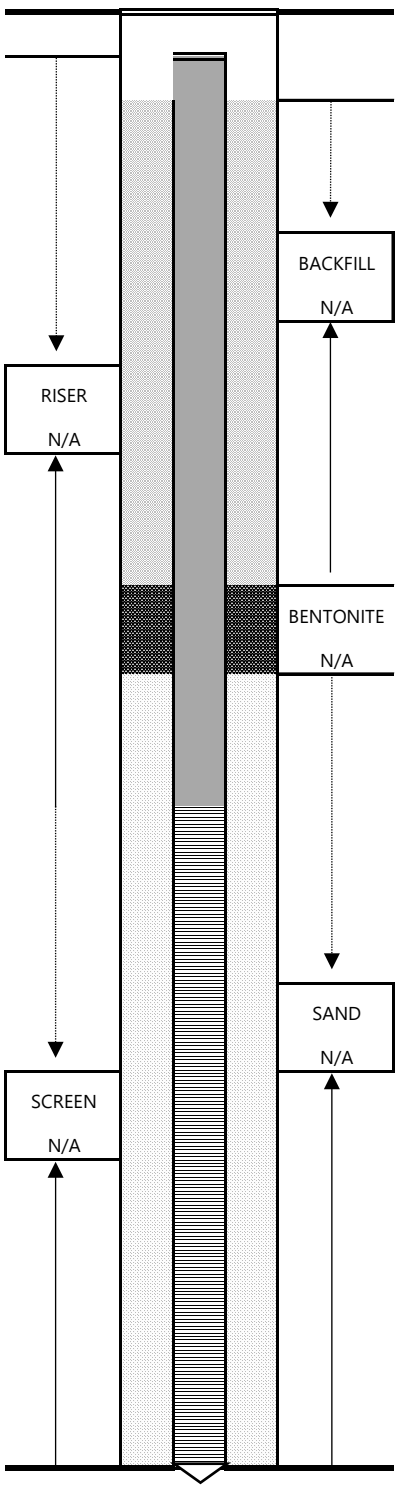
LOCATION ID: MP28

ESTIMATED DEPTH TO WATER (ft.):7-8
TOTAL BORING DEPTH (ft.): 10'
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 5-6 (thermal) 0-8/6-8 (OHM)
TIME OF SAMPLE COLLECTION:
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 2 4 6	24	0.0	8" black, fine-medium sand, light silt, coal ash, gravelly 16" Brown-tan, fine sand, light silt
2-4		6 8 7 8	20	0.0	20" Tan, fine sand, light silt
4-6		4 8 7 7	24	0.0	24" Same as above
6-8	VOC	7 7 7 7	22	0.0	12" same as above, moist 4" tan, silt, light fine sand 6" same as 12", wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/5/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

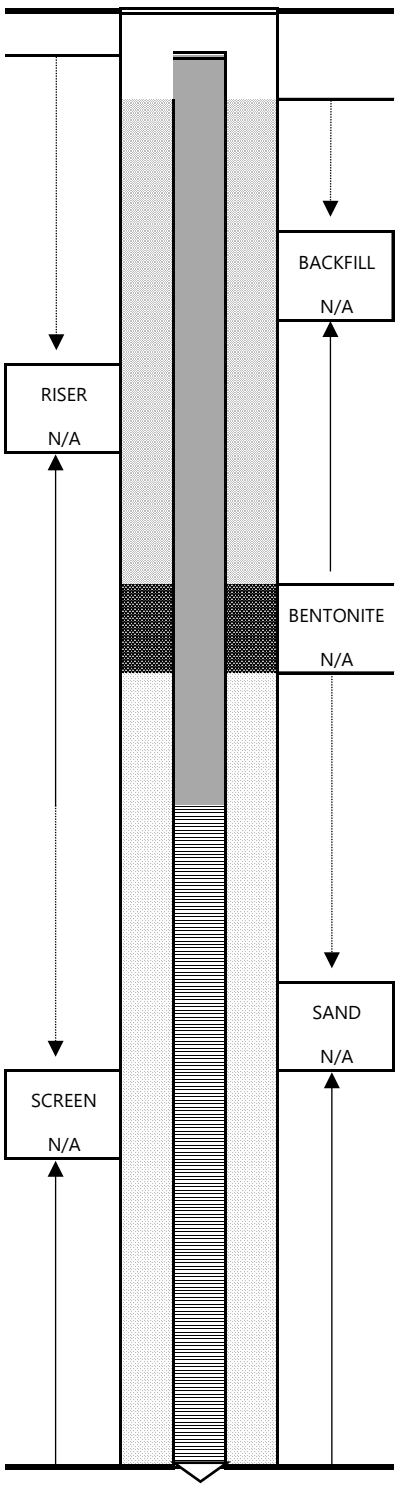
LOCATION ID: MP27

ESTIMATED DEPTH TO WATER (ft.):6'
TOTAL BORING DEPTH (ft.): 15'
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 15' (Proctor) 0-8/2-4 (OHM)
TIME OF SAMPLE COLLECTION: 1100
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Manhole
FINISH DEPTH: 15'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 2 6 6	22	0.0	8" Black-brown, fine-medium sand and silt, light fine gravel, some org @ top and coal ash 14" tan, fine-medium sand and silt
2-4	VOC	7 7 7 7	20	0.0	20" light tan, sand, little silt potential redox observed
4-6		5 5 6 5	16	0.0	16" light tan-light reddish brown, fine-medium sand, light silt, potential redox @ bottom
6-8		- - - -	20	0.0	20" light tan/light gray, fine sand, little silt, moist

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 11/1/18
DRILLING METHOD: Split Spoon
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

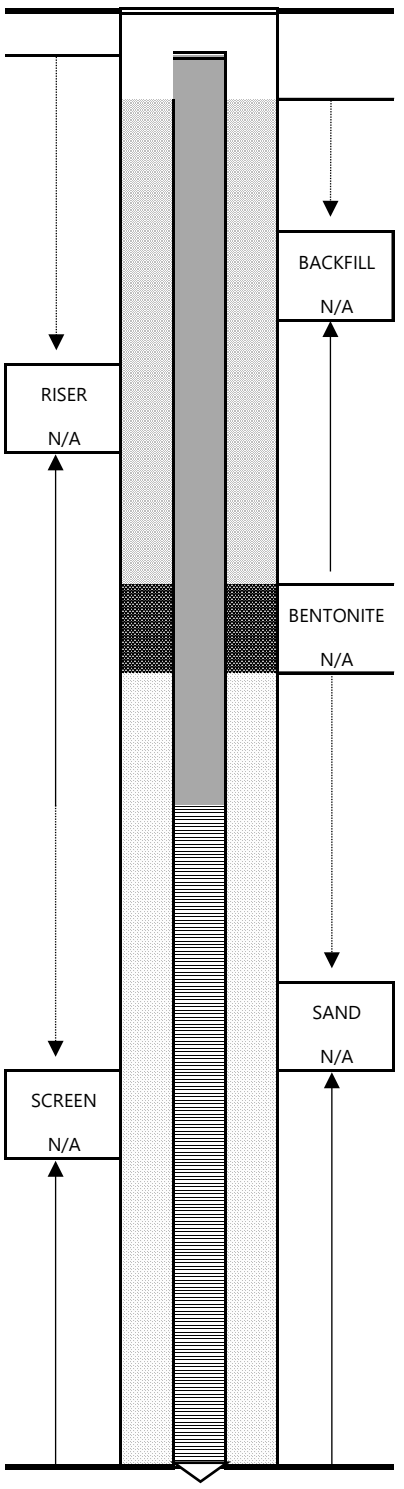
LOCATION ID: MP33

ESTIMATED DEPTH TO WATER (ft.): 8'
TOTAL BORING DEPTH (ft.): 10'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8 Cont
TIME OF SAMPLE COLLECTION: N/A
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		3 5 5 6	22	0	6" Top Soil 16" tan medium sand, silt, low density, high plasticity, dry, no odor
2-4		3 3 2 2	20	0	6" same as above 14" dark brown, medium sand, silt, high density, low plasticity, wet
4-6		2 1 1 3	19	0	19" dark brown medium sand, silty, high density, low plasticity, wet
6-8	VOC	8 8 10 10	19	0	7" light brown, fine sand, silty, low density, high plasticity, wet 12" grey medium sand, silty clay, low density, high plasticity, wet
8-10					

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/26/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

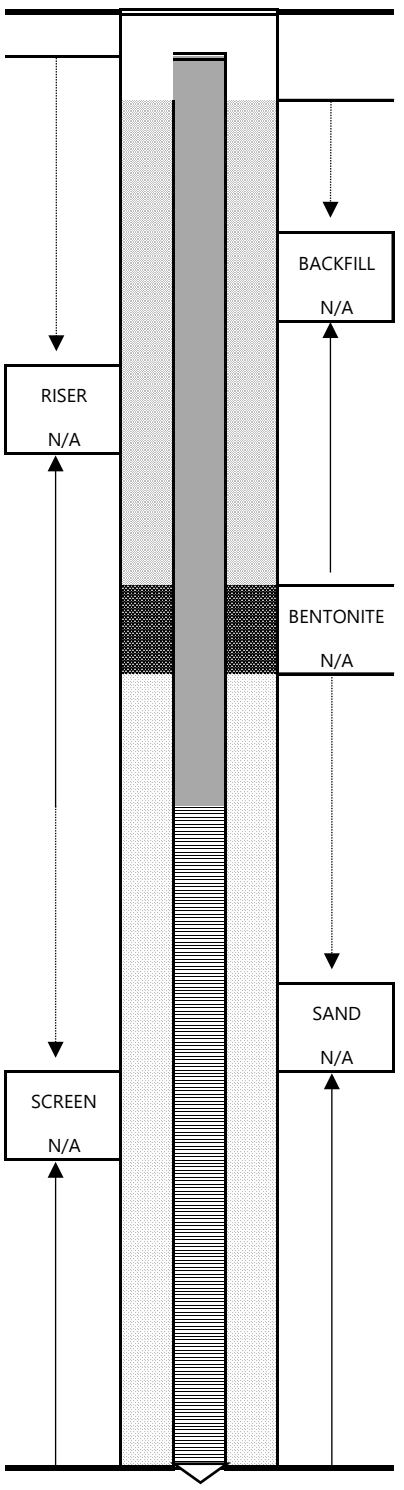
LOCATION ID: MP39

ESTIMATED DEPTH TO WATER (ft.):
TOTAL BORING DEPTH (ft.): 10
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 5-6 (P/T) 0-8 (comp) 2-4 (VOC)
TIME OF SAMPLE COLLECTION: 1235
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 9 61 41	10	0.0	8" blaclk, fine sand, little silt 2" light brown/tan sand and silt, hard, gravelly
2-4	VOC	33 26 22 17	20	0.0	20" same as above
4-6		14 13 16 17	10	0.0	Same as above
6-8		15 14 13 13	24	0.0	24" Tan, fine- medium sand, silt, Hard, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/26/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

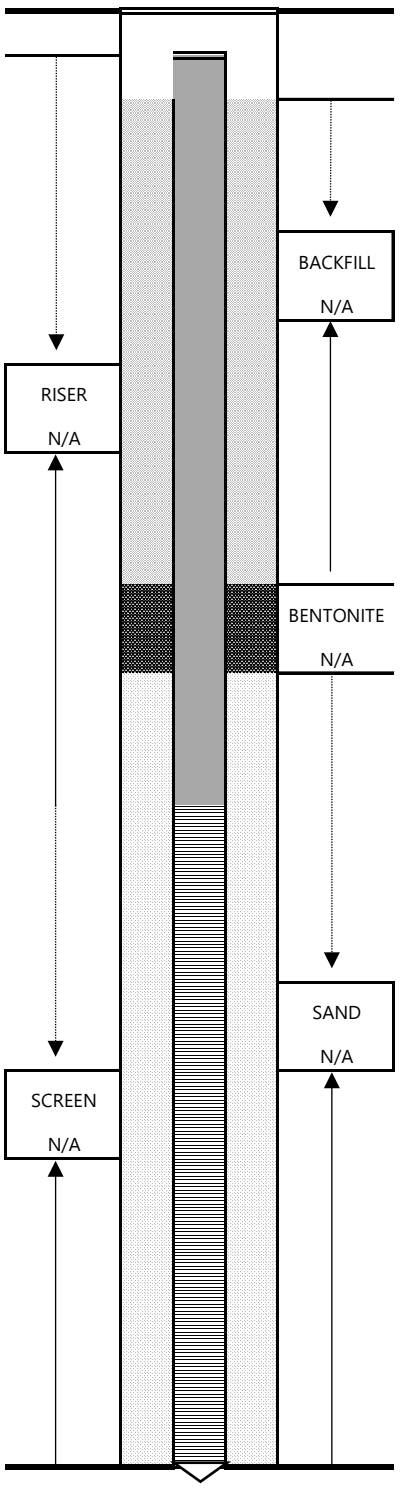
LOCATION ID: MP38

ESTIMATED DEPTH TO WATER (ft.):
TOTAL BORING DEPTH (ft.): 16.5
SAMPLE COLLECTED?THERMAL PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' Comp 15' (Proctor)
TIME OF SAMPLE COLLECTION: 1005
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Manhole
FINISH DEPTH: 16.5
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 6 10 8	12	0.0	6" Black, sand, some silt, granular 3" Brown, medium-course sand 3" Tan, fine sand, some silt, little gravel
2-4	VOC	10 10 5 7	4	0.0	4" Reddish Brown, silt , little fine sand
4-6		6 15 14 15	24	0.0	24" Tan, Fine sand and silt, gravelly, hard
6-8		17 20 21 21	24	0.0	24" Brown-Tan/ light gray, silt and fine sand, graqvel, medium density.

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/26/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

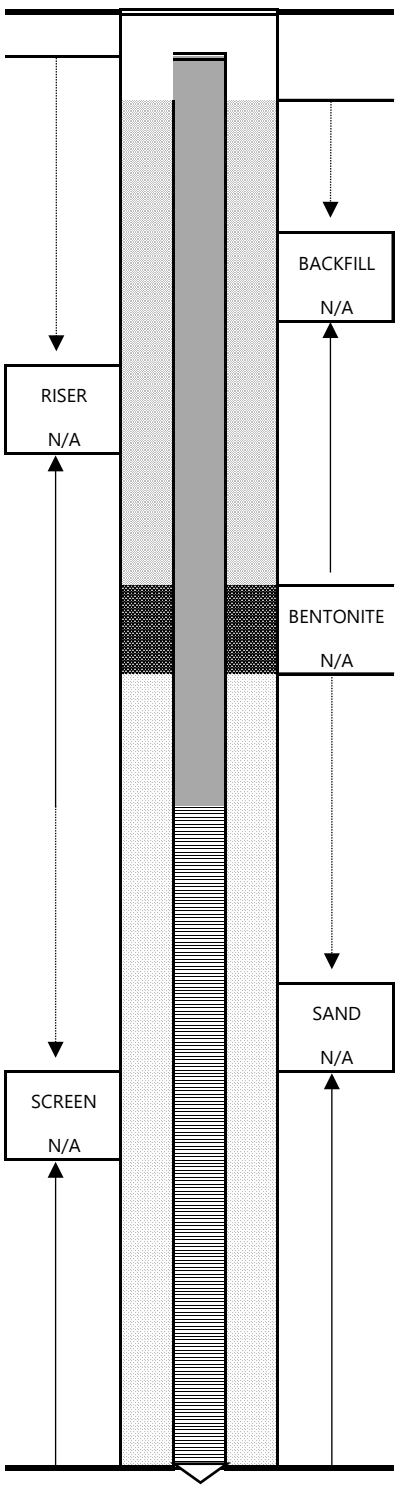
LOCATION ID: MP37

ESTIMATED DEPTH TO WATER (ft.): 8
TOTAL BORING DEPTH (ft.): 10
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' Comp
TIME OF SAMPLE COLLECTION: 0830
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 4 6 5	14	0.0	6" Black, medium-coarse sand and silt, granular 8" Tan, fine sand and silt
2-4		6 6 7 5	14	0.0	Same as above
4-6		5 4 3 3	0	_	No recovery
6-8	VOC	5 6 12 12	4	0.0	4" Light tan/gray, sand, moist

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/25/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

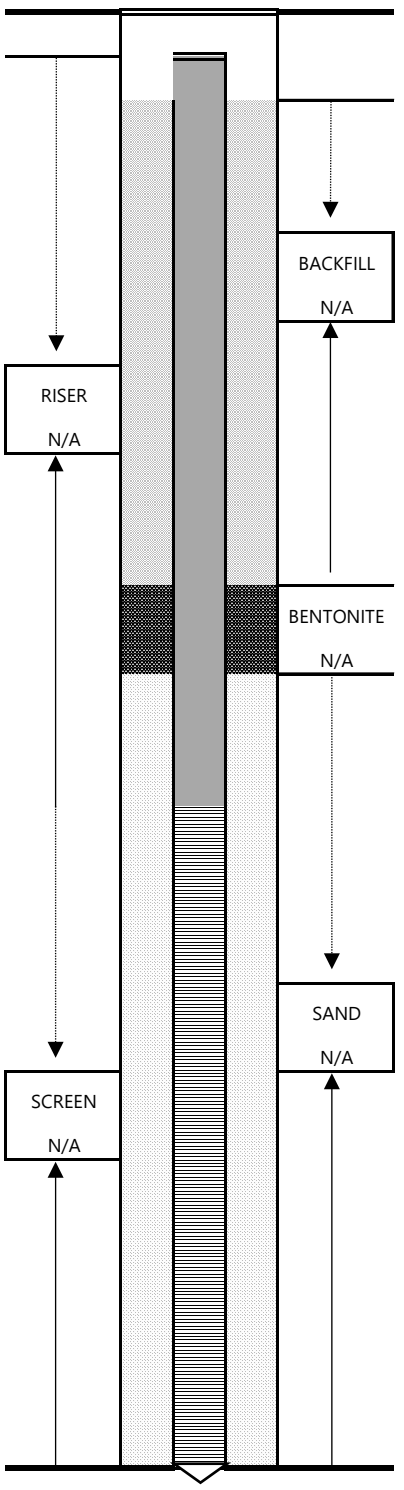
LOCATION ID: SB39

ESTIMATED DEPTH TO WATER (ft.): Not Encountered
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' (2-4 grab for voc)
TIME OF SAMPLE COLLECTION: 1105
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 13 13 17	24	0	10" Brown, Silt, some fine sand, some organic 14" Brown, Sand, some silt, very gravelly
2-4	VOC	17 50/1" – –	10	3.1	10" Same as above, firm, little clay
4-6		20 11 15 19	10	0.1	Same as above
6-8		10 16 16 16	16	0.2	Same as above

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/25/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

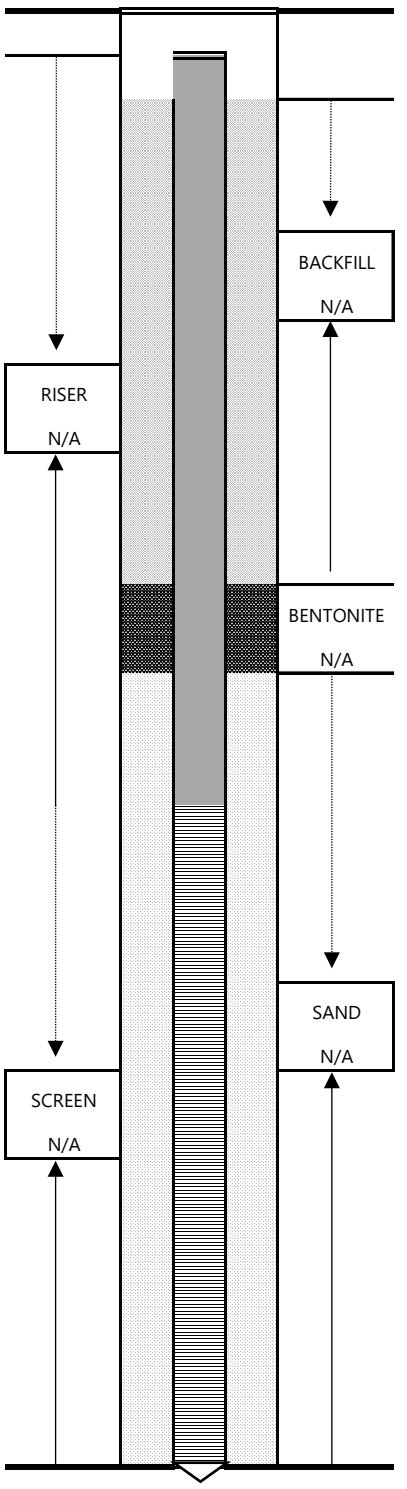
LOCATION ID: SB38

ESTIMATED DEPTH TO WATER (ft.): Not Encountered
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' (0-2 grab for voc)
TIME OF SAMPLE COLLECTION: 1105
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2	VOC	4 3 4 5	20	0.2	4" Brown, silt and medium-fine sand, some organic 20" Tan, silt and little fine sand
2-4		5 4 3 3	18	0.0	18" same as above
4-6		3 3 2 3	18	0.0	6" Brown, silt and fine sand 12" Tan, silt and fine sand
6-8		2 3 2 5	16	0.0	16" Same as above, trace clay

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/25/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

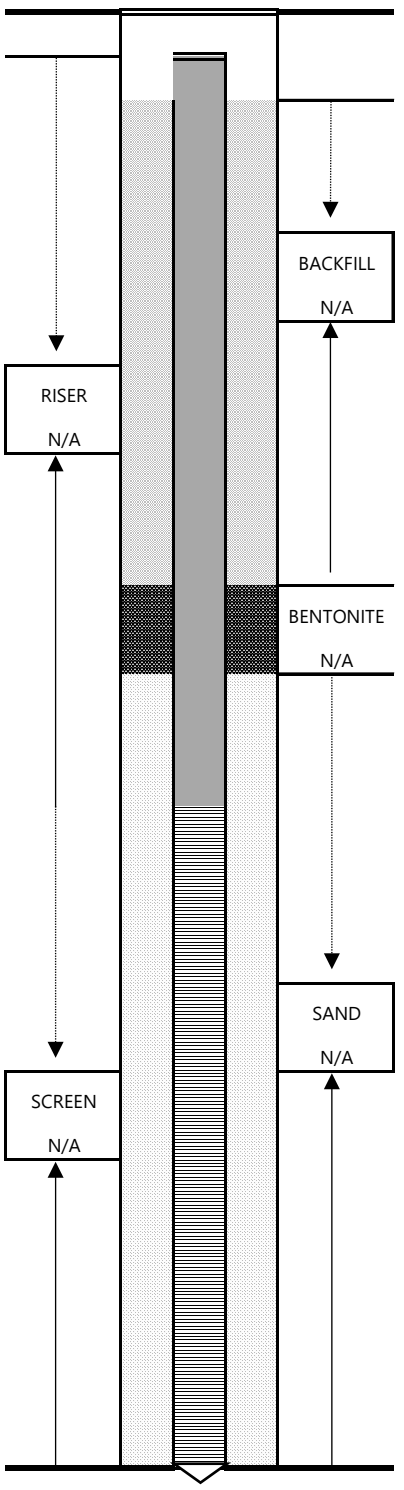
LOCATION ID: SB37

ESTIMATED DEPTH TO WATER (ft.): Not Encountered
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' (4-6 grab for voc)
TIME OF SAMPLE COLLECTION: 1020
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		3 3 4 4	16	0.5	6" brown, sand and silt, some organic underlain by light brown/tan sand and silt
2-4		6 7 5 4	16	0.0	4" same as aboce 12" Tan, silt and fine sand, trace gravel
4-6	VOC	3 4 6 4	12	2.9	12" Tan, silt and fine sand, some gravel
6-8		3 6 14 11	6	0.0	6" same as above, clay at bottom

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/25/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

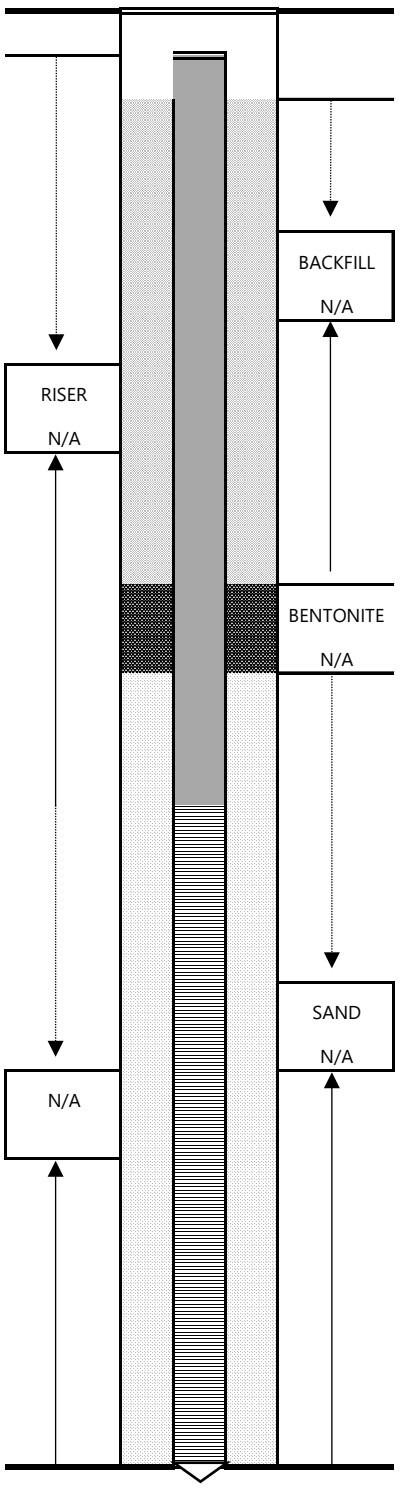
LOCATION ID: SB50

ESTIMATED DEPTH TO WATER (ft.): 3'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' (4-6 grab for voc)
TIME OF SAMPLE COLLECTION: 0914
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 2 2 2	18	0.1	9" gray-black fine-medium sand and siltn little gravel, little organic 9" brown-dark brown, fine sand and silt
2-4		3 3 4 10	24	0.0	10" same as above 14" Tan, Fine Sand and Silt, moist
4-6	VOC	2 2 4 9	18	1.0	18" tan, fine sand, some silt, moist
6-8		7 8 8 8	18	0.3	9" Same as above, wet 9" Tan, Silt, some fine sand, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/24/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: FTB

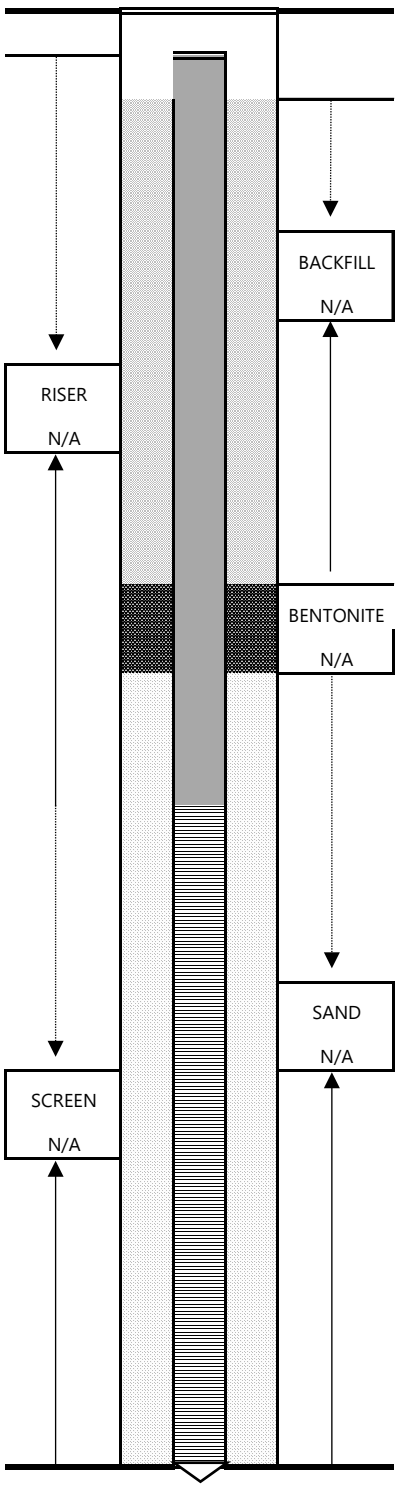
LOCATION ID: GB21

ESTIMATED DEPTH TO WATER (ft.): 2.5
TOTAL BORING DEPTH (ft.): 16'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' (o-2' grab voc)
TIME OF SAMPLE COLLECTION: 10:57
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV
FINISH DEPTH: 16'
REFUSAL ENCOUNTERED: Auger Refusal

NOTES/SKETCH:
Location ~6' east of SB-51 stake originally to accommodate for geotech for GB-21, move stake

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2	VOCs	3 4 9 18	12	0.0	2" Brown silt and organic material 8" black, sand, little silt, gravel, some coal ash 2" brown sand little silt, gravel
2-4		13 10 75 35	18	0.0	18" brown/tan silt with little fine sand, moist, redox at bottom
4-6		7 18 36 22	12	0.0	4" same as above 4" Dark grey/ tan, medium coarse sand, little silt, gravel, moist 4" Tan, sand, some gravel, moist
6-8		12 19 31 21	16	0.0	16" light tan, medium-coarse sand and gravel, wet

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/18/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: TJP

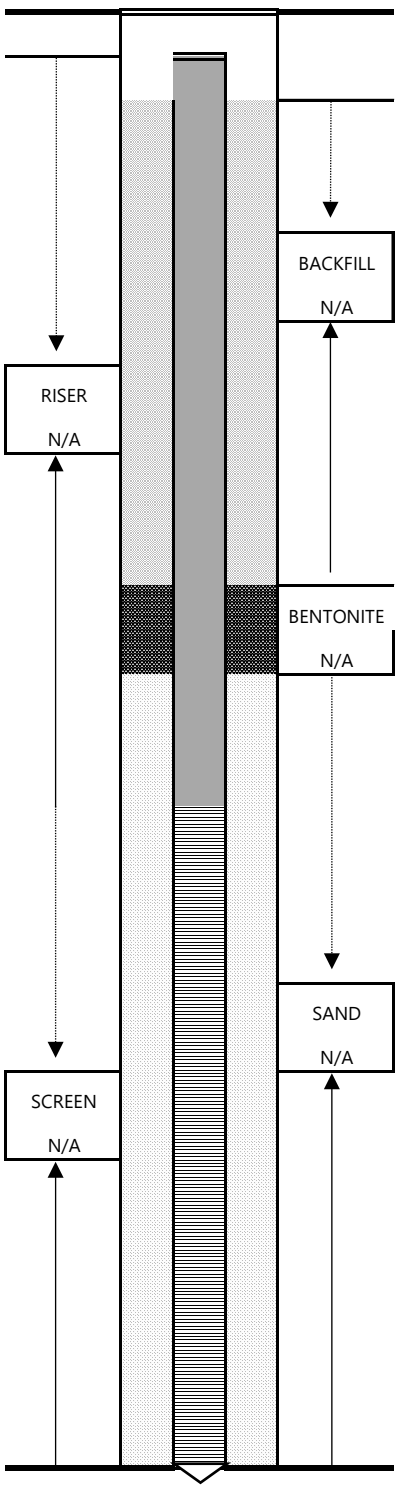
LOCATION ID: MP36

ESTIMATED DEPTH TO WATER (ft.): 4.25'
TOTAL BORING DEPTH (ft.): 10'
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 0-10' OHM 5-6' thermal/proctor
TIME OF SAMPLE COLLECTION: 14:25
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 10'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		2 2 3 2	16	0.0	top 6" forest mat, under 10" lite brown silty sand, medium fine, low density, high p;lasticity, dry, no odor
2-4		2 1 1 1	26	0.0	Top 2" brown silty sand, medium, under 18" brown silty sand medium, high plasticity, low density, wet, no odor
4-6	VOC	2 2 2 3	23	0	Same as above for 13", underlain by dark brown silty fine sand, some organics, low plasticity, high density, dry, sliight organic odor.
6-8		1 1 8 8	21	0	Light brown, silty sand, fine-med for 11", then dark brown silty fine sand, high density, low plasticity, wet, organic odor, 3" of grey fine sand natural.
8-10		5 9 9 11	13	0	Light grey/brown for 7", silty fine medium sand then gravel for 6", High plasticity, low density, wet, no odor

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)
2) SECONDARY GRAIN SIZE
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)
4) MOISTURE (WET, MOIST, DRY)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)
6) ANGULARITY
(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
7) COLOR (GREY, BROWN, etc.)
8) STRUCTURES, STAINING, ALTERATION
(LAMINATED, BEDDED, IRON STAINED, ETC.)
9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/11/18
DRILLING METHOD: 4'4' Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC, TJP

LOCATION ID: SB49

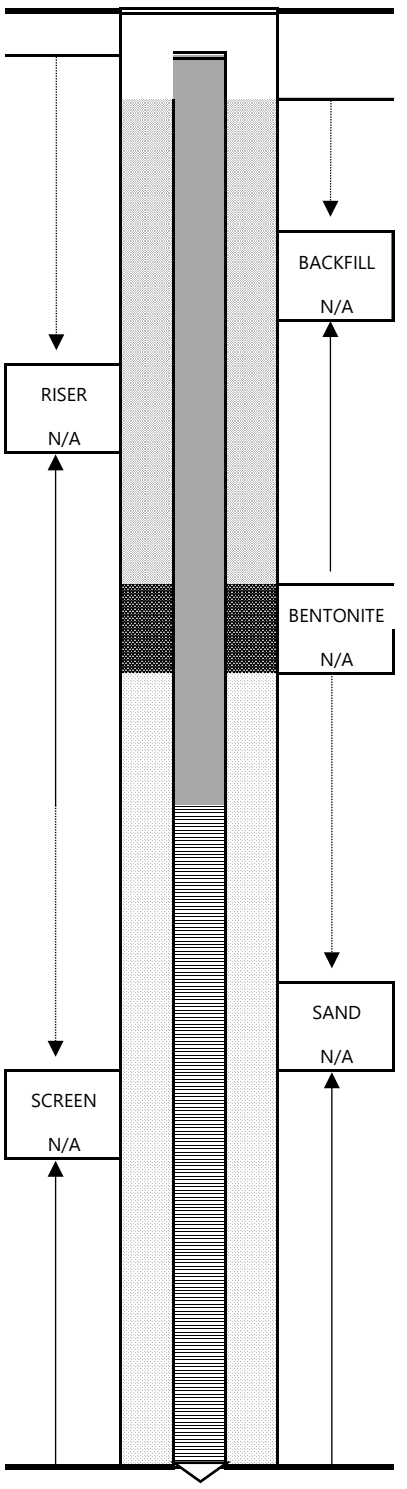
ESTIMATED DEPTH TO WATER (ft.): ~6'
TOTAL BORING DEPTH (ft.): 8'
SAMPLE COLLECTED?THERMAL PROCTOR OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' OHM
TIME OF SAMPLE COLLECTION: 14:25
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) ENV.
FINISH DEPTH: 8'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

4 1/4" Auger

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		4 5 3 3	20	0.0	first 6" dark brown organic material, medium fine sand, low density, low plasticity, underlain by light brown medium sand, low density, low plasticity, dry, no odor
2-4		3 3 2 2	18	0.0	Brown medium fine sand with trace rounded gravel, orange streaks at ~9", low density, high plasticity, moist, no odor.
4-6	VOC	3 4 3 11	7	0.0	Grey/black very fine-medium sand with some silt, low density, medium plasticity, clay at botton, moist, no odor
6-8		12 14 13 11	17	0.0	Grey, very fine-coarse sand with some silt and rounded gravel, clay at bottom 2", medium density, medium plasticity, wet, no odor

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

TEST BORING/MONITORING WELL LOG

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/11/18
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC, TJP

LOCATION ID: MP34

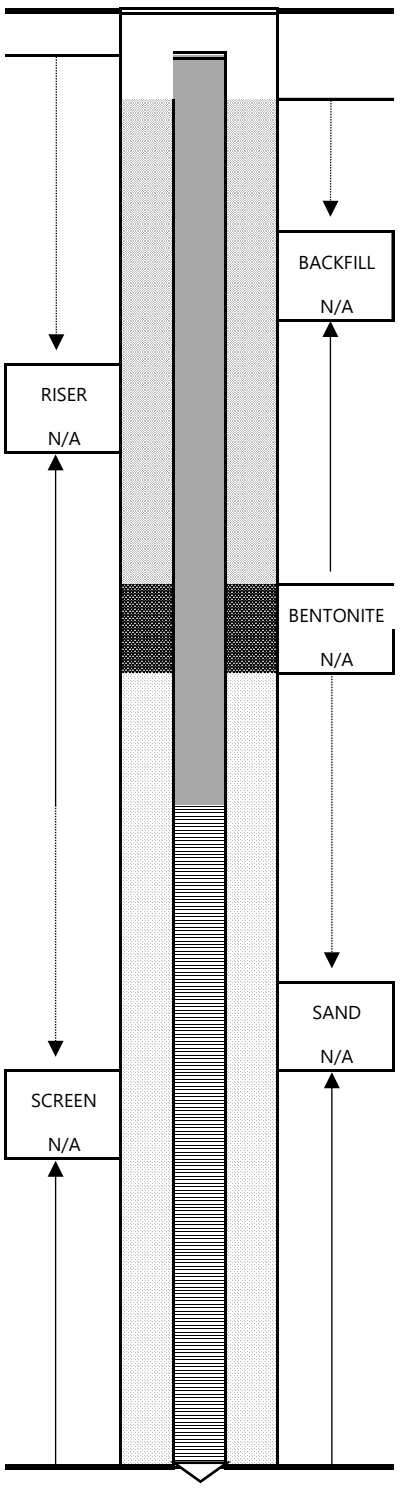
ESTIMATED DEPTH TO WATER (ft.): 7'
TOTAL BORING DEPTH (ft.): 12'
SAMPLE COLLECTED?THERMAL X PROCTOR X OHM X
DEPTH OF SAMPLE COLLECTED: 0-8' OHM, 5-6 Thermal
TIME OF SAMPLE COLLECTION: 14:21
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Intermediate
FINISH DEPTH: 12'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

4 1/4" Auger

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		3 3 3 3	17"	0	Dark brown medium sand with trace sub-angular gravel, low density, low platicity, dry, no odor
2-4		7 7 19 31	10"	0	light brown, medium-fine sand with some sub-angular gravel and rocks, medium density, low plasticity, dry, rock at ~4'
4-6	VOC	13 120/2	N/A	0	Wood, no recovery
6-8		11 119 41 34	8"	0	brown, fine sand, silt, some gravel and rocks, low plasticity, low density, wet.

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:

1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CLIENT: EVERSOURCE
PROJECT: PROPOSED TRANSMISSION LINE
PROJECT #: 12970.00
DIGSAFE: 20183510192
DRILLER: GEOSEARCH
DRILLING DATE: 10/11/18
DRILLING METHOD: Hollow Stem A
SAMPLING METHOD: Continuos
PRE-CLEAR DEPTH: N/A
LOGGED BY: PEC, TJP

LOCATION ID: MP32

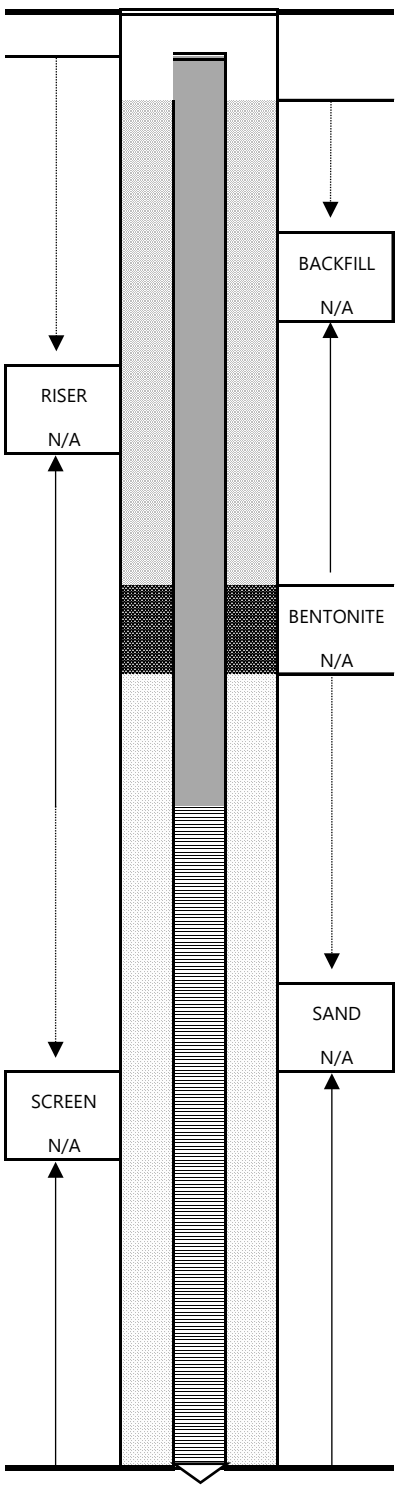
ESTIMATED DEPTH TO WATER (ft.):
TOTAL BORING DEPTH (ft.): 12'
SAMPLE COLLECTED?THERMAL ___ PROCTOR ___ OHM X
DEPTH OF SAMPLE COLLECTED: 0-8
TIME OF SAMPLE COLLECTION: 10:22
SAMPLING PURPOSE (i.e. MANHOLE, INTERMEDIATE...) Geoboring
FINISH DEPTH: 12'
REFUSAL ENCOUNTERED: NO

NOTES/SKETCH:

12' to native

DEPTH (ft.)	LAB SAMPLE	BLOWS (per 6-in)	RECOVERY (in.)	PID (ppmV)	SOIL DESCRIPTION
0-2		3 6 5 5	12"	0	Dark brown medium coarse sand with little sub-angular gravel/rocks, low density, low plasticity, dry, no odor
2-4		6 5 3 4	21"	0	top 14" light brown medium sand, gomogenous, underlain by brown medium sand, low density, low plasticity, dry, no odor
4-6	VOC	4 3 1 2	21"	0	Same as above for 7", underlain by dark brown/black silty fine sand (peat), High plasticity, low density, wet, slight organic odor
6-8		1 2 2 6	17"	0	Same as above for 12" underlain by grey silty clay, low density, high plasticity, wet, no odor.
					end of boring

WELL CONSTRUCTION (ft.)



SOIL DESCRIPTIONS:	
1) PRIMARY GRAIN SIZE	6) ANGULARITY
(BOULDERS, COBBLES,GRAVEL, SAND (COARSE, FINE) SILT, CLAY)	(V. ANGULAR, ANG, SUB ANG, SUB ROUNDED, ROUNDED, WELL ROUNDED)
2) SECONDARY GRAIN SIZE	7) COLOR (GREY, BROWN, etc.)
(TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%)	8) STRUCTURES, STAINING, ALTERATION
3) PLASTICITY (VERY HIGH, HIGH, MED., LOW, SLIGHT, NON-PLASTIC)	(LAMINATED, BEDDED, IRON STAINED, ETC.)
4) MOISTURE (WET, MOIST, DRY)	9) ODORS/ORGANIC CONTENT (PETROLEUM, SEPTIC)
5) DENSITY (LOOSE, MEDIUM DENSE, HARD)	10) GEOLOGICAL INTERPRETATION (I.E. FILL/TILL, GLACIAL CLAY,CHANNEL DEPOSIT, etc.)

CERTIFICATE OF ANALYSIS

Paige Cornell
Vanasse Hangen Brustlin, Inc
101 Walnut Street
Watertown, MA 02272

RE: Eversource Transmission Project (12970.03)
ESS Laboratory Work Order Number: 1810642

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:56 pm, Nov 01, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

SAMPLE RECEIPT

The following samples were received on October 23, 2018 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Low Level VOA vials were frozen by the Client on October 18, 2018 at 16:00.

Question I: All samples for EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1810642-01	MP36	Soil	1010, 6010C, 7.3.3.2, 7.3.4.1, 7471B, 8081B, 8082A, 8100M, 8151A, 8260B Low, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project ESS Laboratory Work Order: 1810642

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

C8J0541-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Bromomethane (25% @ 20%)

C8J0541-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
1,4-Dioxane (21% @ 20%), Bromoform (27% @ 20%)

CJ82421-BS1 **Blank Spike recovery is above upper control limit (B+).**
Bromomethane (135% @ 70-130%)

CJ82421-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Bromomethane (40% @ 20%)

8151A Chlorinated Herbicides

1810642-01 **Modified result**
MCPP

1810642-01 **Peaks found in the retention time window for MCPP did not confirm by GC/MS.**

8270D Semi-Volatile Organic Compounds

C8J0525-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (101% @ 80-120%), Pentachlorophenol (116% @ 80-120%)

C8J0525-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Chloroaniline (22% @ 20%)

C8J0525-CCV1 **Initial Calibration Verification recovery is above upper control limit (ICV+).**
4-Nitrophenol , Di-n-octylphthalate

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1810642-01**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH (GC/PID/FID) CAM IV A	(X) 8082 PCB CAM V A	( ) 9014 Total Cyanide/PAC CAM VI A	( ) 6860 Perchlorate CAM VIII B
(X) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP VPH (GC/MS) CAM IV C	(X) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) MassDEP EPH CAM IV B	(X) 8151 Herbicides CAM V C	( ) Explosives CAM VIII A	( ) TO-15 VOC CAM IX B

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for '"Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard Date: November 01, 2018

Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.25)		6010C		1	KJK	10/25/18 13:55	2.48	100	CJ82452
Arsenic	**8.42** (2.62)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Barium	**17.0** (2.62)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Beryllium	**0.23** (0.12)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Cadmium	ND (0.52)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Chromium	**11.0** (1.05)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Lead	**8.08** (5.25)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Mercury	ND (0.028)		7471B		1	MJV	10/25/18 11:30	0.93	40	CJ82453
Nickel	**7.21** (2.62)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Selenium	ND (5.25)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Silver	ND (0.52)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Thallium	ND (5.25)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Vanadium	**10.2** (1.05)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452
Zinc	**13.2** (2.62)		6010C		1	KJK	10/25/18 6:55	2.48	100	CJ82452

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 14.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1,1-Trichloroethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1,2,2-Tetrachloroethane	ND (0.0009)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1,2-Trichloroethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1-Dichloroethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1-Dichloroethene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,1-Dichloropropene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2,3-Trichlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2,3-Trichloropropane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2,4-Trichlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2,4-Trimethylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2-Dibromo-3-Chloropropane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2-Dibromoethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2-Dichlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2-Dichloroethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,2-Dichloropropane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,3,5-Trimethylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,3-Dichlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,3-Dichloropropane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,4-Dichlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
1,4-Dioxane	ND (0.0449)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
2,2-Dichloropropane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
2-Butanone	**0.0266** (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
2-Chlorotoluene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
2-Hexanone	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
4-Chlorotoluene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
4-Isopropyltoluene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
4-Methyl-2-Pentanone	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Acetone	**0.168** (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Benzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Bromobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Bromochloromethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 14.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Bromoform	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Bromomethane	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Carbon Disulfide	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Carbon Tetrachloride	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Chlorobenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Chloroethane	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Chloroform	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Chloromethane	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
cis-1,2-Dichloroethene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
cis-1,3-Dichloropropene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Dibromochloromethane	ND (0.0009)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Dibromomethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Dichlorodifluoromethane	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Diethyl Ether	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Di-isopropyl ether	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Ethyl tertiary-butyl ether	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Ethylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Hexachlorobutadiene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Isopropylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Methyl tert-Butyl Ether	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Methylene Chloride	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Naphthalene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
n-Butylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
n-Propylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
sec-Butylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Styrene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
tert-Butylbenzene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Tertiary-amyl methyl ether	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Tetrachloroethene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Tetrahydrofuran	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Toluene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 14.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
trans-1,3-Dichloropropene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Trichloroethene	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Trichlorofluoromethane	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Vinyl Chloride	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Xylene O	ND (0.0022)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Xylene P,M	ND (0.0045)		8260B Low		1	10/24/18 15:33	C8J0541	CJ82421
Xylenes (Total)	ND (0.0045)		8260B Low		1	10/24/18 15:33		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*127 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*92 %*		*70-130*
Surrogate: Dibromofluoromethane	*113 %*		*70-130*
Surrogate: Toluene-d8	*103 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 20.1
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 10/25/18 15:05

8081B Organochlorine Pesticides

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
4,4´-DDD	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
4,4´-DDE	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
4,4´-DDT	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Aldrin	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
alpha-BHC	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
alpha-Chlordane	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
beta-BHC	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Chlordane (Total)	ND (0.0259)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
delta-BHC	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Dieldrin	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Endosulfan I	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Endosulfan II	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Endosulfan Sulfate	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Endrin	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Endrin Ketone	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
gamma-BHC (Lindane)	ND (0.0019)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
gamma-Chlordane	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Heptachlor	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Heptachlor Epoxide	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Hexachlorobenzene	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517
Methoxychlor	ND (0.0032)		8081B		1	10/26/18 13:41	C8J0583	CJ82517

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*62 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*62 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*57 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/25/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1221	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1232	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1242	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1248	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1254	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1260	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1262	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512
Aroclor 1268	ND (0.07)		8082A		1	10/26/18 23:07		CJ82512

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 20.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 10/25/18 12:11

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**51.7** (12.5)		8100M		1	10/26/18 2:29	C8J0542	CJ82519

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*85 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 10.4
Final Volume: 4
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 10/30/18 16:00

8151A Chlorinated Herbicides

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
2,4,5-T	ND (0.012)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
2,4,5-TP (Silvex)	ND (0.012)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
2,4-D	ND (0.059)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
2,4-DB	ND (0.059)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
Dalapon	ND (0.057)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
Dicamba	ND (0.012)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
Dichlorprop	ND (0.059)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
Dinoseb	ND (0.059)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
MCPA	ND (2.91)		8151A		1	11/01/18 3:02	C8J0692	CJ83033
MCPP	# ND (2.94)		8151A		1	11/01/18 3:02	C8J0692	CJ83033

	%Recovery	Qualifier	Limits
Surrogate: DCAA	*94 %*		*30-150*
Surrogate: DCAA [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/24/18 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
1,2-Dichlorobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
1,3-Dichlorobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
1,4-Dichlorobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4,5-Trichlorophenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4,6-Trichlorophenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4-Dichlorophenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4-Dimethylphenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4-Dinitrophenol	ND (2.06)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,4-Dinitrotoluene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2,6-Dinitrotoluene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2-Chloronaphthalene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2-Chlorophenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2-Methylnaphthalene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2-Methylphenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
2-Nitrophenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
3,3′-Dichlorobenzidine	ND (0.824)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
3+4-Methylphenol	ND (0.824)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
4-Bromophenyl-phenylether	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
4-Chloroaniline	ND (0.824)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
4-Nitrophenol	ND (2.06)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Acenaphthene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Acenaphthylene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Acetophenone	ND (0.824)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Aniline	ND (2.06)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Anthracene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Azobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Benzo(a)anthracene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Benzo(a)pyrene	ND (0.206)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Benzo(b)fluoranthene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Benzo(g,h,i)perylene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Benzo(k)fluoranthene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/24/18 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
bis(2-Chloroethyl)ether	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
bis(2-chloroisopropyl)Ether	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
bis(2-Ethylhexyl)phthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Butylbenzylphthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Chrysene	ND (0.206)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Dibenzo(a,h)Anthracene	ND (0.206)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Dibenzofuran	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Diethylphthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Dimethylphthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Di-n-butylphthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Di-n-octylphthalate	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Fluoranthene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Fluorene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Hexachlorobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Hexachlorobutadiene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Hexachloroethane	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Indeno(1,2,3-cd)Pyrene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Isophorone	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Naphthalene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Nitrobenzene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
N-Nitrosodimethylamine	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Pentachlorophenol	ND (2.06)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Phenanthrene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Phenol	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309
Pyrene	ND (0.411)		8270D		1	10/24/18 20:45	C8J0525	CJ82309

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*67 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*77 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*72 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*73 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 10/24/18 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: 2-Fluorophenol		*72 %*		*30-130*				
Surrogate: Nitrobenzene-d5		*73 %*		*30-130*				
Surrogate: Phenol-d6		*69 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*66 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project
Client Sample ID: MP36
Date Sampled: 10/18/18 14:00
Percent Solids: 77

ESS Laboratory Work Order: 1810642
ESS Laboratory Sample ID: 1810642-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**318** (5)		9050A		1	LAB	10/24/18 16:08	umhos/cm	CJ82415
Corrosivity (pH)	**5.64** (N/A)		9045		1	CCP	10/23/18 18:25	S.U.	CJ82323
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.1 ºC.**								
Flashpoint	**> 200** (N/A)		1010		1	LAB	10/26/18 16:46	°F	CJ82628
Reactive Cyanide	ND (2.0)		7.3.3.2		1	JLK	10/26/18 22:47	mg/kg	CJ82627
Reactive Sulfide	ND (2.0)		7.3.4.1		1	JLK	10/26/18 22:47	mg/kg	CJ82627

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CJ82452 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Vanadium	ND	1.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	87.1	18.9	mg/kg wet	79.40		110	0-218			
Arsenic	62.2	9.43	mg/kg wet	59.00		105	85-115			
Barium	222	9.43	mg/kg wet	233.0		95	83-116			
Beryllium	55.0	0.42	mg/kg wet	59.50		93	84-116			
Cadmium	85.3	1.89	mg/kg wet	98.70		86	84-116			
Chromium	233	3.77	mg/kg wet	240.0		97	85-115			
Lead	256	18.9	mg/kg wet	276.0		93	84-116			
Nickel	276	9.43	mg/kg wet	298.0		93	84-116			
Selenium	92.4	18.9	mg/kg wet	100.0		92	86-115			
Silver	39.6	1.89	mg/kg wet	39.70		100	81-120			
Thallium	123	18.9	mg/kg wet	128.0		96	80-120			
Vanadium	196	3.77	mg/kg wet	201.0		98	88-111			
Zinc	533	9.43	mg/kg wet	590.0		90	85-115			
LCS Dup										
Antimony	98.5	18.5	mg/kg wet	79.40		124	0-218	12	20	
Arsenic	60.1	9.26	mg/kg wet	59.00		102	85-115	3	20	
Barium	211	9.26	mg/kg wet	233.0		91	83-116	5	20	
Beryllium	55.0	0.41	mg/kg wet	59.50		92	84-116	0.05	20	
Cadmium	83.8	1.85	mg/kg wet	98.70		85	84-116	2	20	
Chromium	229	3.70	mg/kg wet	240.0		96	85-115	2	20	
Lead	257	18.5	mg/kg wet	276.0		93	84-116	0.5	20	
Nickel	271	9.26	mg/kg wet	298.0		91	84-116	2	20	
Selenium	91.5	18.5	mg/kg wet	100.0		91	86-115	1	20	
Silver	38.4	1.85	mg/kg wet	39.70		97	81-120	3	20	
Thallium	122	18.5	mg/kg wet	128.0		95	80-120	0.6	20	
Vanadium	192	3.70	mg/kg wet	201.0		95	88-111	2	20	
Zinc	527	9.26	mg/kg wet	590.0		89	85-115	1	20	
Batch CJ82453 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CJ82453 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	12.4	1.71	mg/kg wet	12.00		103	80-120			
LCS Dup										
Mercury	12.4	1.65	mg/kg wet	12.00		103	80-120	0.01	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0020	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0100	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0100	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0100	mg/kg wet							
Acetone	ND	0.0100	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0020	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0100	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0572*		mg/kg wet	*0.05000*		*114*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0532*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.0499*		mg/kg wet	*0.05000*		*100*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
1,1,1-Trichloroethane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130			
1,1,2,2-Tetrachloroethane	0.0526	0.0020	mg/kg wet	0.05000		105	70-130			
1,1,2-Trichloroethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
1,1-Dichloroethane	0.0587	0.0050	mg/kg wet	0.05000		117	70-130			
1,1-Dichloroethene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
1,1-Dichloropropene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130			
1,2,3-Trichlorobenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,2,3-Trichloropropane	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
1,2,4-Trichlorobenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
1,2,4-Trimethylbenzene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
1,2-Dibromo-3-Chloropropane	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
1,2-Dibromoethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
1,2-Dichlorobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloroethane	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dichloropropane	0.0577	0.0050	mg/kg wet	0.05000		115	70-130			
1,3,5-Trimethylbenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130			
1,3-Dichlorobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
1,4-Dichlorobenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
1,4-Dioxane	0.861	0.100	mg/kg wet	1.000		86	70-130			
2,2-Dichloropropane	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
2-Butanone	0.281	0.0100	mg/kg wet	0.2500		112	70-130			
2-Chlorotoluene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
2-Hexanone	0.260	0.0100	mg/kg wet	0.2500		104	70-130			
4-Chlorotoluene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
4-Isopropyltoluene	0.0573	0.0050	mg/kg wet	0.05000		115	70-130			
4-Methyl-2-Pentanone	0.258	0.0100	mg/kg wet	0.2500		103	70-130			
Acetone	0.233	0.0100	mg/kg wet	0.2500		93	70-130			
Benzene	0.0578	0.0050	mg/kg wet	0.05000		116	70-130			
Bromobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
Bromochloromethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Bromodichloromethane	0.0570	0.0050	mg/kg wet	0.05000		114	70-130			
Bromoform	0.0417	0.0050	mg/kg wet	0.05000		83	70-130			
Bromomethane	0.0676	0.0100	mg/kg wet	0.05000		135	70-130			B+
Carbon Disulfide	0.0608	0.0050	mg/kg wet	0.05000		122	70-130			
Carbon Tetrachloride	0.0585	0.0050	mg/kg wet	0.05000		117	70-130			
Chlorobenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Chloroethane	0.0585	0.0100	mg/kg wet	0.05000		117	70-130			
Chloroform	0.0593	0.0050	mg/kg wet	0.05000		119	70-130			
Chloromethane	0.0504	0.0100	mg/kg wet	0.05000		101	70-130			
cis-1,2-Dichloroethene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
cis-1,3-Dichloropropene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Dibromochloromethane	0.0441	0.0020	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
Dichlorodifluoromethane	0.0587	0.0100	mg/kg wet	0.05000		117	70-130			
Diethyl Ether	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
Di-isopropyl ether	0.0576	0.0050	mg/kg wet	0.05000		115	70-130			
Ethyl tertiary-butyl ether	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
Ethylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
Hexachlorobutadiene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
Isopropylbenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130			
Methyl tert-Butyl Ether	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
Methylene Chloride	0.0594	0.0100	mg/kg wet	0.05000		119	70-130			
Naphthalene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
n-Butylbenzene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130			
n-Propylbenzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
sec-Butylbenzene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
Styrene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
tert-Butylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130			
Tertiary-amyl methyl ether	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrachloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Tetrahydrofuran	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Toluene	0.0572	0.0050	mg/kg wet	0.05000		114	70-130			
trans-1,2-Dichloroethene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
trans-1,3-Dichloropropene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Trichloroethene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
Trichlorofluoromethane	0.0621	0.0050	mg/kg wet	0.05000		124	70-130			
Vinyl Chloride	0.0575	0.0100	mg/kg wet	0.05000		115	70-130			
Xylene O	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
Xylene P,M	0.114	0.0100	mg/kg wet	0.1000		114	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0529*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0508*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0529*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.0524*		mg/kg wet	*0.05000*		*105*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	3	20	
1,1,1-Trichloroethane	0.0590	0.0050	mg/kg wet	0.05000		118	70-130	1	20	
1,1,2,2-Tetrachloroethane	0.0563	0.0020	mg/kg wet	0.05000		113	70-130	7	20	
1,1,2-Trichloroethane	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	4	20	
1,1-Dichloroethane	0.0587	0.0050	mg/kg wet	0.05000		117	70-130	0	20	
1,1-Dichloroethene	0.0585	0.0050	mg/kg wet	0.05000		117	70-130	0.6	20	
1,1-Dichloropropene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	0.03	20	
1,2,3-Trichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
1,2,3-Trichloropropane	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	8	20	
1,2,4-Trichlorobenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	0.5	20	
1,2,4-Trimethylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	1	20	
1,2-Dibromo-3-Chloropropane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	11	20	
1,2-Dibromoethane	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	1	20	
1,2-Dichlorobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	0	20	
1,2-Dichloroethane	0.0583	0.0050	mg/kg wet	0.05000		117	70-130	3	20	
1,2-Dichloropropane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	0.8	20	
1,3,5-Trimethylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	2	20	
1,3-Dichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	0.5	20	

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ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
1,3-Dichloropropane	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	1	20	
1,4-Dichlorobenzene	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	1	20	
1,4-Dioxane	0.961	0.100	mg/kg wet	1.000		96	70-130	11	20	
2,2-Dichloropropane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	1	20	
2-Butanone	0.305	0.0100	mg/kg wet	0.2500		122	70-130	8	20	
2-Chlorotoluene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	2	20	
2-Hexanone	0.286	0.0100	mg/kg wet	0.2500		114	70-130	9	20	
4-Chlorotoluene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	0.5	20	
4-Isopropyltoluene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	0.8	20	
4-Methyl-2-Pentanone	0.296	0.0100	mg/kg wet	0.2500		118	70-130	13	20	
Acetone	0.263	0.0100	mg/kg wet	0.2500		105	70-130	12	20	
Benzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	0.5	20	
Bromobenzene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	1	20	
Bromochloromethane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	3	20	
Bromodichloromethane	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	2	20	
Bromoform	0.0431	0.0050	mg/kg wet	0.05000		86	70-130	3	20	
Bromomethane	0.0450	0.0100	mg/kg wet	0.05000		90	70-130	40	20	D+
Carbon Disulfide	0.0606	0.0050	mg/kg wet	0.05000		121	70-130	0.4	20	
Carbon Tetrachloride	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	1	20	
Chlorobenzene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
Chloroethane	0.0580	0.0100	mg/kg wet	0.05000		116	70-130	0.8	20	
Chloroform	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	0.2	20	
Chloromethane	0.0501	0.0100	mg/kg wet	0.05000		100	70-130	0.4	20	
cis-1,2-Dichloroethene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	1	20	
cis-1,3-Dichloropropene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	2	20	
Dibromochloromethane	0.0441	0.0020	mg/kg wet	0.05000		88	70-130	0.05	20	
Dibromomethane	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	3	20	
Dichlorodifluoromethane	0.0580	0.0100	mg/kg wet	0.05000		116	70-130	1	20	
Diethyl Ether	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	4	20	
Di-isopropyl ether	0.0590	0.0050	mg/kg wet	0.05000		118	70-130	3	20	
Ethyl tertiary-butyl ether	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
Ethylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	4	20	
Hexachlorobutadiene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	2	20	
Isopropylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	2	20	
Methyl tert-Butyl Ether	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	6	20	
Methylene Chloride	0.0517	0.0100	mg/kg wet	0.05000		103	70-130	14	20	
Naphthalene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	8	20	
n-Butylbenzene	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	2	20	
n-Propylbenzene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	2	20	
sec-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	2	20	
Styrene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
tert-Butylbenzene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	20	
Tertiary-amyl methyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	4	20	
Tetrachloroethene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	4	20	
Tetrahydrofuran	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	14	20	

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Client Name: Vanasse Hangen Brustlin, Inc
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CJ82421 - 5035										
Toluene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	0.7	20	
trans-1,2-Dichloroethene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	2	20	
trans-1,3-Dichloropropene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	4	20	
Trichloroethene	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	1	20	
Trichlorofluoromethane	0.0619	0.0050	mg/kg wet	0.05000		124	70-130	0.3	20	
Vinyl Chloride	0.0574	0.0100	mg/kg wet	0.05000		115	70-130	0.2	20	
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	4	20	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	4	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0546*		mg/kg wet	*0.05000*		*109*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0530*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.0502*		mg/kg wet	*0.05000*		*100*	*70-130*			
8081B Organochlorine Pesticides										
Batch CJ82517 - 3546										
Blank										
4,4´-DDD	ND	0.0025	mg/kg wet							
4,4´-DDD [2C]	ND	0.0025	mg/kg wet							
4,4´-DDE	ND	0.0025	mg/kg wet							
4,4´-DDE [2C]	ND	0.0025	mg/kg wet							
4,4´-DDT	ND	0.0025	mg/kg wet							
4,4´-DDT [2C]	ND	0.0025	mg/kg wet							
Aldrin	ND	0.0025	mg/kg wet							
Aldrin [2C]	ND	0.0025	mg/kg wet							
alpha-BHC	ND	0.0025	mg/kg wet							
alpha-BHC [2C]	ND	0.0025	mg/kg wet							
alpha-Chlordane	ND	0.0025	mg/kg wet							
alpha-Chlordane [2C]	ND	0.0025	mg/kg wet							
beta-BHC	ND	0.0025	mg/kg wet							
beta-BHC [2C]	ND	0.0025	mg/kg wet							
delta-BHC	ND	0.0025	mg/kg wet							
delta-BHC [2C]	ND	0.0025	mg/kg wet							
Dieldrin	ND	0.0025	mg/kg wet							
Dieldrin [2C]	ND	0.0025	mg/kg wet							
Endosulfan I	ND	0.0025	mg/kg wet							
Endosulfan I [2C]	ND	0.0025	mg/kg wet							
Endosulfan II	ND	0.0025	mg/kg wet							
Endosulfan II [2C]	ND	0.0025	mg/kg wet							
Endosulfan Sulfate	ND	0.0025	mg/kg wet							
Endosulfan Sulfate [2C]	ND	0.0025	mg/kg wet							
Endrin	ND	0.0025	mg/kg wet							
Endrin [2C]	ND	0.0025	mg/kg wet							
Endrin Ketone	ND	0.0025	mg/kg wet							
Endrin Ketone [2C]	ND	0.0025	mg/kg wet							
gamma-BHC (Lindane)	ND	0.0015	mg/kg wet							

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8081B Organochlorine Pesticides										
Batch CJ82517 - 3546										
gamma-BHC (Lindane) [2C]	ND	0.0015	mg/kg wet							
gamma-Chlordane	ND	0.0025	mg/kg wet							
gamma-Chlordane [2C]	ND	0.0025	mg/kg wet							
Heptachlor	ND	0.0025	mg/kg wet							
Heptachlor [2C]	ND	0.0025	mg/kg wet							
Heptachlor Epoxide	ND	0.0025	mg/kg wet							
Heptachlor Epoxide [2C]	ND	0.0025	mg/kg wet							
Hexachlorobenzene	ND	0.0025	mg/kg wet							
Hexachlorobenzene [2C]	ND	0.0025	mg/kg wet							
Methoxychlor	ND	0.0025	mg/kg wet							
Methoxychlor [2C]	ND	0.0025	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0106*		mg/kg wet	*0.01250*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0102*		mg/kg wet	*0.01250*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00950*		mg/kg wet	*0.01250*		*76*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.00943*		mg/kg wet	*0.01250*		*75*	*30-150*			
LCS										
4,4´-DDD	0.0119	0.0025	mg/kg wet	0.01250		95	40-140			
4,4´-DDD [2C]	0.0112	0.0025	mg/kg wet	0.01250		90	40-140			
4,4´-DDE	0.0122	0.0025	mg/kg wet	0.01250		98	40-140			
4,4´-DDE [2C]	0.0113	0.0025	mg/kg wet	0.01250		90	40-140			
4,4´-DDT	0.0119	0.0025	mg/kg wet	0.01250		95	40-140			
4,4´-DDT [2C]	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			
Aldrin	0.0124	0.0025	mg/kg wet	0.01250		99	40-140			
Aldrin [2C]	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			
alpha-BHC	0.0112	0.0025	mg/kg wet	0.01250		90	40-140			
alpha-BHC [2C]	0.0118	0.0025	mg/kg wet	0.01250		94	40-140			
alpha-Chlordane	0.0121	0.0025	mg/kg wet	0.01250		97	40-140			
alpha-Chlordane [2C]	0.0108	0.0025	mg/kg wet	0.01250		86	40-140			
beta-BHC	0.0124	0.0025	mg/kg wet	0.01250		99	40-140			
beta-BHC [2C]	0.0112	0.0025	mg/kg wet	0.01250		89	40-140			
delta-BHC	0.0101	0.0025	mg/kg wet	0.01250		81	40-140			
delta-BHC [2C]	0.0108	0.0025	mg/kg wet	0.01250		86	40-140			
Dieldrin	0.0118	0.0025	mg/kg wet	0.01250		94	40-140			
Dieldrin [2C]	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			
Endosulfan I	0.0119	0.0025	mg/kg wet	0.01250		95	40-140			
Endosulfan I [2C]	0.0109	0.0025	mg/kg wet	0.01250		87	40-140			
Endosulfan II	0.0119	0.0025	mg/kg wet	0.01250		95	40-140			
Endosulfan II [2C]	0.0108	0.0025	mg/kg wet	0.01250		86	40-140			
Endosulfan Sulfate	0.0121	0.0025	mg/kg wet	0.01250		96	40-140			
Endosulfan Sulfate [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140			
Endrin	0.0130	0.0025	mg/kg wet	0.01250		104	40-140			
Endrin [2C]	0.0117	0.0025	mg/kg wet	0.01250		93	40-140			
Endrin Ketone	0.0127	0.0025	mg/kg wet	0.01250		102	40-140			
Endrin Ketone [2C]	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8081B Organochlorine Pesticides										
Batch CJ82517 - 3546										
gamma-BHC (Lindane)	0.0114	0.0015	mg/kg wet	0.01250		91	40-140			
gamma-BHC (Lindane) [2C]	0.0116	0.0015	mg/kg wet	0.01250		93	40-140			
gamma-Chlordane	0.0121	0.0025	mg/kg wet	0.01250		97	40-140			
gamma-Chlordane [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140			
Heptachlor	0.0116	0.0025	mg/kg wet	0.01250		93	40-140			
Heptachlor [2C]	0.0109	0.0025	mg/kg wet	0.01250		87	40-140			
Heptachlor Epoxide	0.0117	0.0025	mg/kg wet	0.01250		93	40-140			
Heptachlor Epoxide [2C]	0.0118	0.0025	mg/kg wet	0.01250		95	40-140			
Hexachlorobenzene	0.0124	0.0025	mg/kg wet	0.01250		99	40-140			
Hexachlorobenzene [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140			
Methoxychlor	0.0117	0.0025	mg/kg wet	0.01250		93	40-140			
Methoxychlor [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140			
Surrogate: Decachlorobiphenyl	*0.0120*		mg/kg wet	*0.01250*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0115*		mg/kg wet	*0.01250*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0113*		mg/kg wet	*0.01250*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0113*		mg/kg wet	*0.01250*		*90*	*30-150*			
LCS Dup										
4,4´-DDD	0.0122	0.0025	mg/kg wet	0.01250		97	40-140	2	30	
4,4´-DDD [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140	2	30	
4,4´-DDE	0.0121	0.0025	mg/kg wet	0.01250		97	40-140	0.7	30	
4,4´-DDE [2C]	0.0111	0.0025	mg/kg wet	0.01250		89	40-140	1	30	
4,4´-DDT	0.0117	0.0025	mg/kg wet	0.01250		93	40-140	2	30	
4,4´-DDT [2C]	0.0112	0.0025	mg/kg wet	0.01250		90	40-140	4	30	
Aldrin	0.0121	0.0025	mg/kg wet	0.01250		97	40-140	2	30	
Aldrin [2C]	0.0112	0.0025	mg/kg wet	0.01250		90	40-140	3	30	
alpha-BHC	0.0111	0.0025	mg/kg wet	0.01250		89	40-140	0.5	30	
alpha-BHC [2C]	0.0114	0.0025	mg/kg wet	0.01250		91	40-140	3	30	
alpha-Chlordane	0.0121	0.0025	mg/kg wet	0.01250		97	40-140	0.3	30	
alpha-Chlordane [2C]	0.0106	0.0025	mg/kg wet	0.01250		85	40-140	2	30	
beta-BHC	0.0121	0.0025	mg/kg wet	0.01250		97	40-140	2	30	
beta-BHC [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140	2	30	
delta-BHC	0.0104	0.0025	mg/kg wet	0.01250		84	40-140	3	30	
delta-BHC [2C]	0.0106	0.0025	mg/kg wet	0.01250		85	40-140	1	30	
Dieldrin	0.0116	0.0025	mg/kg wet	0.01250		93	40-140	2	30	
Dieldrin [2C]	0.0114	0.0025	mg/kg wet	0.01250		91	40-140	2	30	
Endosulfan I	0.0119	0.0025	mg/kg wet	0.01250		95	40-140	0.02	30	
Endosulfan I [2C]	0.0107	0.0025	mg/kg wet	0.01250		86	40-140	1	30	
Endosulfan II	0.0120	0.0025	mg/kg wet	0.01250		96	40-140	1	30	
Endosulfan II [2C]	0.0107	0.0025	mg/kg wet	0.01250		86	40-140	0.5	30	
Endosulfan Sulfate	0.0120	0.0025	mg/kg wet	0.01250		96	40-140	0.02	30	
Endosulfan Sulfate [2C]	0.0110	0.0025	mg/kg wet	0.01250		88	40-140	0.3	30	
Endrin	0.0131	0.0025	mg/kg wet	0.01250		105	40-140	0.7	30	
Endrin [2C]	0.0115	0.0025	mg/kg wet	0.01250		92	40-140	1	30	
Endrin Ketone	0.0128	0.0025	mg/kg wet	0.01250		102	40-140	0.6	30	

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Client Name: Vanasse Hangen Brustlin, Inc
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8081B Organochlorine Pesticides										
Batch CJ82517 - 3546										
Endrin Ketone [2C]	0.0117	0.0025	mg/kg wet	0.01250		94	40-140	0.7	30	
gamma-BHC (Lindane)	0.0112	0.0015	mg/kg wet	0.01250		89	40-140	2	30	
gamma-BHC (Lindane) [2C]	0.0114	0.0015	mg/kg wet	0.01250		91	40-140	2	30	
gamma-Chlordane	0.0120	0.0025	mg/kg wet	0.01250		96	40-140	0.8	30	
gamma-Chlordane [2C]	0.0108	0.0025	mg/kg wet	0.01250		87	40-140	2	30	
Heptachlor	0.0110	0.0025	mg/kg wet	0.01250		88	40-140	5	30	
Heptachlor [2C]	0.0105	0.0025	mg/kg wet	0.01250		84	40-140	3	30	
Heptachlor Epoxide	0.0116	0.0025	mg/kg wet	0.01250		93	40-140	0.7	30	
Heptachlor Epoxide [2C]	0.0116	0.0025	mg/kg wet	0.01250		93	40-140	2	30	
Hexachlorobenzene	0.0119	0.0025	mg/kg wet	0.01250		95	40-140	4	30	
Hexachlorobenzene [2C]	0.0106	0.0025	mg/kg wet	0.01250		85	40-140	4	30	
Methoxychlor	0.0115	0.0025	mg/kg wet	0.01250		92	40-140	1	30	
Methoxychlor [2C]	0.0108	0.0025	mg/kg wet	0.01250		87	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0115*		mg/kg wet	*0.01250*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0112*		mg/kg wet	*0.01250*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0107*		mg/kg wet	*0.01250*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0104*		mg/kg wet	*0.01250*		*84*	*30-150*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82512 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82512 - 3540C										
LCS										
Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		111	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Surrogate: Decachlorobiphenyl	*0.0278*		mg/kg wet	*0.02500*		*111*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0270*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0267*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		107	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0261*		mg/kg wet	*0.02500*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0257*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CJ82519 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.32*		mg/kg wet	*5.000*		*86*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		66	40-140			
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		74	40-140			

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CJ82519 - 3546										
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Hexatriacontane (C36)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Total Petroleum Hydrocarbons	32.1	10.0	mg/kg wet	35.00		92	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Surrogate: O-Terphenyl	*4.21*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS Dup										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		68	40-140	3	25	
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.3	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		76	40-140	2	25	
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		86	40-140	0.3	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.1	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		81	40-140	2	25	
Hexatriacontane (C36)	2.3	0.2	mg/kg wet	2.500		94	40-140	0.2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		92	40-140	0.6	25	
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		61	30-140	2	25	
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.02	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		83	40-140	1	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.2	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		78	40-140	3	25	
Total Petroleum Hydrocarbons	31.8	10.0	mg/kg wet	35.00		91	40-140	0.9	25	
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.2	25	
Surrogate: O-Terphenyl	*4.20*		mg/kg wet	*5.000*		*84*	*40-140*			
8151A Chlorinated Herbicides										
Batch CJ83033 - 3546										
Blank										
2,4,5-T	ND	0.010	mg/kg wet							
2,4,5-T [2C]	ND	0.010	mg/kg wet							
2,4,5-TP (Silvex)	ND	0.010	mg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	0.010	mg/kg wet							
2,4-D	ND	0.047	mg/kg wet							
2,4-D [2C]	ND	0.047	mg/kg wet							
2,4-DB	ND	0.048	mg/kg wet							
2,4-DB [2C]	ND	0.048	mg/kg wet							
Dalapon	ND	0.046	mg/kg wet							

CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8151A Chlorinated Herbicides										
Batch CJ83033 - 3546										
Dalapon [2C]	ND	0.046	mg/kg wet							
Dicamba	ND	0.009	mg/kg wet							
Dicamba [2C]	ND	0.009	mg/kg wet							
Dichlorprop	ND	0.047	mg/kg wet							
Dichlorprop [2C]	ND	0.047	mg/kg wet							
Dinoseb	ND	0.048	mg/kg wet							
Dinoseb [2C]	ND	0.048	mg/kg wet							
MCPA	ND	2.32	mg/kg wet							
MCPA [2C]	ND	2.32	mg/kg wet							
MCPP	ND	2.35	mg/kg wet							
MCPP [2C]	ND	2.35	mg/kg wet							
Surrogate: DCAA	*0.201*		mg/kg wet	*0.2000*		*101*	*30-150*			
Surrogate: DCAA [2C]	*0.187*		mg/kg wet	*0.2000*		*94*	*30-150*			
LCS										
2,4,5-T	0.017	0.010	mg/kg wet	0.01900		90	40-140			
2,4,5-T [2C]	0.014	0.010	mg/kg wet	0.01900		76	40-140			
2,4,5-TP (Silvex)	0.016	0.010	mg/kg wet	0.01900		82	40-140			
2,4,5-TP (Silvex) [2C]	0.016	0.010	mg/kg wet	0.01900		82	40-140			
2,4-D	0.199	0.047	mg/kg wet	0.1880		106	40-140			
2,4-D [2C]	0.184	0.047	mg/kg wet	0.1880		98	40-140			
2,4-DB	0.189	0.048	mg/kg wet	0.1900		100	40-140			
2,4-DB [2C]	0.167	0.048	mg/kg wet	0.1900		88	40-140			
Dalapon	0.310	0.046	mg/kg wet	0.4550		68	40-140			
Dalapon [2C]	0.333	0.046	mg/kg wet	0.4550		73	40-140			
Dicamba	0.015	0.009	mg/kg wet	0.01880		80	40-140			
Dicamba [2C]	0.017	0.009	mg/kg wet	0.01880		88	40-140			
Dichlorprop	0.164	0.047	mg/kg wet	0.1880		87	40-140			
Dichlorprop [2C]	0.164	0.047	mg/kg wet	0.1880		87	40-140			
Dinoseb	0.013	0.048	mg/kg wet	0.09500		13	10-100			
Dinoseb [2C]	0.013	0.048	mg/kg wet	0.09500		14	10-100			
MCPA	16.9	2.32	mg/kg wet	18.60		91	40-140			
MCPA [2C]	18.6	2.32	mg/kg wet	18.60		100	40-140			
MCPP	15.6	2.35	mg/kg wet	18.80		83	40-140			
MCPP [2C]	16.2	2.35	mg/kg wet	18.80		86	40-140			
Surrogate: DCAA	*0.234*		mg/kg wet	*0.2000*		*117*	*30-150*			
Surrogate: DCAA [2C]	*0.228*		mg/kg wet	*0.2000*		*114*	*30-150*			
LCS Dup										
2,4,5-T	0.016	0.010	mg/kg wet	0.01900		82	40-140	9	30	
2,4,5-T [2C]	0.013	0.010	mg/kg wet	0.01900		68	40-140	11	30	
2,4,5-TP (Silvex)	0.015	0.010	mg/kg wet	0.01900		80	40-140	2	30	
2,4,5-TP (Silvex) [2C]	0.014	0.010	mg/kg wet	0.01900		76	40-140	8	30	
2,4-D	0.187	0.047	mg/kg wet	0.1880		99	40-140	6	30	
2,4-D [2C]	0.175	0.047	mg/kg wet	0.1880		93	40-140	5	30	
2,4-DB	0.187	0.048	mg/kg wet	0.1900		98	40-140	1	30	

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8151A Chlorinated Herbicides										
Batch CJ83033 - 3546										
2,4-DB [2C]	0.155	0.048	mg/kg wet	0.1900		82	40-140	7	30	
Dalapon	0.302	0.046	mg/kg wet	0.4550		66	40-140	3	30	
Dalapon [2C]	0.326	0.046	mg/kg wet	0.4550		72	40-140	2	30	
Dicamba	0.014	0.009	mg/kg wet	0.01880		76	40-140	5	30	
Dicamba [2C]	0.016	0.009	mg/kg wet	0.01880		84	40-140	5	30	
Dichlorprop	0.158	0.047	mg/kg wet	0.1880		84	40-140	4	30	
Dichlorprop [2C]	0.154	0.047	mg/kg wet	0.1880		82	40-140	6	30	
Dinoseb	0.013	0.048	mg/kg wet	0.09500		13	10-100	0	30	
Dinoseb [2C]	0.013	0.048	mg/kg wet	0.09500		13	10-100	6	30	
MCPA	15.8	2.32	mg/kg wet	18.60		85	40-140	7	30	
MCPA [2C]	17.6	2.32	mg/kg wet	18.60		94	40-140	6	30	
MCPP	15.0	2.35	mg/kg wet	18.80		80	40-140	4	30	
MCPP [2C]	15.4	2.35	mg/kg wet	18.80		82	40-140	5	30	
Surrogate: DCAA	*0.215*		mg/kg wet	*0.2000*		*108*	*30-150*			
Surrogate: DCAA [2C]	*0.200*		mg/kg wet	*0.2000*		*100*	*30-150*			
8270D Semi-Volatile Organic Compounds										
Batch CJ82309 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CJ82309 - 3546										
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.14*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.14*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2-Fluorophenol	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.21*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: Phenol-d6	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.29*		mg/kg wet	*3.333*		*69*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.24	0.333	mg/kg wet	3.333		67	40-140			
1,2-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CJ82309 - 3546										
1,4-Dichlorobenzene	2.23	0.333	mg/kg wet	3.333		67	40-140			
2,4,5-Trichlorophenol	2.56	0.333	mg/kg wet	3.333		77	30-130			
2,4,6-Trichlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dimethylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dinitrophenol	3.20	1.67	mg/kg wet	3.333		96	30-130			
2,4-Dinitrotoluene	3.05	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.75	0.333	mg/kg wet	3.333		82	40-140			
2-Chloronaphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
2-Chlorophenol	2.36	0.333	mg/kg wet	3.333		71	30-130			
2-Methylnaphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
2-Methylphenol	2.40	0.333	mg/kg wet	3.333		72	30-130			
2-Nitrophenol	2.35	0.333	mg/kg wet	3.333		71	30-130			
3,3´-Dichlorobenzidine	1.94	0.667	mg/kg wet	3.333		58	40-140			
3+4-Methylphenol	4.98	0.667	mg/kg wet	6.667		75	30-130			
4-Bromophenyl-phenylether	2.33	0.333	mg/kg wet	3.333		70	40-140			
4-Chloroaniline	1.58	0.667	mg/kg wet	3.333		47	40-140			
4-Nitrophenol	3.45	1.67	mg/kg wet	3.333		103	30-130			
Acenaphthene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		67	40-140			
Acetophenone	2.47	0.667	mg/kg wet	3.333		74	40-140			
Aniline	1.73	1.67	mg/kg wet	3.333		52	40-140			
Anthracene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Azobenzene	2.34	0.333	mg/kg wet	3.333		70	40-140			
Benzo(a)anthracene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Benzo(a)pyrene	2.70	0.167	mg/kg wet	3.333		81	40-140			
Benzo(b)fluoranthene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Benzo(g,h,i)perylene	2.62	0.333	mg/kg wet	3.333		78	40-140			
Benzo(k)fluoranthene	2.58	0.333	mg/kg wet	3.333		77	40-140			
bis(2-Chloroethoxy)methane	2.37	0.333	mg/kg wet	3.333		71	40-140			
bis(2-Chloroethyl)ether	2.26	0.333	mg/kg wet	3.333		68	40-140			
bis(2-chloroisopropyl)Ether	2.17	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	2.82	0.333	mg/kg wet	3.333		85	40-140			
Butylbenzylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140			
Chrysene	2.57	0.167	mg/kg wet	3.333		77	40-140			
Dibenzo(a,h)Anthracene	2.69	0.167	mg/kg wet	3.333		81	40-140			
Dibenzofuran	2.41	0.333	mg/kg wet	3.333		72	40-140			
Diethylphthalate	2.75	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.56	0.333	mg/kg wet	3.333		77	40-140			
Di-n-butylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Di-n-octylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140			
Fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Fluorene	2.55	0.333	mg/kg wet	3.333		77	40-140			
Hexachlorobenzene	2.42	0.333	mg/kg wet	3.333		73	40-140			
Hexachlorobutadiene	2.23	0.333	mg/kg wet	3.333		67	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CJ82309 - 3546										
Hexachloroethane	2.17	0.333	mg/kg wet	3.333		65	40-140			
Indeno(1,2,3-cd)Pyrene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Isophorone	2.24	0.333	mg/kg wet	3.333		67	40-140			
Naphthalene	2.30	0.333	mg/kg wet	3.333		69	40-140			
Nitrobenzene	2.36	0.333	mg/kg wet	3.333		71	40-140			
N-Nitrosodimethylamine	2.13	0.333	mg/kg wet	3.333		64	40-140			
Pentachlorophenol	3.13	1.67	mg/kg wet	3.333		94	30-130			
Phenanthrene	2.50	0.333	mg/kg wet	3.333		75	40-140			
Phenol	2.46	0.333	mg/kg wet	3.333		74	30-130			
Pyrene	2.50	0.333	mg/kg wet	3.333		75	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.29*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.01*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.76*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.32*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2-Fluorophenol	*3.80*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.47*		mg/kg wet	*3.333*		*74*	*30-130*			
Surrogate: Phenol-d6	*3.91*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.68*		mg/kg wet	*3.333*		*80*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.50	0.333	mg/kg wet	3.333		75	40-140	11	30	
1,2-Dichlorobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	9	30	
1,3-Dichlorobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	10	30	
1,4-Dichlorobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	10	30	
2,4,5-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130	9	30	
2,4,6-Trichlorophenol	2.67	0.333	mg/kg wet	3.333		80	30-130	10	30	
2,4-Dichlorophenol	2.62	0.333	mg/kg wet	3.333		79	30-130	9	30	
2,4-Dimethylphenol	2.68	0.333	mg/kg wet	3.333		80	30-130	9	30	
2,4-Dinitrophenol	3.29	1.67	mg/kg wet	3.333		99	30-130	3	30	
2,4-Dinitrotoluene	3.10	0.333	mg/kg wet	3.333		93	40-140	2	30	
2,6-Dinitrotoluene	2.88	0.333	mg/kg wet	3.333		86	40-140	5	30	
2-Chloronaphthalene	2.49	0.333	mg/kg wet	3.333		75	40-140	9	30	
2-Chlorophenol	2.56	0.333	mg/kg wet	3.333		77	30-130	8	30	
2-Methylnaphthalene	2.47	0.333	mg/kg wet	3.333		74	40-140	8	30	
2-Methylphenol	2.55	0.333	mg/kg wet	3.333		77	30-130	6	30	
2-Nitrophenol	2.62	0.333	mg/kg wet	3.333		79	30-130	11	30	
3,3´-Dichlorobenzidine	2.10	0.667	mg/kg wet	3.333		63	40-140	8	30	
3+4-Methylphenol	5.23	0.667	mg/kg wet	6.667		78	30-130	5	30	
4-Bromophenyl-phenylether	2.53	0.333	mg/kg wet	3.333		76	40-140	8	30	
4-Chloroaniline	1.72	0.667	mg/kg wet	3.333		51	40-140	8	30	
4-Nitrophenol	3.52	1.67	mg/kg wet	3.333		106	30-130	2	30	
Acenaphthene	2.58	0.333	mg/kg wet	3.333		77	40-140	10	30	
Acenaphthylene	2.47	0.333	mg/kg wet	3.333		74	40-140	10	30	
Acetophenone	2.66	0.667	mg/kg wet	3.333		80	40-140	8	30	
Aniline	1.88	1.67	mg/kg wet	3.333		56	40-140	9	30	
Anthracene	2.72	0.333	mg/kg wet	3.333		82	40-140	6	30	

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CJ82309 - 3546										
Azobenzene	2.54	0.333	mg/kg wet	3.333		76	40-140	8	30	
Benzo(a)anthracene	2.64	0.333	mg/kg wet	3.333		79	40-140	4	30	
Benzo(a)pyrene	2.81	0.167	mg/kg wet	3.333		84	40-140	4	30	
Benzo(b)fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140	4	30	
Benzo(g,h,i)perylene	2.76	0.333	mg/kg wet	3.333		83	40-140	5	30	
Benzo(k)fluoranthene	2.71	0.333	mg/kg wet	3.333		81	40-140	5	30	
bis(2-Chloroethoxy)methane	2.63	0.333	mg/kg wet	3.333		79	40-140	10	30	
bis(2-Chloroethyl)ether	2.48	0.333	mg/kg wet	3.333		74	40-140	9	30	
bis(2-chloroisopropyl)Ether	2.38	0.333	mg/kg wet	3.333		71	40-140	9	30	
bis(2-Ethylhexyl)phthalate	2.80	0.333	mg/kg wet	3.333		84	40-140	0.9	30	
Butylbenzylphthalate	2.68	0.333	mg/kg wet	3.333		80	40-140	0.4	30	
Chrysene	2.71	0.167	mg/kg wet	3.333		81	40-140	5	30	
Dibenzo(a,h)Anthracene	2.85	0.167	mg/kg wet	3.333		85	40-140	6	30	
Dibenzofuran	2.64	0.333	mg/kg wet	3.333		79	40-140	9	30	
Diethylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	2	30	
Dimethylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140	5	30	
Di-n-butylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140	4	30	
Di-n-octylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140	2	30	
Fluoranthene	3.13	0.333	mg/kg wet	3.333		94	40-140	8	30	
Fluorene	2.75	0.333	mg/kg wet	3.333		83	40-140	8	30	
Hexachlorobenzene	2.59	0.333	mg/kg wet	3.333		78	40-140	7	30	
Hexachlorobutadiene	2.50	0.333	mg/kg wet	3.333		75	40-140	11	30	
Hexachloroethane	2.42	0.333	mg/kg wet	3.333		73	40-140	11	30	
Indeno(1,2,3-cd)Pyrene	2.82	0.333	mg/kg wet	3.333		85	40-140	5	30	
Isophorone	2.43	0.333	mg/kg wet	3.333		73	40-140	8	30	
Naphthalene	2.56	0.333	mg/kg wet	3.333		77	40-140	11	30	
Nitrobenzene	2.65	0.333	mg/kg wet	3.333		79	40-140	12	30	
N-Nitrosodimethylamine	2.35	0.333	mg/kg wet	3.333		71	40-140	10	30	
Pentachlorophenol	3.25	1.67	mg/kg wet	3.333		98	30-130	4	30	
Phenanthrene	2.64	0.333	mg/kg wet	3.333		79	40-140	5	30	
Phenol	2.64	0.333	mg/kg wet	3.333		79	30-130	7	30	
Pyrene	2.46	0.333	mg/kg wet	3.333		74	40-140	2	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.44*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.13*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.99*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.58*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: 2-Fluorophenol	*4.05*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.66*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: Phenol-d6	*4.07*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.55*		mg/kg wet	*3.333*		*77*	*30-130*			
Classical Chemistry										
Batch CJ82415 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CJ82415 - General Preparation										
LCS										
Conductivity	1360		umhos/cm	1411		97	90-110			
Batch CJ82627 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	3.9	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	ND	2.0	mg/kg	10.00		0	0-44			
Batch CJ82628 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project ESS Laboratory Work Order: 1810642

Notes and Definitions

Z-10	Soil pH measured in water at 20.1 ºC.
Z-09	ND
XH	Peaks found in the retention time window for MCPP did not confirm by GC/MS.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV+	Initial Calibration Verification recovery is above upper control limit (ICV+).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B+	Blank Spike recovery is above upper control limit (B+).
>	Greater than.
#	Modified result
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc
Client Project ID: Eversource Transmission Project

ESS Laboratory Work Order: 1810642

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Vanasse Hangen Brustlin, Inc (MA) - KPB/TB/HDM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1810642
Date Received: 10/23/2018
Project Due Date: 10/30/2018
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: .1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** ~~Yes~~ / No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? ~~Yes~~ / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? ~~Yes~~ / No / NA

13. Are the samples properly preserved? ~~Yes~~ / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: 10/18/18 Time: 1600 By: Client

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / (No)
    Who was contacted: Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	281341	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	281342	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	281343	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	281344	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	281345	Yes	NA	Yes	VOA Vial - Other	Other	
01	281346	Yes	NA	Yes	VOA Vial - Other	Other	

2nd Review
Are barcode labels on correct containers? (Yes) / No
Are all necessary stickers attached? (Yes) / No

Completed By: Date & Time: 10/23/18 17:20
Reviewed By: Date & Time: 10/23/18 1721
Delivered By: 10/23/18 1721

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

1810642

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: TJP

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other: Limit Checker
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Comp	Grab	Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals						
								1	1	1		3							# of Containers
								I	I	I	I	M/O	I						[2] Preservation Code
								A	A	A	A	V	A						[3] Container Code
1	MP36	10/16/18	14:00	x	x	S	U	x	x	x	x	x	x						

ANALYSIS REQUESTED

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments: Temp-0.1 C Ice

Thank you!

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Vials frozen on day of generation by 16:00 ☑

TCLP 20x Rule

	Date/Time:
Relinquished by: (signature)	10/23 14:10
Received by: (signature)	14:10
Relinquished by: (signature)	16:19
Received by: (signature)	10/23/18 17:18
Relinquished by: (signature)	
Received by: (signature)	

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

October 15, 2018

Paul McKinlay
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury/Hudson, MA
Client Job Number:
Project Number: 12970.00
Laboratory Work Order Number: 18J0192

Enclosed are results of analyses for samples received by the laboratory on October 3, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paul McKinlay

REPORT DATE: 10/15/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.00

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J0192

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury/Hudson, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP-40	18J0192-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8081B

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18J0192-01[MP-40]

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18J0192-01[MP-40]

SW-846 8151A

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

2,4,5-T [2C]
B213836-BLK1, B213836-BSD1

2,4-DB [2C]
B213836-BLK1, B213836-BSD1

SW-846 8260C

Qualifications:

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)
B214054-BS1

Acetone
B214054-BS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

1,2,4-Trichlorobenzene
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

2-Butanone (MEK)
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

2-Hexanone (MBK)
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

Acetone
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

Bromochloromethane
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

Bromomethane
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

Dibromomethane
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

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V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

Tetrahydrofuran
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,2,3-Trichloropropane
B214054-BS1, B214054-BSD1, S028040-CCV1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane
18J0192-01[MP-40], B214054-BLK1, B214054-BS1, B214054-BSD1, S028040-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
B214054-BS1, B214054-BSD1, S028040-CCV1

SW-846 8270D

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Aniline
B214109-BLK1, B214109-BS1, B214109-BSD1

Bis(2-chloroisopropyl)ether
B214109-BLK1, B214109-BS1, B214109-BSD1

Pyridine
B214109-BLK1, B214109-BS1, B214109-BSD1

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

3,3-Dichlorobenzidine
B214109-BS1, B214109-BSD1

Hexachlorobutadiene
B214109-BS1, B214109-BSD1

V-19

Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol
18J0192-01[MP-40], B214109-BLK1, B214109-BS1, B214109-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

3,3-Dichlorobenzidine
B214109-BLK1

Hexachlorobutadiene
B214109-BLK1

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V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18J0192-01[MP-40], B214109-BLK1, B214109-BS1, B214109-BSD1

Aniline
18J0192-01[MP-40]

SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18J0192-01[MP-40], B213948-DUP1

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.062	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Benzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Bromobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Bromochloromethane	ND	0.0012	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Bromodichloromethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Bromoform	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Bromomethane	ND	0.0062	mg/Kg dry	1	R-05, V-34	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
2-Butanone (MEK)	ND	0.025	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
n-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
sec-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
tert-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Carbon Disulfide	ND	0.0037	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Carbon Tetrachloride	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Chlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Chlorodibromomethane	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Chloroethane	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Chloroform	ND	0.0025	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Chloromethane	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
2-Chlorotoluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
4-Chlorotoluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2-Dibromoethane (EDB)	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Dibromomethane	ND	0.0012	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,3-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,4-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1-Dichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2-Dichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1-Dichloroethylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
cis-1,2-Dichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
trans-1,2-Dichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,3-Dichloropropane	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
2,2-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
cis-1,3-Dichloropropene	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
trans-1,3-Dichloropropene	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Diethyl Ether	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Diisopropyl Ether (DIPE)	ND	0.00062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,4-Dioxane	ND	0.062	mg/Kg dry	1	V-16	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Ethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
2-Hexanone (MBK)	ND	0.012	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Isopropylbenzene (Cumene)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0025	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Methylene Chloride	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Naphthalene	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
n-Propylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Styrene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1,1,2-Tetrachloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1,2,2-Tetrachloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Tetrachloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Tetrahydrofuran	ND	0.0062	mg/Kg dry	1	V-16	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Toluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2,3-Trichlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2,4-Trichlorobenzene	ND	0.0012	mg/Kg dry	1	R-05	SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1,1-Trichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,1,2-Trichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Trichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2,3-Trichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,2,4-Trimethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
1,3,5-Trimethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
Vinyl Chloride	ND	0.0062	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
m+p Xylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF
o-Xylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	10/5/18	10/5/18 17:42	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	98.3	70-130		10/5/18 17:42
Toluene-d8	98.2	70-130		10/5/18 17:42
4-Bromofluorobenzene	102	70-130		10/5/18 17:42

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Acetophenone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Aniline	ND	0.40	mg/Kg dry	1	V-34	SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Bis(2-chloroethoxy)methane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Bis(2-chloroethyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Bis(2-chloroisopropyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
4-Bromophenylphenylether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Butylbenzylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
4-Chloroaniline	ND	0.78	mg/Kg dry	1	V-34	SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2-Chloronaphthalene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2-Chlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Dibenzofuran	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Di-n-butylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
1,2-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
1,3-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
1,4-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4-Dichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Diethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4-Dimethylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Dimethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4-Dinitrophenol	ND	0.78	mg/Kg dry	1	V-19	SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,6-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Di-n-octylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Hexachlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Hexachlorobutadiene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Hexachloroethane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Isophorone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
3/4-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Nitrobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2-Nitrophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
4-Nitrophenol	ND	0.78	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Pentachlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Phenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
Pyridine	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
1,2,4-Trichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4,5-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL
2,4,6-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/5/18	10/8/18 15:37	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	68.2	30-130		10/8/18 15:37
Phenol-d6	72.8	30-130		10/8/18 15:37
Nitrobenzene-d5	73.0	30-130		10/8/18 15:37
2-Fluorobiphenyl	73.0	30-130		10/8/18 15:37
2,4,6-Tribromophenol	76.3	30-130		10/8/18 15:37
p-Terphenyl-d14	76.8	30-130		10/8/18 15:37

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Sample Flags: DL-03

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [2]	ND	0.24	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Aldrin [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
alpha-BHC [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
beta-BHC [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
delta-BHC [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
gamma-BHC (Lindane) [2]	ND	0.024	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Chlordane [2]	ND	0.24	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
4,4'-DDD [2]	ND	0.048	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
4,4'-DDE [2]	ND	0.048	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
4,4'-DDT [2]	ND	0.048	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Dieldrin [2]	ND	0.048	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endosulfan I [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endosulfan II [2]	ND	0.095	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endosulfan sulfate [2]	ND	0.095	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endrin [2]	ND	0.095	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endrin aldehyde [2]	ND	0.095	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Endrin ketone [2]	ND	0.095	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Heptachlor [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Heptachlor epoxide [2]	ND	0.059	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Hexachlorobenzene [2]	ND	0.071	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Methoxychlor [2]	ND	0.59	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG
Toxaphene [2]	ND	1.2	mg/Kg dry	10		SW-846 8081B	10/5/18	10/14/18 0:11	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	103	30-150		10/14/18 0:11
Decachlorobiphenyl [2]	97.6	30-150		10/14/18 0:11
Tetrachloro-m-xylene [1]	93.9	30-150		10/14/18 0:11
Tetrachloro-m-xylene [2]	91.6	30-150		10/14/18 0:11

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1221 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1232 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1242 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1248 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1254 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1260 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1262 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL
Aroclor-1268 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	10/5/18	10/8/18 16:04	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	98.0	30-150		10/8/18 16:04
Decachlorobiphenyl [2]	89.7	30-150		10/8/18 16:04
Tetrachloro-m-xylene [1]	86.8	30-150		10/8/18 16:04
Tetrachloro-m-xylene [2]	88.8	30-150		10/8/18 16:04

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
Dalalpon [1]	ND	75	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
Dinoseb [1]	ND	15	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/3/18	10/10/18 10:35	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	85.7	30-150			10/10/18 10:35
2,4-Dichlorophenylacetic acid [2]	81.8	30-150			10/10/18 10:35

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Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	10	9.9	mg/Kg dry	1		SW-846 8100 Modified	10/5/18	10/7/18 21:42	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	79.2	40-140				10/7/18 21:42	

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Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Arsenic	3.4	2.0	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Barium	35	2.0	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Beryllium	0.45	0.20	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Cadmium	ND	0.20	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Chromium	16	0.39	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Lead	5.1	0.59	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	10/9/18	10/10/18 10:35	AJL
Nickel	11	0.39	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Selenium	ND	3.9	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Silver	ND	0.39	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Vanadium	22	0.78	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW
Zinc	22	0.78	mg/Kg dry	1		SW-846 6010D	10/9/18	10/10/18 18:06	QNW

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury/Hudson, MA | Sample Description: | Work Order: 18J0192

Date Received: 10/3/2018

Field Sample #: MP-40 | Sampled: 10/2/2018 12:12

Sample ID: 18J0192-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	10/9/18	10/9/18 18:20	DJM
pH @20.2°C	5.8		pH Units	1	H-03	SW-846 9045C	10/3/18	10/3/18 20:12	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	10/6/18	10/8/18 15:40	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	10/6/18	10/8/18 14:45	DJM
Specific conductance	5.7	2.0	µmhos/cm	1		SM21-22 2510B Modified	10/10/18	10/10/18 11:30	EC
% Solids	83.3		% Wt	1		SM 2540G	10/10/18	10/11/18 6:51	DMP

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18J0192-01 [MP-40]	B214426	10/10/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0192-01 [MP-40]	B214430	1.00	10/10/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0192-01 [MP-40]	B214388	50.0	10/09/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214355	1.53	50.0	10/09/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214378	0.622	50.0	10/09/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214106	10.1	10.0	10/05/18

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214105	10.1	10.0	10/05/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214108	30.4	1.00	10/05/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B213836	20.1	5.00	10/03/18

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Sample Extraction Data

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214054	9.68	10.0	10/05/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214109	30.4	1.00	10/05/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214147	25.5	250	10/06/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0192-01 [MP-40]	B214197	25.5	250	10/06/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0192-01 [MP-40]	B213948	20.0	10/03/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214054 - SW-846 5035										
Blank (B214054-BLK1)				Prepared & Analyzed: 10/05/18						
Acetone	ND	0.10	mg/Kg wet							R-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							R-05
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							R-05, V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							R-05
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							R-05
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							R-05
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B214054 - SW-846 5035												
Blank (B214054-BLK1)				Prepared & Analyzed: 10/05/18								
n-Propylbenzene	ND	0.0020	mg/Kg wet									
Styrene	ND	0.0020	mg/Kg wet									
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet									
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet									
Tetrachloroethylene	ND	0.0020	mg/Kg wet									
Tetrahydrofuran	ND	0.010	mg/Kg wet								V-16	
Toluene	ND	0.0020	mg/Kg wet									
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								R-05	
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet									
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet									
Trichloroethylene	ND	0.0020	mg/Kg wet									
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet									
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet									
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet									
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet									
Vinyl Chloride	ND	0.010	mg/Kg wet									
m+p Xylene	ND	0.0040	mg/Kg wet									
o-Xylene	ND	0.0020	mg/Kg wet									
Surrogate: 1,2-Dichloroethane-d4	*0.0509*		mg/Kg wet	0.0500		102		70-130				
Surrogate: Toluene-d8	*0.0485*		mg/Kg wet	0.0500		97.0		70-130				
Surrogate: 4-Bromofluorobenzene	*0.0492*		mg/Kg wet	0.0500		98.4		70-130				
LCS (B214054-BS1)				Prepared & Analyzed: 10/05/18								
Acetone	0.453	0.10	mg/Kg wet	0.200		**227**	*	40-160			L-07A, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0191	0.0010	mg/Kg wet	0.0200		95.4		70-130				
Benzene	0.0184	0.0020	mg/Kg wet	0.0200		92.1		70-130				
Bromobenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.7		70-130				
Bromochloromethane	0.0223	0.0020	mg/Kg wet	0.0200		111		70-130			R-05	
Bromodichloromethane	0.0180	0.0020	mg/Kg wet	0.0200		90.1		70-130				
Bromoform	0.0190	0.0020	mg/Kg wet	0.0200		94.9		70-130				
Bromomethane	0.0117	0.010	mg/Kg wet	0.0200		58.5		40-160			R-05, V-34, L-14	†
2-Butanone (MEK)	0.324	0.040	mg/Kg wet	0.200		**162**	*	40-160			L-07A, R-05	†
n-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.7		70-130				
sec-Butylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.0		70-130				
tert-Butylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.0		70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0190	0.0010	mg/Kg wet	0.0200		94.9		70-130				
Carbon Disulfide	0.0196	0.0060	mg/Kg wet	0.0200		98.1		70-130				
Carbon Tetrachloride	0.0194	0.0020	mg/Kg wet	0.0200		97.1		70-130				
Chlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101		70-130				
Chlorodibromomethane	0.0200	0.0010	mg/Kg wet	0.0200		99.8		70-130				
Chloroethane	0.0164	0.010	mg/Kg wet	0.0200		82.0		70-130				
Chloroform	0.0190	0.0040	mg/Kg wet	0.0200		95.0		70-130				
Chloromethane	0.0168	0.010	mg/Kg wet	0.0200		83.8		40-160				†
2-Chlorotoluene	0.0189	0.0020	mg/Kg wet	0.0200		94.7		70-130				
4-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.4		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0207	0.0020	mg/Kg wet	0.0200		103		70-130				
1,2-Dibromoethane (EDB)	0.0195	0.0010	mg/Kg wet	0.0200		97.4		70-130				
Dibromomethane	0.0207	0.0020	mg/Kg wet	0.0200		103		70-130			R-05	
1,2-Dichlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.5		70-130				
1,3-Dichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.7		70-130				
1,4-Dichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.9		70-130				

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B214054 - SW-846 5035											
LCS (B214054-BS1)				Prepared & Analyzed: 10/05/18							
Dichlorodifluoromethane (Freon 12)	0.0166	0.010	mg/Kg wet	0.0200		83.2	40-160				†
1,1-Dichloroethane	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130				
1,2-Dichloroethane	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130				
1,1-Dichloroethylene	0.0186	0.0040	mg/Kg wet	0.0200		92.9	70-130				
cis-1,2-Dichloroethylene	0.0180	0.0020	mg/Kg wet	0.0200		89.8	70-130				
trans-1,2-Dichloroethylene	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130				
1,2-Dichloropropane	0.0196	0.0020	mg/Kg wet	0.0200		98.2	70-130				
1,3-Dichloropropane	0.0191	0.0010	mg/Kg wet	0.0200		95.3	70-130				
2,2-Dichloropropane	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130				
1,1-Dichloropropene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130				
cis-1,3-Dichloropropene	0.0192	0.0010	mg/Kg wet	0.0200		96.1	70-130				
trans-1,3-Dichloropropene	0.0194	0.0010	mg/Kg wet	0.0200		96.9	70-130				
Diethyl Ether	0.0188	0.010	mg/Kg wet	0.0200		93.8	70-130				
Diisopropyl Ether (DIPE)	0.0187	0.0010	mg/Kg wet	0.0200		93.6	70-130				
1,4-Dioxane	0.228	0.10	mg/Kg wet	0.200		114	40-160			V-16, V-36	†
Ethylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130				
Hexachlorobutadiene	0.0195	0.0020	mg/Kg wet	0.0200		97.7	70-130				
2-Hexanone (MBK)	0.274	0.020	mg/Kg wet	0.200		137	40-160			L-14, R-05	†
Isopropylbenzene (Cumene)	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
p-Isopropyltoluene (p-Cymene)	0.0188	0.0020	mg/Kg wet	0.0200		94.2	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0196	0.0040	mg/Kg wet	0.0200		98.0	70-130				
Methylene Chloride	0.0199	0.010	mg/Kg wet	0.0200		99.7	70-130				
4-Methyl-2-pentanone (MIBK)	0.207	0.020	mg/Kg wet	0.200		103	40-160				†
Naphthalene	0.0180	0.0040	mg/Kg wet	0.0200		89.8	70-130				
n-Propylbenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130				
Styrene	0.0196	0.0020	mg/Kg wet	0.0200		98.0	70-130				
1,1,1,2-Tetrachloroethane	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130				
1,1,2,2-Tetrachloroethane	0.0187	0.0010	mg/Kg wet	0.0200		93.7	70-130				
Tetrachloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		93.0	70-130				
Tetrahydrofuran	0.0189	0.010	mg/Kg wet	0.0200		94.5	70-130			V-16	
Toluene	0.0179	0.0020	mg/Kg wet	0.0200		89.7	70-130				
1,2,3-Trichlorobenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130				
1,2,4-Trichlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130			R-05	
1,1,1-Trichloroethane	0.0178	0.0020	mg/Kg wet	0.0200		89.0	70-130				
1,1,2-Trichloroethane	0.0182	0.0020	mg/Kg wet	0.0200		90.8	70-130				
Trichloroethylene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
Trichlorofluoromethane (Freon 11)	0.0173	0.010	mg/Kg wet	0.0200		86.7	70-130				
1,2,3-Trichloropropane	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130			V-20	
1,2,4-Trimethylbenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130				
1,3,5-Trimethylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130				
Vinyl Chloride	0.0169	0.010	mg/Kg wet	0.0200		84.4	70-130				
m+p Xylene	0.0387	0.0040	mg/Kg wet	0.0400		96.6	70-130				
o-Xylene	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0504*		mg/Kg wet	0.0500		101	70-130				
Surrogate: Toluene-d8	*0.0499*		mg/Kg wet	0.0500		99.8	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0511*		mg/Kg wet	0.0500		102	70-130				

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B214054 - SW-846 5035												
LCS Dup (B214054-BSD1)				Prepared & Analyzed: 10/05/18								
Acetone	0.316	0.10	mg/Kg wet	0.200		158	40-160	**35.6**	*	20	L-14, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0165	0.0010	mg/Kg wet	0.0200		82.6	70-130	14.4		20		
Benzene	0.0158	0.0020	mg/Kg wet	0.0200		79.2	70-130	15.1		20		
Bromobenzene	0.0168	0.0020	mg/Kg wet	0.0200		84.2	70-130	11.7		20		
Bromochloromethane	0.0172	0.0020	mg/Kg wet	0.0200		86.1	70-130	**25.6**	*	20	R-05	
Bromodichloromethane	0.0159	0.0020	mg/Kg wet	0.0200		79.3	70-130	12.8		20		
Bromoform	0.0167	0.0020	mg/Kg wet	0.0200		83.3	70-130	13.0		20		
Bromomethane	0.00938	0.010	mg/Kg wet	0.0200		46.9	40-160	**22.0**	*	20	L-14, R-05, V-34	†
2-Butanone (MEK)	0.241	0.040	mg/Kg wet	0.200		120	40-160	**29.5**	*	20	R-05	†
n-Butylbenzene	0.0164	0.0020	mg/Kg wet	0.0200		82.2	70-130	14.1		20		
sec-Butylbenzene	0.0162	0.0020	mg/Kg wet	0.0200		80.9	70-130	17.1		20		
tert-Butylbenzene	0.0164	0.0020	mg/Kg wet	0.0200		82.0	70-130	13.6		20		
tert-Butyl Ethyl Ether (TBEE)	0.0163	0.0010	mg/Kg wet	0.0200		81.5	70-130	15.2		20		
Carbon Disulfide	0.0166	0.0060	mg/Kg wet	0.0200		82.9	70-130	16.8		20		
Carbon Tetrachloride	0.0169	0.0020	mg/Kg wet	0.0200		84.7	70-130	13.6		20		
Chlorobenzene	0.0179	0.0020	mg/Kg wet	0.0200		89.6	70-130	12.1		20		
Chlorodibromomethane	0.0177	0.0010	mg/Kg wet	0.0200		88.5	70-130	12.0		20		
Chloroethane	0.0153	0.010	mg/Kg wet	0.0200		76.3	70-130	7.20		20		
Chloroform	0.0163	0.0040	mg/Kg wet	0.0200		81.5	70-130	15.3		20		
Chloromethane	0.0150	0.010	mg/Kg wet	0.0200		74.8	40-160	11.3		20		†
2-Chlorotoluene	0.0174	0.0020	mg/Kg wet	0.0200		87.0	70-130	8.48		20		
4-Chlorotoluene	0.0171	0.0020	mg/Kg wet	0.0200		85.4	70-130	13.1		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0177	0.0020	mg/Kg wet	0.0200		88.3	70-130	15.7		20		
1,2-Dibromoethane (EDB)	0.0172	0.0010	mg/Kg wet	0.0200		86.2	70-130	12.2		20		
Dibromomethane	0.0167	0.0020	mg/Kg wet	0.0200		83.5	70-130	**21.3**	*	20	R-05	
1,2-Dichlorobenzene	0.0175	0.0020	mg/Kg wet	0.0200		87.4	70-130	11.9		20		
1,3-Dichlorobenzene	0.0170	0.0020	mg/Kg wet	0.0200		84.8	70-130	14.1		20		
1,4-Dichlorobenzene	0.0169	0.0020	mg/Kg wet	0.0200		84.4	70-130	10.7		20		
Dichlorodifluoromethane (Freon 12)	0.0142	0.010	mg/Kg wet	0.0200		71.2	40-160	15.5		20		†
1,1-Dichloroethane	0.0166	0.0020	mg/Kg wet	0.0200		82.9	70-130	12.9		20		
1,2-Dichloroethane	0.0169	0.0020	mg/Kg wet	0.0200		84.4	70-130	11.8		20		
1,1-Dichloroethylene	0.0159	0.0040	mg/Kg wet	0.0200		79.7	70-130	15.3		20		
cis-1,2-Dichloroethylene	0.0158	0.0020	mg/Kg wet	0.0200		78.9	70-130	12.9		20		
trans-1,2-Dichloroethylene	0.0168	0.0020	mg/Kg wet	0.0200		84.1	70-130	13.4		20		
1,2-Dichloropropane	0.0168	0.0020	mg/Kg wet	0.0200		83.9	70-130	15.7		20		
1,3-Dichloropropane	0.0170	0.0010	mg/Kg wet	0.0200		85.0	70-130	11.4		20		
2,2-Dichloropropane	0.0154	0.0020	mg/Kg wet	0.0200		76.9	70-130	17.2		20		
1,1-Dichloropropene	0.0163	0.0020	mg/Kg wet	0.0200		81.3	70-130	19.0		20		
cis-1,3-Dichloropropene	0.0168	0.0010	mg/Kg wet	0.0200		84.1	70-130	13.3		20		
trans-1,3-Dichloropropene	0.0170	0.0010	mg/Kg wet	0.0200		85.1	70-130	13.0		20		
Diethyl Ether	0.0165	0.010	mg/Kg wet	0.0200		82.4	70-130	12.9		20		
Diisopropyl Ether (DIPE)	0.0164	0.0010	mg/Kg wet	0.0200		81.8	70-130	13.5		20		
1,4-Dioxane	0.243	0.10	mg/Kg wet	0.200		121	40-160	6.25		20	V-16, V-36	†
Ethylbenzene	0.0169	0.0020	mg/Kg wet	0.0200		84.7	70-130	12.8		20		
Hexachlorobutadiene	0.0170	0.0020	mg/Kg wet	0.0200		84.8	70-130	14.1		20		
2-Hexanone (MBK)	0.210	0.020	mg/Kg wet	0.200		105	40-160	**26.3**	*	20	R-05	†
Isopropylbenzene (Cumene)	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130	11.7		20		
p-Isopropyltoluene (p-Cymene)	0.0162	0.0020	mg/Kg wet	0.0200		80.9	70-130	15.2		20		
Methyl tert-Butyl Ether (MTBE)	0.0176	0.0040	mg/Kg wet	0.0200		87.9	70-130	10.9		20		
Methylene Chloride	0.0176	0.010	mg/Kg wet	0.0200		88.2	70-130	12.2		20		
4-Methyl-2-pentanone (MIBK)	0.185	0.020	mg/Kg wet	0.200		92.3	40-160	11.3		20		†
Naphthalene	0.0156	0.0040	mg/Kg wet	0.0200		78.0	70-130	14.1		20		

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QUALITY CONTROL

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes
Batch B214054 - SW-846 5035											
LCS Dup (B214054-BSD1)				Prepared & Analyzed: 10/05/18							
n-Propylbenzene	0.0176	0.0020	mg/Kg wet	0.0200		88.0	70-130	10.9		20	
Styrene	0.0172	0.0020	mg/Kg wet	0.0200		85.9	70-130	13.2		20	
1,1,1,2-Tetrachloroethane	0.0171	0.0020	mg/Kg wet	0.0200		85.4	70-130	13.6		20	
1,1,2,2-Tetrachloroethane	0.0179	0.0010	mg/Kg wet	0.0200		89.4	70-130	4.70		20	
Tetrachloroethylene	0.0172	0.0020	mg/Kg wet	0.0200		86.2	70-130	7.59		20	
Tetrahydrofuran	0.0161	0.010	mg/Kg wet	0.0200		80.4	70-130	16.1		20	V-16
Toluene	0.0157	0.0020	mg/Kg wet	0.0200		78.4	70-130	13.4		20	
1,2,3-Trichlorobenzene	0.0158	0.0020	mg/Kg wet	0.0200		78.8	70-130	15.8		20	
1,2,4-Trichlorobenzene	0.0160	0.0020	mg/Kg wet	0.0200		80.2	70-130	**25.9**	*	20	R-05
1,1,1-Trichloroethane	0.0156	0.0020	mg/Kg wet	0.0200		78.2	70-130	12.9		20	
1,1,2-Trichloroethane	0.0163	0.0020	mg/Kg wet	0.0200		81.7	70-130	10.6		20	
Trichloroethylene	0.0167	0.0020	mg/Kg wet	0.0200		83.7	70-130	12.1		20	
Trichlorofluoromethane (Freon 11)	0.0150	0.010	mg/Kg wet	0.0200		74.9	70-130	14.6		20	
1,2,3-Trichloropropane	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130	3.30		20	V-20
1,2,4-Trimethylbenzene	0.0155	0.0020	mg/Kg wet	0.0200		77.6	70-130	17.5		20	
1,3,5-Trimethylbenzene	0.0169	0.0020	mg/Kg wet	0.0200		84.6	70-130	10.6		20	
Vinyl Chloride	0.0145	0.010	mg/Kg wet	0.0200		72.3	70-130	15.4		20	
m+p Xylene	0.0343	0.0040	mg/Kg wet	0.0400		85.6	70-130	12.1		20	
o-Xylene	0.0166	0.0020	mg/Kg wet	0.0200		82.8	70-130	15.0		20	
Surrogate: 1,2-Dichloroethane-d4	*0.0502*		mg/Kg wet	0.0500		100	70-130				
Surrogate: Toluene-d8	*0.0494*		mg/Kg wet	0.0500		98.8	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0522*		mg/Kg wet	0.0500		104	70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214109 - SW-846 3546										
Blank (B214109-BLK1)				Prepared: 10/05/18 Analyzed: 10/08/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-05
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							V-05
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							V-20
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							V-19
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							V-20
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B214109 - SW-846 3546											
Blank (B214109-BLK1)				Prepared: 10/05/18 Analyzed: 10/08/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet							V-05	
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*4.70*		mg/Kg wet	6.67		70.4	30-130				
Surrogate: Phenol-d6	*5.07*		mg/Kg wet	6.67		76.0	30-130				
Surrogate: Nitrobenzene-d5	*2.44*		mg/Kg wet	3.33		73.3	30-130				
Surrogate: 2-Fluorobiphenyl	*2.69*		mg/Kg wet	3.33		80.6	30-130				
Surrogate: 2,4,6-Tribromophenol	*6.10*		mg/Kg wet	6.67		91.5	30-130				
Surrogate: p-Terphenyl-d14	*3.05*		mg/Kg wet	3.33		91.5	30-130				
LCS (B214109-BS1)				Prepared: 10/05/18 Analyzed: 10/08/18							
Acenaphthene	1.21	0.17	mg/Kg wet	1.67		72.9	40-140				
Acenaphthylene	1.22	0.17	mg/Kg wet	1.67		72.9	40-140				
Acetophenone	1.16	0.34	mg/Kg wet	1.67		69.3	40-140				
Aniline	0.816	0.34	mg/Kg wet	1.67		49.0	40-140			V-05	
Anthracene	1.29	0.17	mg/Kg wet	1.67		77.1	40-140				
Benzo(a)anthracene	1.28	0.17	mg/Kg wet	1.67		77.0	40-140				
Benzo(a)pyrene	1.28	0.17	mg/Kg wet	1.67		76.9	40-140				
Benzo(b)fluoranthene	1.21	0.17	mg/Kg wet	1.67		72.8	40-140				
Benzo(g,h,i)perylene	1.30	0.17	mg/Kg wet	1.67		78.3	40-140				
Benzo(k)fluoranthene	1.23	0.17	mg/Kg wet	1.67		73.8	40-140				
Bis(2-chloroethoxy)methane	1.27	0.34	mg/Kg wet	1.67		76.4	40-140				
Bis(2-chloroethyl)ether	1.00	0.34	mg/Kg wet	1.67		60.1	40-140				
Bis(2-chloroisopropyl)ether	1.02	0.34	mg/Kg wet	1.67		61.3	40-140			V-05	
Bis(2-Ethylhexyl)phthalate	1.20	0.34	mg/Kg wet	1.67		72.1	40-140				
4-Bromophenylphenylether	1.33	0.34	mg/Kg wet	1.67		79.9	40-140				
Butylbenzylphthalate	1.26	0.34	mg/Kg wet	1.67		75.8	40-140				
4-Chloroaniline	0.982	0.66	mg/Kg wet	1.67		58.9	15-140			V-34	†
2-Chloronaphthalene	1.13	0.34	mg/Kg wet	1.67		67.8	40-140				
2-Chlorophenol	1.16	0.34	mg/Kg wet	1.67		69.6	30-130				
Chrysene	1.20	0.17	mg/Kg wet	1.67		71.9	40-140				
Dibenz(a,h)anthracene	1.24	0.17	mg/Kg wet	1.67		74.5	40-140				
Dibenzofuran	1.22	0.34	mg/Kg wet	1.67		73.5	40-140				
Di-n-butylphthalate	1.22	0.34	mg/Kg wet	1.67		73.5	40-140				
1,2-Dichlorobenzene	1.13	0.34	mg/Kg wet	1.67		67.6	40-140				
1,3-Dichlorobenzene	1.09	0.34	mg/Kg wet	1.67		65.5	40-140				
1,4-Dichlorobenzene	1.09	0.34	mg/Kg wet	1.67		65.5	40-140				
3,3-Dichlorobenzidine	1.53	0.17	mg/Kg wet	1.67		91.9	40-140			V-06	
2,4-Dichlorophenol	1.31	0.34	mg/Kg wet	1.67		78.3	30-130				
Diethylphthalate	1.25	0.34	mg/Kg wet	1.67		74.8	40-140				
2,4-Dimethylphenol	1.16	0.34	mg/Kg wet	1.67		69.4	30-130				
Dimethylphthalate	1.25	0.34	mg/Kg wet	1.67		74.9	40-140				
2,4-Dinitrophenol	1.25	0.66	mg/Kg wet	1.67		75.0	15-140			V-19	†
2,4-Dinitrotoluene	1.38	0.34	mg/Kg wet	1.67		82.9	40-140				
2,6-Dinitrotoluene	1.39	0.34	mg/Kg wet	1.67		83.6	40-140				
Di-n-octylphthalate	1.21	0.34	mg/Kg wet	1.67		72.5	40-140				
1,2-Diphenylhydrazine (as Azobenzene)	1.18	0.34	mg/Kg wet	1.67		70.6	40-140				
Fluoranthene	1.28	0.17	mg/Kg wet	1.67		76.8	40-140				
Fluorene	1.27	0.17	mg/Kg wet	1.67		76.3	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B214109 - SW-846 3546											
LCS (B214109-BS1)				Prepared: 10/05/18 Analyzed: 10/08/18							
Hexachlorobenzene	1.39	0.34	mg/Kg wet	1.67		83.4	40-140				
Hexachlorobutadiene	1.41	0.34	mg/Kg wet	1.67		84.7	40-140			V-06	
Hexachloroethane	1.07	0.34	mg/Kg wet	1.67		64.3	40-140				
Indeno(1,2,3-cd)pyrene	1.29	0.17	mg/Kg wet	1.67		77.1	40-140				
Isophorone	1.23	0.34	mg/Kg wet	1.67		73.8	40-140				
2-Methylnaphthalene	1.37	0.17	mg/Kg wet	1.67		82.2	40-140				
2-Methylphenol	1.05	0.34	mg/Kg wet	1.67		63.1	30-130				
3/4-Methylphenol	1.12	0.34	mg/Kg wet	1.67		67.4	30-130				
Naphthalene	1.22	0.17	mg/Kg wet	1.67		73.1	40-140				
Nitrobenzene	1.20	0.34	mg/Kg wet	1.67		72.0	40-140				
2-Nitrophenol	1.33	0.34	mg/Kg wet	1.67		80.1	30-130				
4-Nitrophenol	1.23	0.66	mg/Kg wet	1.67		74.0	15-140				†
Pentachlorophenol	1.25	0.34	mg/Kg wet	1.67		75.1	30-130				
Phenanthrene	1.28	0.17	mg/Kg wet	1.67		76.9	40-140				
Phenol	1.06	0.34	mg/Kg wet	1.67		63.5	15-140				†
Pyrene	1.26	0.17	mg/Kg wet	1.67		75.3	40-140				
Pyridine	0.732	0.34	mg/Kg wet	1.67		43.9	30-140			V-05	†
1,2,4-Trichlorobenzene	1.31	0.34	mg/Kg wet	1.67		78.6	40-140				
2,4,5-Trichlorophenol	1.29	0.34	mg/Kg wet	1.67		77.7	30-130				
2,4,6-Trichlorophenol	1.30	0.34	mg/Kg wet	1.67		78.1	30-130				
Surrogate: 2-Fluorophenol	*4.65*		mg/Kg wet	6.67		69.8	30-130				
Surrogate: Phenol-d6	*4.75*		mg/Kg wet	6.67		71.2	30-130				
Surrogate: Nitrobenzene-d5	*2.46*		mg/Kg wet	3.33		73.8	30-130				
Surrogate: 2-Fluorobiphenyl	*2.67*		mg/Kg wet	3.33		80.1	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.96*		mg/Kg wet	6.67		89.4	30-130				
Surrogate: p-Terphenyl-d14	*2.83*		mg/Kg wet	3.33		85.0	30-130				
LCS Dup (B214109-BSD1)				Prepared: 10/05/18 Analyzed: 10/08/18							
Acenaphthene	1.29	0.17	mg/Kg wet	1.67		77.4	40-140	6.02	30		
Acenaphthylene	1.26	0.17	mg/Kg wet	1.67		75.7	40-140	3.77	30		
Acetophenone	1.21	0.34	mg/Kg wet	1.67		72.3	40-140	4.21	30		
Aniline	0.839	0.34	mg/Kg wet	1.67		50.4	40-140	2.82	30	V-05	
Anthracene	1.32	0.17	mg/Kg wet	1.67		79.2	40-140	2.66	30		
Benzo(a)anthracene	1.37	0.17	mg/Kg wet	1.67		81.9	40-140	6.22	30		
Benzo(a)pyrene	1.36	0.17	mg/Kg wet	1.67		81.6	40-140	5.93	30		
Benzo(b)fluoranthene	1.28	0.17	mg/Kg wet	1.67		76.7	40-140	5.14	30		
Benzo(g,h,i)perylene	1.32	0.17	mg/Kg wet	1.67		79.4	40-140	1.42	30		
Benzo(k)fluoranthene	1.32	0.17	mg/Kg wet	1.67		78.9	40-140	6.76	30		
Bis(2-chloroethoxy)methane	1.32	0.34	mg/Kg wet	1.67		78.9	40-140	3.19	30		
Bis(2-chloroethyl)ether	1.05	0.34	mg/Kg wet	1.67		63.3	40-140	5.16	30		
Bis(2-chloroisopropyl)ether	1.05	0.34	mg/Kg wet	1.67		63.1	40-140	2.77	30	V-05	
Bis(2-Ethylhexyl)phthalate	1.32	0.34	mg/Kg wet	1.67		79.0	40-140	9.13	30		
4-Bromophenylphenylether	1.33	0.34	mg/Kg wet	1.67		79.8	40-140	0.100	30		
Butylbenzylphthalate	1.35	0.34	mg/Kg wet	1.67		81.0	40-140	6.66	30		
4-Chloroaniline	0.994	0.66	mg/Kg wet	1.67		59.7	15-140	1.21	30	V-34	†
2-Chloronaphthalene	1.11	0.34	mg/Kg wet	1.67		66.3	40-140	2.24	30		
2-Chlorophenol	1.19	0.34	mg/Kg wet	1.67		71.1	30-130	2.19	30		
Chrysene	1.30	0.17	mg/Kg wet	1.67		78.2	40-140	8.36	30		
Dibenz(a,h)anthracene	1.28	0.17	mg/Kg wet	1.67		77.0	40-140	3.30	30		
Dibenzofuran	1.34	0.34	mg/Kg wet	1.67		80.2	40-140	8.75	30		
Di-n-butylphthalate	1.32	0.34	mg/Kg wet	1.67		79.1	40-140	7.36	30		
1,2-Dichlorobenzene	1.13	0.34	mg/Kg wet	1.67		67.9	40-140	0.384	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B214109 - SW-846 3546											
LCS Dup (B214109-BSD1)				Prepared: 10/05/18 Analyzed: 10/08/18							
1,3-Dichlorobenzene	1.11	0.34	mg/Kg wet	1.67		66.5	40-140	1.45	30		
1,4-Dichlorobenzene	1.11	0.34	mg/Kg wet	1.67		66.3	40-140	1.27	30		
3,3-Dichlorobenzidine	1.59	0.17	mg/Kg wet	1.67		95.3	40-140	3.61	30	V-06	
2,4-Dichlorophenol	1.35	0.34	mg/Kg wet	1.67		81.1	30-130	3.51	30		
Diethylphthalate	1.38	0.34	mg/Kg wet	1.67		82.7	40-140	10.0	30		
2,4-Dimethylphenol	1.22	0.34	mg/Kg wet	1.67		73.4	30-130	5.55	30		
Dimethylphthalate	1.36	0.34	mg/Kg wet	1.67		81.5	40-140	8.44	30		
2,4-Dinitrophenol	1.46	0.66	mg/Kg wet	1.67		87.9	15-140	15.8	30	V-19	†
2,4-Dinitrotoluene	1.53	0.34	mg/Kg wet	1.67		91.6	40-140	9.97	30		
2,6-Dinitrotoluene	1.52	0.34	mg/Kg wet	1.67		91.4	40-140	8.96	30		
Di-n-octylphthalate	1.31	0.34	mg/Kg wet	1.67		78.8	40-140	8.30	30		
1,2-Diphenylhydrazine (as Azobenzene)	1.16	0.34	mg/Kg wet	1.67		69.4	40-140	1.63	30		
Fluoranthene	1.35	0.17	mg/Kg wet	1.67		81.2	40-140	5.49	30		
Fluorene	1.36	0.17	mg/Kg wet	1.67		81.7	40-140	6.79	30		
Hexachlorobenzene	1.38	0.34	mg/Kg wet	1.67		83.1	40-140	0.384	30		
Hexachlorobutadiene	1.37	0.34	mg/Kg wet	1.67		82.4	40-140	2.75	30	V-06	
Hexachloroethane	1.07	0.34	mg/Kg wet	1.67		64.5	40-140	0.248	30		
Indeno(1,2,3-cd)pyrene	1.31	0.17	mg/Kg wet	1.67		78.7	40-140	1.98	30		
Isophorone	1.25	0.34	mg/Kg wet	1.67		75.0	40-140	1.61	30		
2-Methylnaphthalene	1.38	0.17	mg/Kg wet	1.67		82.7	40-140	0.534	30		
2-Methylphenol	1.08	0.34	mg/Kg wet	1.67		64.6	30-130	2.44	30		
3/4-Methylphenol	1.22	0.34	mg/Kg wet	1.67		73.0	30-130	8.00	30		
Naphthalene	1.22	0.17	mg/Kg wet	1.67		73.0	40-140	0.0548	30		
Nitrobenzene	1.21	0.34	mg/Kg wet	1.67		72.5	40-140	0.637	30		
2-Nitrophenol	1.33	0.34	mg/Kg wet	1.67		79.8	30-130	0.375	30		
4-Nitrophenol	1.40	0.66	mg/Kg wet	1.67		84.0	15-140	12.6	30		†
Pentachlorophenol	1.35	0.34	mg/Kg wet	1.67		81.1	30-130	7.66	30		
Phenanthrene	1.31	0.17	mg/Kg wet	1.67		78.6	40-140	2.29	30		
Phenol	1.11	0.34	mg/Kg wet	1.67		66.3	15-140	4.41	30		†
Pyrene	1.33	0.17	mg/Kg wet	1.67		79.7	40-140	5.63	30		
Pyridine	0.682	0.34	mg/Kg wet	1.67		40.9	30-140	7.07	30	V-05	†
1,2,4-Trichlorobenzene	1.30	0.34	mg/Kg wet	1.67		77.7	40-140	1.18	30		
2,4,5-Trichlorophenol	1.40	0.34	mg/Kg wet	1.67		84.2	30-130	8.03	30		
2,4,6-Trichlorophenol	1.34	0.34	mg/Kg wet	1.67		80.1	30-130	2.53	30		
Surrogate: 2-Fluorophenol	*4.71*		mg/Kg wet	6.67		70.6	30-130				
Surrogate: Phenol-d6	*4.94*		mg/Kg wet	6.67		74.1	30-130				
Surrogate: Nitrobenzene-d5	*2.40*		mg/Kg wet	3.33		72.1	30-130				
Surrogate: 2-Fluorobiphenyl	*2.73*		mg/Kg wet	3.33		81.9	30-130				
Surrogate: 2,4,6-Tribromophenol	*6.80*		mg/Kg wet	6.67		102	30-130				
Surrogate: p-Terphenyl-d14	*3.06*		mg/Kg wet	3.33		91.7	30-130				

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214106 - SW-846 3546										
Blank (B214106-BLK1)				Prepared: 10/05/18 Analyzed: 10/08/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0020	mg/Kg wet							
Aldrin [2C]	ND	0.0020	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0010	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDE	ND	0.0010	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDT	ND	0.0010	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0010	mg/Kg wet							
Dieldrin	ND	0.0020	mg/Kg wet							
Dieldrin [2C]	ND	0.0020	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.148*		mg/Kg wet	0.200		74.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.164*		mg/Kg wet	0.200		81.8	30-150			
Surrogate: Tetrachloro-m-xylene	*0.152*		mg/Kg wet	0.200		76.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.162*		mg/Kg wet	0.200		81.2	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214106 - SW-846 3546										
LCS (B214106-BS1)				Prepared: 10/05/18 Analyzed: 10/08/18						
alpha-Chlordane	0.073	0.0050	mg/Kg wet	0.100		72.9	40-140			
alpha-Chlordane [2C]	0.079	0.0050	mg/Kg wet	0.100		78.8	40-140			
gamma-Chlordane	0.072	0.0050	mg/Kg wet	0.100		72.1	40-140			
gamma-Chlordane [2C]	0.079	0.0050	mg/Kg wet	0.100		78.9	40-140			
Alachlor	0.074	0.020	mg/Kg wet	0.100		74.0	40-140			
Alachlor [2C]	0.078	0.020	mg/Kg wet	0.100		77.9	40-140			
Aldrin	0.072	0.0020	mg/Kg wet	0.100		72.1	40-140			
Aldrin [2C]	0.079	0.0020	mg/Kg wet	0.100		79.2	40-140			
alpha-BHC	0.072	0.0050	mg/Kg wet	0.100		71.7	40-140			
alpha-BHC [2C]	0.075	0.0050	mg/Kg wet	0.100		75.0	40-140			
beta-BHC	0.068	0.0050	mg/Kg wet	0.100		67.5	40-140			
beta-BHC [2C]	0.071	0.0050	mg/Kg wet	0.100		71.4	40-140			
delta-BHC	0.066	0.0050	mg/Kg wet	0.100		65.8	40-140			
delta-BHC [2C]	0.072	0.0050	mg/Kg wet	0.100		72.2	40-140			
gamma-BHC (Lindane)	0.072	0.0020	mg/Kg wet	0.100		72.3	40-140			
gamma-BHC (Lindane) [2C]	0.073	0.0020	mg/Kg wet	0.100		72.8	40-140			
4,4'-DDD	0.080	0.0010	mg/Kg wet	0.100		79.7	40-140			
4,4'-DDD [2C]	0.084	0.0010	mg/Kg wet	0.100		84.2	40-140			
4,4'-DDE	0.076	0.0010	mg/Kg wet	0.100		75.8	40-140			
4,4'-DDE [2C]	0.083	0.0010	mg/Kg wet	0.100		82.8	40-140			
4,4'-DDT	0.080	0.0010	mg/Kg wet	0.100		80.3	40-140			
4,4'-DDT [2C]	0.076	0.0010	mg/Kg wet	0.100		75.9	40-140			
Dieldrin	0.075	0.0020	mg/Kg wet	0.100		75.4	40-140			
Dieldrin [2C]	0.082	0.0020	mg/Kg wet	0.100		82.4	40-140			
Endosulfan I	0.075	0.0050	mg/Kg wet	0.100		75.3	40-140			
Endosulfan I [2C]	0.081	0.0050	mg/Kg wet	0.100		81.3	40-140			
Endosulfan II	0.077	0.0080	mg/Kg wet	0.100		77.4	40-140			
Endosulfan II [2C]	0.081	0.0080	mg/Kg wet	0.100		81.0	40-140			
Endosulfan Sulfate	0.080	0.0080	mg/Kg wet	0.100		80.1	40-140			
Endosulfan Sulfate [2C]	0.080	0.0080	mg/Kg wet	0.100		79.7	40-140			
Endrin	0.076	0.0080	mg/Kg wet	0.100		75.5	40-140			
Endrin [2C]	0.079	0.0080	mg/Kg wet	0.100		79.3	40-140			
Endrin Aldehyde	0.086	0.0080	mg/Kg wet	0.100		85.5	40-140			
Endrin Aldehyde [2C]	0.084	0.0080	mg/Kg wet	0.100		84.2	40-140			
Endrin Ketone	0.080	0.0080	mg/Kg wet	0.100		80.2	40-140			
Endrin Ketone [2C]	0.079	0.0080	mg/Kg wet	0.100		79.1	40-140			
Heptachlor	0.056	0.0050	mg/Kg wet	0.100		56.4	40-140			
Heptachlor [2C]	0.077	0.0050	mg/Kg wet	0.100		77.4	40-140			
Heptachlor Epoxide	0.073	0.0050	mg/Kg wet	0.100		73.0	40-140			
Heptachlor Epoxide [2C]	0.078	0.0050	mg/Kg wet	0.100		77.9	40-140			
Hexachlorobenzene	0.071	0.0060	mg/Kg wet	0.100		71.3	40-140			
Hexachlorobenzene [2C]	0.078	0.0060	mg/Kg wet	0.100		78.2	40-140			
Methoxychlor	0.080	0.050	mg/Kg wet	0.100		79.8	40-140			
Methoxychlor [2C]	0.082	0.050	mg/Kg wet	0.100		82.5	40-140			
Surrogate: Decachlorobiphenyl	*0.149*		mg/Kg wet	0.200		74.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.157*		mg/Kg wet	0.200		78.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.145*		mg/Kg wet	0.200		72.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.165*		mg/Kg wet	0.200		82.3	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214106 - SW-846 3546										
LCS Dup (B214106-BSD1)				Prepared: 10/05/18 Analyzed: 10/08/18						
alpha-Chlordane	0.075	0.0050	mg/Kg wet	0.100		75.3	40-140	3.21	30	
alpha-Chlordane [2C]	0.083	0.0050	mg/Kg wet	0.100		82.8	40-140	4.96	30	
gamma-Chlordane	0.075	0.0050	mg/Kg wet	0.100		75.0	40-140	4.05	30	
gamma-Chlordane [2C]	0.084	0.0050	mg/Kg wet	0.100		83.6	40-140	5.79	30	
Alachlor	0.075	0.020	mg/Kg wet	0.100		75.2	40-140	1.68	30	
Alachlor [2C]	0.081	0.020	mg/Kg wet	0.100		81.1	40-140	4.01	30	
Aldrin	0.075	0.0020	mg/Kg wet	0.100		75.1	40-140	4.03	30	
Aldrin [2C]	0.084	0.0020	mg/Kg wet	0.100		84.4	40-140	6.40	30	
alpha-BHC	0.075	0.0050	mg/Kg wet	0.100		75.0	40-140	4.42	30	
alpha-BHC [2C]	0.080	0.0050	mg/Kg wet	0.100		80.4	40-140	6.94	30	
beta-BHC	0.071	0.0050	mg/Kg wet	0.100		71.3	40-140	5.46	30	
beta-BHC [2C]	0.076	0.0050	mg/Kg wet	0.100		76.1	40-140	6.40	30	
delta-BHC	0.067	0.0050	mg/Kg wet	0.100		67.3	40-140	2.35	30	
delta-BHC [2C]	0.076	0.0050	mg/Kg wet	0.100		76.4	40-140	5.60	30	
gamma-BHC (Lindane)	0.075	0.0020	mg/Kg wet	0.100		74.6	40-140	3.12	30	
gamma-BHC (Lindane) [2C]	0.083	0.0020	mg/Kg wet	0.100		82.7	40-140	12.8	30	
4,4'-DDD	0.082	0.0010	mg/Kg wet	0.100		81.8	40-140	2.58	30	
4,4'-DDD [2C]	0.088	0.0010	mg/Kg wet	0.100		87.6	40-140	3.89	30	
4,4'-DDE	0.079	0.0010	mg/Kg wet	0.100		78.8	40-140	3.86	30	
4,4'-DDE [2C]	0.086	0.0010	mg/Kg wet	0.100		86.5	40-140	4.36	30	
4,4'-DDT	0.082	0.0010	mg/Kg wet	0.100		81.5	40-140	1.55	30	
4,4'-DDT [2C]	0.077	0.0010	mg/Kg wet	0.100		77.2	40-140	1.72	30	
Dieldrin	0.077	0.0020	mg/Kg wet	0.100		76.7	40-140	1.66	30	
Dieldrin [2C]	0.086	0.0020	mg/Kg wet	0.100		85.7	40-140	3.95	30	
Endosulfan I	0.076	0.0050	mg/Kg wet	0.100		76.1	40-140	1.02	30	
Endosulfan I [2C]	0.083	0.0050	mg/Kg wet	0.100		83.4	40-140	2.55	30	
Endosulfan II	0.079	0.0080	mg/Kg wet	0.100		79.0	40-140	1.99	30	
Endosulfan II [2C]	0.084	0.0080	mg/Kg wet	0.100		84.1	40-140	3.73	30	
Endosulfan Sulfate	0.080	0.0080	mg/Kg wet	0.100		79.8	40-140	0.294	30	
Endosulfan Sulfate [2C]	0.082	0.0080	mg/Kg wet	0.100		81.7	40-140	2.47	30	
Endrin	0.077	0.0080	mg/Kg wet	0.100		77.0	40-140	1.93	30	
Endrin [2C]	0.082	0.0080	mg/Kg wet	0.100		81.9	40-140	3.14	30	
Endrin Aldehyde	0.088	0.0080	mg/Kg wet	0.100		87.7	40-140	2.49	30	
Endrin Aldehyde [2C]	0.088	0.0080	mg/Kg wet	0.100		87.8	40-140	4.18	30	
Endrin Ketone	0.080	0.0080	mg/Kg wet	0.100		79.6	40-140	0.732	30	
Endrin Ketone [2C]	0.080	0.0080	mg/Kg wet	0.100		80.1	40-140	1.20	30	
Heptachlor	0.058	0.0050	mg/Kg wet	0.100		57.7	40-140	2.32	30	
Heptachlor [2C]	0.081	0.0050	mg/Kg wet	0.100		81.4	40-140	5.05	30	
Heptachlor Epoxide	0.075	0.0050	mg/Kg wet	0.100		74.7	40-140	2.40	30	
Heptachlor Epoxide [2C]	0.082	0.0050	mg/Kg wet	0.100		81.9	40-140	5.03	30	
Hexachlorobenzene	0.074	0.0060	mg/Kg wet	0.100		73.6	40-140	3.11	30	
Hexachlorobenzene [2C]	0.083	0.0060	mg/Kg wet	0.100		83.0	40-140	5.96	30	
Methoxychlor	0.080	0.050	mg/Kg wet	0.100		79.6	40-140	0.244	30	
Methoxychlor [2C]	0.083	0.050	mg/Kg wet	0.100		83.5	40-140	1.23	30	
Surrogate: Decachlorobiphenyl	*0.151*		mg/Kg wet	0.200		75.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.160*		mg/Kg wet	0.200		80.1	30-150			
Surrogate: Tetrachloro-m-xylene	*0.147*		mg/Kg wet	0.200		73.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.173*		mg/Kg wet	0.200		86.7	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214105 - SW-846 3546										
Blank (B214105-BLK1)				Prepared: 10/05/18 Analyzed: 10/08/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.195*		mg/Kg wet	0.200		97.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.175*		mg/Kg wet	0.200		87.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.165*		mg/Kg wet	0.200		82.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.162*		mg/Kg wet	0.200		81.2	30-150			
LCS (B214105-BS1)				Prepared: 10/05/18 Analyzed: 10/08/18						
Aroclor-1016	0.17	0.020	mg/Kg wet	0.200		83.2	40-140			
Aroclor-1016 [2C]	0.17	0.020	mg/Kg wet	0.200		83.9	40-140			
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		89.2	40-140			
Aroclor-1260 [2C]	0.18	0.020	mg/Kg wet	0.200		87.9	40-140			
Surrogate: Decachlorobiphenyl	*0.190*		mg/Kg wet	0.200		95.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.170*		mg/Kg wet	0.200		85.2	30-150			
Surrogate: Tetrachloro-m-xylene	*0.162*		mg/Kg wet	0.200		81.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.159*		mg/Kg wet	0.200		79.7	30-150			
LCS Dup (B214105-BSD1)				Prepared: 10/05/18 Analyzed: 10/08/18						
Aroclor-1016	0.17	0.020	mg/Kg wet	0.200		83.6	40-140	0.451	30	
Aroclor-1016 [2C]	0.17	0.020	mg/Kg wet	0.200		84.1	40-140	0.143	30	
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		88.1	40-140	1.30	30	
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		86.2	40-140	1.97	30	
Surrogate: Decachlorobiphenyl	*0.187*		mg/Kg wet	0.200		93.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.168*		mg/Kg wet	0.200		84.1	30-150			
Surrogate: Tetrachloro-m-xylene	*0.162*		mg/Kg wet	0.200		81.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.160*		mg/Kg wet	0.200		80.1	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B213836 - SW-846 8151										
Blank (B213836-BLK1)				Prepared: 10/03/18 Analyzed: 10/10/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							V-05
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							V-05
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*71.9*		µg/kg wet	95.2		75.5	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*70.3*		µg/kg wet	95.2		73.8	30-150			
LCS (B213836-BS1)				Prepared: 10/03/18 Analyzed: 10/10/18						
2,4-D	96.5	25	µg/kg wet	125		77.2	40-140			
2,4-D [2C]	97.4	25	µg/kg wet	125		77.9	40-140			
2,4-DB	99.0	25	µg/kg wet	125		79.2	40-140			
2,4-DB [2C]	99.1	25	µg/kg wet	125		79.2	40-140			
2,4,5-TP (Silvex)	9.49	2.5	µg/kg wet	12.5		75.9	40-140			
2,4,5-TP (Silvex) [2C]	9.87	2.5	µg/kg wet	12.5		78.9	40-140			
2,4,5-T	9.83	2.5	µg/kg wet	12.5		78.6	40-140			
2,4,5-T [2C]	10.1	2.5	µg/kg wet	12.5		80.6	40-140			
Dalapon	153	62	µg/kg wet	312		48.9	40-140			
Dalapon [2C]	165	62	µg/kg wet	312		52.7	40-140			
Dicamba	9.38	2.5	µg/kg wet	12.5		75.0	40-140			
Dicamba [2C]	9.70	2.5	µg/kg wet	12.5		77.6	40-140			
Dichloroprop	97.2	25	µg/kg wet	125		77.7	40-140			
Dichloroprop [2C]	98.4	25	µg/kg wet	125		78.7	40-140			
Dinoseb	15.8	12	µg/kg wet	62.5		25.2	0-42.4			
Dinoseb [2C]	17.9	12	µg/kg wet	62.5		28.6	0-41.1			
MCPA	8860	2500	µg/kg wet	12500		70.9	40-140			
MCPA [2C]	8770	2500	µg/kg wet	12500		70.2	40-140			
MCPP	9300	2500	µg/kg wet	12500		74.4	40-140			
MCPP [2C]	9150	2500	µg/kg wet	12500		73.2	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*76.2*		µg/kg wet	100		76.2	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*72.7*		µg/kg wet	100		72.7	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B213836 - SW-846 8151										
LCS Dup (B213836-BSD1)				Prepared: 10/03/18 Analyzed: 10/10/18						
2,4-D	116	25	µg/kg wet	125		92.5	40-140	18.0	30	
2,4-D [2C]	120	25	µg/kg wet	125		95.8	40-140	20.6	30	
2,4-DB	122	25	µg/kg wet	125		97.5	40-140	20.7	30	
2,4-DB [2C]	120	25	µg/kg wet	125		96.2	40-140	19.3	30	V-05
2,4,5-TP (Silvex)	11.3	2.5	µg/kg wet	12.5		90.3	40-140	17.4	30	
2,4,5-TP (Silvex) [2C]	12.3	2.5	µg/kg wet	12.5		98.6	40-140	22.2	30	
2,4,5-T	11.1	2.5	µg/kg wet	12.5		89.0	40-140	12.4	30	
2,4,5-T [2C]	12.4	2.5	µg/kg wet	12.5		99.4	40-140	20.9	30	V-05
Dalapon	194	62	µg/kg wet	312		61.9	40-140	23.5	30	
Dalapon [2C]	196	62	µg/kg wet	312		62.6	40-140	17.2	30	
Dicamba	11.8	2.5	µg/kg wet	12.5		94.1	40-140	22.6	30	
Dicamba [2C]	12.1	2.5	µg/kg wet	12.5		96.9	40-140	22.1	30	
Dichloroprop	118	25	µg/kg wet	125		94.8	40-140	19.7	30	
Dichloroprop [2C]	120	25	µg/kg wet	125		96.2	40-140	20.0	30	
Dinoseb	19.9	12	µg/kg wet	62.5		31.9	0-42.4	23.5	30	
Dinoseb [2C]	20.5	12	µg/kg wet	62.5		32.8	0-41.1	13.5	30	
MCPA	11200	2500	µg/kg wet	12500		89.9	40-140	23.7	30	
MCPA [2C]	10700	2500	µg/kg wet	12500		85.5	40-140	19.6	30	
MCPP	11700	2500	µg/kg wet	12500		93.5	40-140	22.8	30	
MCPP [2C]	11300	2500	µg/kg wet	12500		90.1	40-140	20.8	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*94.9*		µg/kg wet	100		94.9	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*89.8*		µg/kg wet	100		89.8	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214108 - SW-846 3546										
Blank (B214108-BLK1)				Prepared: 10/05/18 Analyzed: 10/07/18						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*2.95*		mg/Kg wet	3.33		88.5	40-140			
LCS (B214108-BS1)				Prepared: 10/05/18 Analyzed: 10/07/18						
TPH (C9-C36)	26.9	8.3	mg/Kg wet	33.3		80.6	40-140			
Surrogate: 2-Fluorobiphenyl	*2.51*		mg/Kg wet	3.33		75.4	40-140			
LCS Dup (B214108-BSD1)				Prepared: 10/05/18 Analyzed: 10/07/18						
TPH (C9-C36)	26.1	8.3	mg/Kg wet	33.3		78.4	40-140	2.76	30	
Surrogate: 2-Fluorobiphenyl	*2.33*		mg/Kg wet	3.33		69.8	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214355 - SW-846 3050B										
Blank (B214355-BLK1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Antimony	ND	2.5	mg/Kg wet							
Arsenic	ND	2.5	mg/Kg wet							
Barium	ND	2.5	mg/Kg wet							
Beryllium	ND	0.25	mg/Kg wet							
Cadmium	ND	0.25	mg/Kg wet							
Chromium	ND	0.50	mg/Kg wet							
Lead	ND	0.75	mg/Kg wet							
Nickel	ND	0.50	mg/Kg wet							
Selenium	ND	5.0	mg/Kg wet							
Silver	ND	0.50	mg/Kg wet							
Thallium	ND	2.5	mg/Kg wet							
Vanadium	ND	1.0	mg/Kg wet							
Zinc	ND	1.0	mg/Kg wet							
LCS (B214355-BS1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Antimony	59.1	5.1	mg/Kg wet	75.5		78.3	3.8-196			
Arsenic	157	5.1	mg/Kg wet	161		97.4	83.2-116.8			
Barium	258	5.1	mg/Kg wet	260		99.3	82.7-117.3			
Beryllium	97.9	0.51	mg/Kg wet	97.6		100	83.4-116.8			
Cadmium	208	0.51	mg/Kg wet	211		98.8	83.4-116.6			
Chromium	136	1.0	mg/Kg wet	136		99.7	82.4-117.6			
Lead	105	1.5	mg/Kg wet	111		94.5	83-117.1			
Nickel	90.1	1.0	mg/Kg wet	91.9		98.1	82.9-117.5			
Selenium	179	10	mg/Kg wet	191		93.9	79.6-120.9			
Silver	44.6	1.0	mg/Kg wet	43.3		103	79.9-119.9			
Thallium	166	5.1	mg/Kg wet	156		106	81.4-119.2			
Vanadium	52.6	2.0	mg/Kg wet	56.7		92.8	79-121.2			
Zinc	194	2.0	mg/Kg wet	199		97.7	81.4-119.1			
LCS Dup (B214355-BSD1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Antimony	60.9	5.1	mg/Kg wet	75.5		80.7	3.8-196	2.98	30	
Arsenic	155	5.1	mg/Kg wet	161		96.2	83.2-116.8	1.18	30	
Barium	254	5.1	mg/Kg wet	260		97.7	82.7-117.3	1.67	30	
Beryllium	95.1	0.51	mg/Kg wet	97.6		97.4	83.4-116.8	2.92	30	
Cadmium	203	0.51	mg/Kg wet	211		96.0	83.4-116.6	2.88	30	
Chromium	134	1.0	mg/Kg wet	136		98.4	82.4-117.6	1.36	30	
Lead	112	1.5	mg/Kg wet	111		101	83-117.1	6.75	30	
Nickel	88.5	1.0	mg/Kg wet	91.9		96.3	82.9-117.5	1.80	30	
Selenium	176	10	mg/Kg wet	191		92.0	79.6-120.9	1.98	30	
Silver	44.2	1.0	mg/Kg wet	43.3		102	79.9-119.9	1.10	30	
Thallium	157	5.1	mg/Kg wet	156		101	81.4-119.2	5.32	30	
Vanadium	51.9	2.0	mg/Kg wet	56.7		91.6	79-121.2	1.34	30	
Zinc	193	2.0	mg/Kg wet	199		97.1	81.4-119.1	0.638	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214355 - SW-846 3050B										
MRL Check (B214355-MRL1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Lead	0.506	0.50	mg/Kg wet	0.498		101	80-120			
Batch B214378 - SW-846 7471										
Blank (B214378-BLK1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B214378-BS1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Mercury	12.6	1.9	mg/Kg wet	11.5		110	71.6-127.8			
LCS Dup (B214378-BSD1)				Prepared: 10/09/18 Analyzed: 10/10/18						
Mercury	11.6	1.9	mg/Kg wet	11.5		101	71.6-127.8	7.92	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B213948 - SW-846 9045C										
LCS (B213948-BS1)				Prepared & Analyzed: 10/03/18						
pH	6.01		pH Units	6.00		100	90-110			
LCS (B213948-BS2)				Prepared & Analyzed: 10/03/18						
pH	6.03		pH Units	6.00		100	90-110			
Duplicate (B213948-DUP1)	**Source: 18J0192-01**			Prepared & Analyzed: 10/03/18						
pH	5.8		pH Units		5.8			0.758	5	H-03
Batch B214147 - SW-846 9014										
Blank (B214147-BLK1)				Prepared: 10/06/18 Analyzed: 10/08/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B214147-BS1)				Prepared: 10/06/18 Analyzed: 10/08/18						
Reactive Cyanide	9.4	0.40	mg/Kg	10.0		94.4	83.6-111			
Batch B214197 - SW-846 9030A										
Blank (B214197-BLK1)				Prepared: 10/06/18 Analyzed: 10/08/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B214197-BS1)				Prepared: 10/06/18 Analyzed: 10/08/18						
Reactive Sulfide	12	2.0	mg/Kg	14.8		83.8	54.9-121			
Batch B214430 - SM21-22 2510B Modified										
Blank (B214430-BLK1)				Prepared & Analyzed: 10/10/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B214430-BS1)				Prepared & Analyzed: 10/10/18						
Specific conductance	190		µmhos/cm	192		99.3	90-110			
Duplicate (B214430-DUP1)	**Source: 18J0192-01**			Prepared & Analyzed: 10/10/18						
Specific conductance	5.7	2.0	µmhos/cm		5.7			0.175	21	

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BREAKDOWN REPORT

Lab Sample ID: **S028135-PEM1** **Analyzed:** **10/08/2018**

Column Number: **1**

Analyte	% Breakdown
4,4'-DDT [1]	0.52
Endrin [1]	3.06

Column Number: **2**

Analyte	% Breakdown
4,4'-DDT [2]	0.54
Endrin [2]	3.16

BREAKDOWN REPORT

Lab Sample ID: **S028135-PEM2** **Analyzed:** **10/09/2018**

Column Number: **1**

Analyte	% Breakdown
4,4'-DDT [1]	0.51
Endrin [1]	3.25

Column Number: **2**

Analyte	% Breakdown
4,4'-DDT [2]	0.52
Endrin [2]	3.22

BREAKDOWN REPORT

Lab Sample ID: **S028135-PEM3** **Analyzed:** **10/09/2018**

Column Number: **1**

Analyte	% Breakdown
4,4'-DDT [1]	1.56
Endrin [1]	2.76

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BREAKDOWN REPORT

Lab Sample ID:	S028135-PEM3	Analyzed:	10/09/2018

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.66
Endrin [2]	2.65

BREAKDOWN REPORT

Lab Sample ID:	S028135-PEM4	Analyzed:	10/09/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	1.22
Endrin [1]	2.59

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.24
Endrin [2]	2.42

BREAKDOWN REPORT

Lab Sample ID:	S028135-PEM5	Analyzed:	10/10/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	1.08
Endrin [1]	1.92

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.13
Endrin [2]	1.91

BREAKDOWN REPORT

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BREAKDOWN REPORT

Lab Sample ID:	S028135-PEM6	Analyzed:	10/10/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	1.27
Endrin [1]	1.98

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.25
Endrin [2]	1.88

BREAKDOWN REPORT

Lab Sample ID:	S028311-PEM1	Analyzed:	10/12/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.47
Endrin [1]	2.11

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	0.65
Endrin [2]	0.34

BREAKDOWN REPORT

Lab Sample ID:	S028311-PEM2	Analyzed:	10/13/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	1.66
Endrin [1]	2.68

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BREAKDOWN REPORT

Lab Sample ID:	S028311-PEM2	Analyzed:	10/13/2018

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	2.06
Endrin [2]	0.24

BREAKDOWN REPORT

Lab Sample ID:	S028311-PEM3	Analyzed:	10/13/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	3.32
Endrin [1]	2.89

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	4.09
Endrin [2]	0.49

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS

Lab Sample ID: B213836-BS1 Date(s) Analyzed: 10/10/2018 10/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	13.649	0.000	0.000	9.83	
	2	13.908	0.000	0.000	10.1	3.0
2,4,5-TP (Silvex)	1	13.071	0.000	0.000	9.49	
	2	13.106	0.000	0.000	9.87	3.8
2,4-D	1	11.409	0.000	0.000	96.5	
	2	11.520	0.000	0.000	97.4	0.4
2,4-DB	1	14.767	0.000	0.000	99.0	
	2	14.974	0.000	0.000	99.1	0.1
Dalapon	1	3.672	0.000	0.000	153	
	2	3.366	0.000	0.000	165	9.5
Dicamba	1	9.576	0.000	0.000	9.38	
	2	9.558	0.000	0.000	9.70	3.1
Dichloroprop	1	10.964	0.000	0.000	97.2	
	2	10.904	0.000	0.000	98.4	1.4
Dinoseb	1	16.726	0.000	0.000	15.8	
	2	15.565	0.000	0.000	17.9	11.2
MCPA	1	10.288	0.000	0.000	8860	
	2	10.302	0.000	0.000	8770	1.5
MCPP	1	10.010	0.000	0.000	9300	
	2	9.868	0.000	0.000	9150	1.6

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS Dup

Lab Sample ID: B213836-BSD1 Date(s) Analyzed: 10/10/2018 10/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	13.666	0.000	0.000	11.1	
	2	13.909	0.000	0.000	12.4	12.0
2,4,5-TP (Silvex)	1	13.083	0.000	0.000	11.3	
	2	13.108	0.000	0.000	12.3	11.2
2,4-D	1	11.417	0.000	0.000	116	
	2	11.521	0.000	0.000	120	0.0
2,4-DB	1	14.776	0.000	0.000	122	
	2	14.976	0.000	0.000	120	0.0
Dalapon	1	3.678	0.000	0.000	194	
	2	3.373	0.000	0.000	196	3.1
Dicamba	1	9.582	0.000	0.000	11.8	
	2	9.561	0.000	0.000	12.1	0.8
Dichloroprop	1	10.969	0.000	0.000	118	
	2	10.905	0.000	0.000	120	0.0
Dinoseb	1	16.730	0.000	0.000	19.9	
	2	15.566	0.000	0.000	20.5	2.5
MCPA	1	10.295	0.000	0.000	11200	
	2	10.308	0.000	0.000	10700	2.8
MCPP	1	10.015	0.000	0.000	11700	
	2	9.873	0.000	0.000	11300	6.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B214105-BS1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.17	
	2	0.000	0.000	0.000	0.17	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.18	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B214105-BSD1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.17	
	2	0.000	0.000	0.000	0.17	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.17	5.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B214106-BS1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	6.975	6.945	7.005	0.080	
	2	7.074	7.044	7.104	0.084	4.9
4,4'-DDE	1	6.553	6.523	6.583	0.076	
	2	6.652	6.621	6.681	0.083	8.8
4,4'-DDT	1	7.183	7.154	7.214	0.080	
	2	7.308	7.278	7.338	0.076	5.1
Alachlor	1	6.010	5.981	6.041	0.074	
	2	5.863	5.833	5.893	0.078	5.3
Aldrin	1	5.918	5.889	5.949	0.072	
	2	5.914	5.884	5.944	0.079	9.3
alpha-BHC	1	5.254	5.225	5.285	0.072	
	2	5.249	5.219	5.279	0.075	4.1
alpha-Chlordane	1	6.492	6.463	6.523	0.073	
	2	6.522	6.492	6.552	0.079	7.9
beta-BHC	1	5.489	5.459	5.519	0.068	
	2	5.508	5.476	5.536	0.071	4.3
delta-BHC	1	5.595	5.565	5.625	0.066	
	2	5.682	5.652	5.712	0.072	8.7
Dieldrin	1	6.752	6.722	6.782	0.075	
	2	6.752	6.722	6.782	0.082	8.9
Endosulfan I	1	6.582	6.553	6.613	0.075	
	2	6.558	6.528	6.588	0.081	7.7
Endosulfan II	1	7.077	7.047	7.107	0.077	
	2	7.130	7.100	7.160	0.081	5.1
Endosulfan Sulfate	1	7.716	7.687	7.747	0.080	
	2	7.602	7.572	7.632	0.080	0.0
Endrin	1	6.916	6.886	6.946	0.076	
	2	6.970	6.939	6.999	0.079	3.9
Endrin Aldehyde	1	7.386	7.357	7.417	0.086	
	2	7.387	7.358	7.418	0.084	2.4
Endrin Ketone	1	7.928	7.898	7.958	0.080	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B214106-BS1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.001	7.972	8.032	0.079	1.3
gamma-BHC (Lindane)	1	5.438	5.409	5.469	0.072	
	2	5.453	5.423	5.483	0.073	1.4
gamma-Chlordane	1	6.401	6.371	6.431	0.072	
	2	6.421	6.391	6.451	0.079	9.3
Heptachlor	1	5.728	5.699	5.759	0.056	
	2	5.714	5.684	5.744	0.077	31.6
Heptachlor Epoxide	1	6.315	6.285	6.345	0.073	
	2	6.292	6.262	6.322	0.078	6.6
Hexachlorobenzene	1	5.159	5.129	5.189	0.071	
	2	5.167	5.137	5.197	0.078	9.4
Methoxychlor	1	7.561	7.532	7.592	0.080	
	2	7.857	7.827	7.887	0.082	2.5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B214106-BSD1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	6.975	6.945	7.005	0.082	
	2	7.074	7.044	7.104	0.088	7.1
4,4'-DDE	1	6.552	6.523	6.583	0.079	
	2	6.651	6.621	6.681	0.086	8.5
4,4'-DDT	1	7.183	7.154	7.214	0.082	
	2	7.308	7.278	7.338	0.077	6.3
Alachlor	1	6.010	5.981	6.041	0.075	
	2	5.863	5.833	5.893	0.081	7.7
Aldrin	1	5.919	5.889	5.949	0.075	
	2	5.913	5.884	5.944	0.084	11.3
alpha-BHC	1	5.254	5.225	5.285	0.075	
	2	5.249	5.219	5.279	0.080	6.5
alpha-Chlordane	1	6.492	6.463	6.523	0.075	
	2	6.522	6.492	6.552	0.083	10.1
beta-BHC	1	5.489	5.459	5.519	0.071	
	2	5.508	5.476	5.536	0.076	6.8
delta-BHC	1	5.595	5.565	5.625	0.067	
	2	5.682	5.652	5.712	0.076	12.6
Dieldrin	1	6.752	6.722	6.782	0.077	
	2	6.752	6.722	6.782	0.086	11.0
Endosulfan I	1	6.583	6.553	6.613	0.076	
	2	6.558	6.528	6.588	0.083	8.8
Endosulfan II	1	7.076	7.047	7.107	0.079	
	2	7.130	7.100	7.160	0.084	6.1
Endosulfan Sulfate	1	7.717	7.687	7.747	0.080	
	2	7.602	7.572	7.632	0.082	2.5
Endrin	1	6.916	6.886	6.946	0.077	
	2	6.969	6.939	6.999	0.082	6.3
Endrin Aldehyde	1	7.387	7.357	7.417	0.088	
	2	7.388	7.358	7.418	0.088	0.0
Endrin Ketone	1	7.928	7.898	7.958	0.080	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B214106-BSD1 Date(s) Analyzed: 10/08/2018 10/08/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.002	7.972	8.032	0.080	0.0
gamma-BHC (Lindane)	1	5.438	5.409	5.469	0.075	
	2	5.453	5.423	5.483	0.083	10.1
gamma-Chlordane	1	6.401	6.371	6.431	0.075	
	2	6.421	6.391	6.451	0.084	11.3
Heptachlor	1	5.729	5.699	5.759	0.058	
	2	5.714	5.684	5.744	0.081	33.1
Heptachlor Epoxide	1	6.315	6.285	6.345	0.075	
	2	6.291	6.262	6.322	0.082	8.9
Hexachlorobenzene	1	5.159	5.129	5.189	0.074	
	2	5.167	5.137	5.197	0.083	11.5
Methoxychlor	1	7.561	7.532	7.592	0.080	
	2	7.857	7.827	7.887	0.083	3.7

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-03	Elevated reporting limit due to matrix.
H-03	Sample received after recommended holding time was exceeded.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-19	Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8081B in Water	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA
Endrin	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Water	
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Water	
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8151A in Water	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
Dinoseb	ME,NC,NH,CT,NY,VA
Dinoseb [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Water	
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH
SW-846 8270D in Water	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

KKM

con-test® ANALYTICAL LABORATORY

Phone: 413-525-2332 1850192
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Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	VHB
Address:	101 Walnut Street, Watertown MA 02472
Phone:	617-607-1885
Project Name:	Sudbury-Hudson Eversource Transmission Line
Project Location:	Sudbury/Hudson, MA
Project Number:	12970.00
Project Manager:	Paul McKinlay
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com , pmckinlay@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1]Matrix Code	Conc Code	Ignitability, pH, Herb/pest.	Reactivity, Conductivity	SVOCs, PCBs, TPH	MCP14 Metals	VOCs	# of Containers	[2] Preservation Code	[3] Container Code
													3	H	V
													4	M/D	V
													A	1	V
1	MP-40	10/2/2018	1212	X	X	S	U	X	X	X	X	X			

ANALYSIS REQUESTED

Comments: 20X Rule for TCLP. VOCs frozen 10/2/2018 @ 1230. VOC preservatives: 1 MeOH, 2 DI H_2O.

Date for *all* labels for MP-40 should be 10/2/18.

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 10/3/18 1205
Received by: (signature)	Date/Time: 10/3/18 13:35
Relinquished by: (signature)	Date/Time: 10/3/18 13:35
Received by: (signature)	Date/Time: 10/3/18 1910
Relinquished by: (signature) 2.2	Date/Time: 10/3/18 19:10
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State OW Required
PWSID #

10/3/18 1910

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By NP Date 10/3/18 Time 19:10

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 577 Actual Temp - 2.2

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name F

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Luke

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	3
Meoh-	1	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-	2	Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen: 10/3/18 1910	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

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October 24, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18J0746

Enclosed are results of analyses for samples received by the laboratory on October 15, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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Table of Contents (continued)

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 10/24/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J0746

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP32	18J0746-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP34	18J0746-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 10/24/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J0746

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB49	18J0746-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 10/17/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 8081B

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18J0746-01[MP32]

P-02

Sample RPD between primary and confirmatory analysis exceeded 40%. Per EPA method 8000, the lower value was reported due to obvious chromatographic interference on the column with the higher result.

Analyte & Samples(s) Qualified:

4,4'-DDE

18J0746-02[MP34]

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49]

SW-846 8100 Modified

Qualifications:

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

TPH (C9-C36)

B215078-MS1, B215078-MSD1

SW-846 8151A

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Dinoseb

B214866-BS1, B214866-BSD1

Dinoseb [2C]

B214866-BS1, B214866-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Dinoseb

B214866-BLK1

V-35

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Dinoseb

B214866-BLK1, B214866-BS1, B214866-BSD1

Dinoseb [2C]

B214866-BLK1, B214866-BS1, B214866-BSD1

SW-846 8260C

Qualifications:

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R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

Acetone

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215140-BLK1, B215140-BS1, B215140-BSD1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215140-BLK1, B215140-BS1, B215140-BSD1

Tetrahydrofuran

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215140-BLK1, B215140-BS1, B215140-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Methylene Chloride

B215140-BS1, B215140-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215140-BLK1, B215140-BS1, B215140-BSD1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane

B215140-BS1, B215140-BSD1

SW-846 8270D

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

B215149-BLK1, B215149-BS1, B215149-BSD1

Aniline

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49]

Pyridine

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49]

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

4-Nitrophenol

B215149-BS1, B215149-BSD1

V-19

Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49]

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V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

4-Nitrophenol
B215149-BLK1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215149-BLK1, B215149-BS1, B215149-BSD1

Aniline
18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49], B215149-BLK1, B215149-BS1, B215149-BSD1

SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18J0746-01[MP32], 18J0746-02[MP34], 18J0746-03[SB49]

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.049	mg/Kg dry	1	R-05	SW-846 8260C	10/18/18	10/18/18 11:53	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Benzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Bromobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Bromochloromethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Bromodichloromethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Bromoform	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Bromomethane	ND	0.0049	mg/Kg dry	1	V-34	SW-846 8260C	10/18/18	10/18/18 11:53	MFF
2-Butanone (MEK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
n-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
sec-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
tert-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Carbon Disulfide	ND	0.0029	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Carbon Tetrachloride	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Chlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Chlorodibromomethane	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Chloroethane	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Chloroform	ND	0.0020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Chloromethane	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
2-Chlorotoluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
4-Chlorotoluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2-Dibromoethane (EDB)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Dibromomethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,3-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,4-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1-Dichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2-Dichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
cis-1,2-Dichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
trans-1,2-Dichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2-Dichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,3-Dichloropropane	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
2,2-Dichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1-Dichloropropene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
cis-1,3-Dichloropropene	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
trans-1,3-Dichloropropene	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Diethyl Ether	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Diisopropyl Ether (DIPE)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,4-Dioxane	ND	0.049	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Ethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
2-Hexanone (MBK)	ND	0.0098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Isopropylbenzene (Cumene)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Methylene Chloride	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.0098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Naphthalene	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
n-Propylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Styrene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1,1,2-Tetrachloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1,2,2-Tetrachloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Tetrachloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Tetrahydrofuran	ND	0.0049	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Toluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2,4-Trichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1,1-Trichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,1,2-Trichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Trichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2,3-Trichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,2,4-Trimethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
1,3,5-Trimethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
Vinyl Chloride	ND	0.0049	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
m+p Xylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF
o-Xylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 11:53	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	100	70-130		10/18/18 11:53
Toluene-d8	96.3	70-130		10/18/18 11:53
4-Bromofluorobenzene	95.2	70-130		10/18/18 11:53

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Acetophenone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Aniline	ND	0.40	mg/Kg dry	1	V-05, V-34	SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Benzo(b)fluoranthene	0.24	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Bis(2-chloroethoxy)methane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Bis(2-chloroethyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Bis(2-chloroisopropyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
4-Bromophenylphenylether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Butylbenzylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
4-Chloroaniline	ND	0.79	mg/Kg dry	1	V-34	SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2-Chloronaphthalene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2-Chlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Dibenzofuran	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Di-n-butylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
1,2-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
1,3-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
1,4-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4-Dichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Diethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4-Dimethylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Dimethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4-Dinitrophenol	ND	0.79	mg/Kg dry	1	V-19	SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,6-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Di-n-octylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Fluoranthene	0.26	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Hexachlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Hexachlorobutadiene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Hexachloroethane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Isophorone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
3/4-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Nitrobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2-Nitrophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
4-Nitrophenol	ND	0.79	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Pentachlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Phenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Pyrene	0.22	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
Pyridine	ND	0.40	mg/Kg dry	1	V-05	SW-846 8270D	10/18/18	10/23/18 21:25	BGL
1,2,4-Trichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4,5-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL
2,4,6-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:25	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	53.1	30-130		10/23/18 21:25
Phenol-d6	57.2	30-130		10/23/18 21:25
Nitrobenzene-d5	58.8	30-130		10/23/18 21:25
2-Fluorobiphenyl	58.6	30-130		10/23/18 21:25
2,4,6-Tribromophenol	59.8	30-130		10/23/18 21:25
p-Terphenyl-d14	59.0	30-130		10/23/18 21:25

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Sample Flags: DL-03

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.23	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Aldrin [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
alpha-BHC [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
beta-BHC [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
delta-BHC [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
gamma-BHC (Lindane) [1]	ND	0.023	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Chlordane [1]	ND	0.23	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
4,4'-DDD [1]	ND	0.046	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
4,4'-DDE [1]	ND	0.046	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
4,4'-DDT [1]	ND	0.046	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Dieldrin [1]	ND	0.046	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endosulfan I [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endosulfan II [1]	ND	0.092	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endosulfan sulfate [1]	ND	0.092	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endrin [1]	ND	0.092	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endrin aldehyde [1]	ND	0.092	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Endrin ketone [1]	ND	0.092	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Heptachlor [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Heptachlor epoxide [1]	ND	0.057	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Hexachlorobenzene [1]	ND	0.069	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Methoxychlor [1]	ND	0.57	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG
Toxaphene [1]	ND	1.1	mg/Kg dry	10		SW-846 8081B	10/17/18	10/18/18 23:02	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	71.0	30-150		10/18/18 23:02
Decachlorobiphenyl [2]	63.9	30-150		10/18/18 23:02
Tetrachloro-m-xylene [1]	67.9	30-150		10/18/18 23:02
Tetrachloro-m-xylene [2]	66.2	30-150		10/18/18 23:02

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1221 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1232 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1242 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1248 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1254 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1260 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1262 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG
Aroclor-1268 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 0:47	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	69.1	30-150		10/20/18 0:47
Decachlorobiphenyl [2]	86.0	30-150		10/20/18 0:47
Tetrachloro-m-xylene [1]	79.3	30-150		10/20/18 0:47
Tetrachloro-m-xylene [2]	86.6	30-150		10/20/18 0:47

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
Dalalpon [1]	ND	74	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
Dinoseb [1]	ND	15	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 21:57	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	81.7	30-150		10/21/18 21:57
2,4-Dichlorophenylacetic acid [2]	84.9	30-150		10/21/18 21:57

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	330	98	mg/Kg dry	10		SW-846 8100 Modified	10/17/18	10/18/18 14:26	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	62.3	40-140		10/18/18 14:26

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Arsenic	18	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Barium	22	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Beryllium	0.26	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Cadmium	0.62	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Chromium	13	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Lead	26	0.59	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	10/22/18	10/23/18 12:27	EJB
Nickel	8.4	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Selenium	ND	3.9	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Silver	ND	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Vanadium	14	0.78	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW
Zinc	28	0.78	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:43	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP32 | Sampled: 10/11/2018 10:15

Sample ID: 18J0746-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	10/17/18	10/17/18 15:30	LED
pH @20.6°C	6.4		pH Units	1	H-03	SW-846 9045C	10/16/18	10/16/18 20:34	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	10/20/18	10/23/18 12:30	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	10/20/18	10/23/18 12:00	DJM
Specific conductance	8.1	2.0	µmhos/cm	1		SM21-22 2510B Modified	10/23/18	10/23/18 13:00	EC
% Solids	84.0		% Wt	1		SM 2540G	10/19/18	10/21/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.10	mg/Kg dry	1	R-05	SW-846 8260C	10/18/18	10/18/18 12:20	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Benzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Bromobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Bromochloromethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Bromodichloromethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Bromoform	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Bromomethane	ND	0.010	mg/Kg dry	1	V-34	SW-846 8260C	10/18/18	10/18/18 12:20	MFF
2-Butanone (MEK)	ND	0.042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
n-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
sec-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
tert-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Carbon Disulfide	ND	0.0063	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Carbon Tetrachloride	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Chlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Chlorodibromomethane	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Chloroethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Chloroform	ND	0.0042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Chloromethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
2-Chlorotoluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
4-Chlorotoluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Dibromomethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,3-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,4-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1-Dichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2-Dichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1-Dichloroethylene	ND	0.0042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
cis-1,2-Dichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
trans-1,2-Dichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2-Dichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,3-Dichloropropane	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
2,2-Dichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1-Dichloropropene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Diethyl Ether	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,4-Dioxane	ND	0.10	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Ethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
2-Hexanone (MBK)	ND	0.021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Isopropylbenzene (Cumene)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Methylene Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Naphthalene	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
n-Propylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Styrene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1,1,2-Tetrachloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1,2,2-Tetrachloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Tetrachloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Tetrahydrofuran	ND	0.010	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Toluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2,3-Trichlorobenzene	ND	0.0042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2,4-Trichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1,1-Trichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,1,2-Trichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Trichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2,3-Trichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,2,4-Trimethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
1,3,5-Trimethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
Vinyl Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
m+p Xylene	ND	0.0042	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF
o-Xylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:20	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	100	70-130		10/18/18 12:20
Toluene-d8	96.5	70-130		10/18/18 12:20
4-Bromofluorobenzene	99.8	70-130		10/18/18 12:20

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	1.1	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Aniline	ND	0.39	mg/Kg dry	1	V-05, V-34	SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Anthracene	2.3	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Benzo(a)anthracene	1.1	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Benzo(a)pyrene	0.40	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Benzo(b)fluoranthene	1.0	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Benzo(g,h,i)perylene	0.20	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Benzo(k)fluoranthene	0.36	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
4-Chloroaniline	ND	0.77	mg/Kg dry	1	V-34	SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Chrysene	1.2	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Dibenzofuran	1.6	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4-Dinitrophenol	ND	0.77	mg/Kg dry	1	V-19	SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Fluoranthene	6.1	0.99	mg/Kg dry	5		SW-846 8270D	10/18/18	10/24/18 12:56	BGL
Fluorene	0.65	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Indeno(1,2,3-cd)pyrene	0.24	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2-Methylnaphthalene	0.67	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Naphthalene	0.85	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
4-Nitrophenol	ND	0.77	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Phenanthrene	10	0.99	mg/Kg dry	5		SW-846 8270D	10/18/18	10/24/18 12:56	BGL
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Pyrene	4.2	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
Pyridine	ND	0.39	mg/Kg dry	1	V-05	SW-846 8270D	10/18/18	10/23/18 21:52	BGL
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 21:52	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	55.4	30-130		10/23/18 21:52
2-Fluorophenol	65.4	30-130		10/24/18 12:56
Phenol-d6	63.4	30-130		10/23/18 21:52
Phenol-d6	76.5	30-130		10/24/18 12:56
Nitrobenzene-d5	62.3	30-130		10/23/18 21:52
Nitrobenzene-d5	64.6	30-130		10/24/18 12:56
2-Fluorobiphenyl	67.8	30-130		10/23/18 21:52
2-Fluorobiphenyl	71.4	30-130		10/24/18 12:56
2,4,6-Tribromophenol	76.8	30-130		10/23/18 21:52
2,4,6-Tribromophenol	74.1	30-130		10/24/18 12:56
p-Terphenyl-d14	76.4	30-130		10/23/18 21:52
p-Terphenyl-d14	76.0	30-130		10/24/18 12:56

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Aldrin [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
alpha-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
beta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
delta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
gamma-BHC (Lindane) [1]	ND	0.0023	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Chlordane [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
4,4'-DDD [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
4,4'-DDE [1]	0.0084	0.0046	mg/Kg dry	1	P-02	SW-846 8081B	10/17/18	10/18/18 23:29	TG
4,4'-DDT [1]	0.050	0.0046	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Dieldrin [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endosulfan I [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endosulfan II [1]	ND	0.0091	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endosulfan sulfate [1]	ND	0.0091	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endrin [1]	ND	0.0091	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endrin aldehyde [1]	ND	0.0091	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Endrin ketone [1]	ND	0.0091	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Heptachlor [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Heptachlor epoxide [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Hexachlorobenzene [1]	ND	0.0068	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Methoxychlor [1]	ND	0.057	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:29	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	56.4	30-150		10/18/18 23:29
Decachlorobiphenyl [2]	46.3	30-150		10/18/18 23:29
Tetrachloro-m-xylene [1]	54.1	30-150		10/18/18 23:29
Tetrachloro-m-xylene [2]	52.3	30-150		10/18/18 23:29

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1221 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1232 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1242 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1248 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1254 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1260 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1262 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG
Aroclor-1268 [1]	ND	0.091	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:04	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
Decachlorobiphenyl [1]	72.0	30-150		10/20/18	1:04
Decachlorobiphenyl [2]	89.7	30-150		10/20/18	1:04
Tetrachloro-m-xylene [1]	74.2	30-150		10/20/18	1:04
Tetrachloro-m-xylene [2]	80.2	30-150		10/20/18	1:04

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
Dalalpon [1]	ND	74	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
Dinoseb [1]	ND	15	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 22:36	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	78.8	30-150		10/21/18 22:36
2,4-Dichlorophenylacetic acid [2]	82.5	30-150		10/21/18 22:36

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	340	96	mg/Kg dry	10		SW-846 8100 Modified	10/17/18	10/18/18 15:26	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	55.9	40-140					10/18/18 15:26

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Arsenic	21	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Barium	32	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Beryllium	0.42	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Cadmium	0.73	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Chromium	16	0.40	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Lead	27	0.60	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Mercury	0.039	0.031	mg/Kg dry	1		SW-846 7471B	10/22/18	10/23/18 12:33	EJB
Nickel	12	0.40	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Selenium	ND	4.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Silver	ND	0.40	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Vanadium	24	0.80	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW
Zinc	26	0.80	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:48	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: MP34 | Sampled: 10/11/2018 14:21

Sample ID: 18J0746-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	10/17/18	10/17/18 15:30	LED
pH @20.9°C	6.6		pH Units	1	H-03	SW-846 9045C	10/16/18	10/16/18 20:34	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	10/20/18	10/23/18 12:30	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	10/20/18	10/23/18 12:00	DJM
Specific conductance	4.5	2.0	µmhos/cm	1		SM21-22 2510B Modified	10/23/18	10/23/18 13:00	EC
% Solids	84.5		% Wt	1		SM 2540G	10/19/18	10/21/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.089	mg/Kg dry	1	R-05	SW-846 8260C	10/18/18	10/18/18 12:48	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Bromomethane	ND	0.0089	mg/Kg dry	1	V-34	SW-846 8260C	10/18/18	10/18/18 12:48	MFF
2-Butanone (MEK)	ND	0.036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Carbon Disulfide	ND	0.0054	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Chlorodibromomethane	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Chloroethane	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Chloroform	ND	0.0036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Chloromethane	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2-Dibromoethane (EDB)	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1-Dichloroethylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,3-Dichloropropane	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
cis-1,3-Dichloropropene	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
trans-1,3-Dichloropropene	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Diethyl Ether	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Diisopropyl Ether (DIPE)	ND	0.00089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,4-Dioxane	ND	0.089	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Methylene Chloride	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Naphthalene	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1,2,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Tetrahydrofuran	ND	0.0089	mg/Kg dry	1	V-16	SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2,3-Trichlorobenzene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
Vinyl Chloride	ND	0.0089	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
m+p Xylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	10/18/18	10/18/18 12:48	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	101	70-130		10/18/18 12:48
Toluene-d8	96.6	70-130		10/18/18 12:48
4-Bromofluorobenzene	99.3	70-130		10/18/18 12:48

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Acetophenone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Aniline	ND	0.40	mg/Kg dry	1	V-05, V-34	SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Bis(2-chloroethoxy)methane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Bis(2-chloroethyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Bis(2-chloroisopropyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
4-Bromophenylphenylether	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Butylbenzylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
4-Chloroaniline	ND	0.78	mg/Kg dry	1	V-34	SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2-Chloronaphthalene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2-Chlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Dibenzofuran	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Di-n-butylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
1,2-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
1,3-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
1,4-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4-Dichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Diethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4-Dimethylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Dimethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4-Dinitrophenol	ND	0.78	mg/Kg dry	1	V-19	SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,6-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Di-n-octylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Hexachlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Hexachlorobutadiene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Hexachloroethane	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Isophorone	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
3/4-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Nitrobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2-Nitrophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
4-Nitrophenol	ND	0.78	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Pentachlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Phenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
Pyridine	ND	0.40	mg/Kg dry	1	V-05	SW-846 8270D	10/18/18	10/23/18 22:20	BGL
1,2,4-Trichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4,5-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL
2,4,6-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	10/18/18	10/23/18 22:20	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	61.9	30-130		10/23/18 22:20
Phenol-d6	72.9	30-130		10/23/18 22:20
Nitrobenzene-d5	70.8	30-130		10/23/18 22:20
2-Fluorobiphenyl	75.6	30-130		10/23/18 22:20
2,4,6-Tribromophenol	87.4	30-130		10/23/18 22:20
p-Terphenyl-d14	82.1	30-130		10/23/18 22:20

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Aldrin [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
alpha-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
beta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
delta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
4,4'-DDD [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
4,4'-DDE [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
4,4'-DDT [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Dieldrin [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endosulfan I [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endosulfan II [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endosulfan sulfate [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endrin [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endrin aldehyde [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Endrin ketone [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Heptachlor [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Heptachlor epoxide [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Hexachlorobenzene [1]	ND	0.0067	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Methoxychlor [1]	ND	0.056	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	10/17/18	10/18/18 23:56	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	56.2	30-150		10/18/18 23:56
Decachlorobiphenyl [2]	49.7	30-150		10/18/18 23:56
Tetrachloro-m-xylene [1]	56.3	30-150		10/18/18 23:56
Tetrachloro-m-xylene [2]	52.6	30-150		10/18/18 23:56

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	10/17/18	10/20/18 1:21	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	60.9	30-150		10/20/18 1:21
Decachlorobiphenyl [2]	74.8	30-150		10/20/18 1:21
Tetrachloro-m-xylene [1]	58.4	30-150		10/20/18 1:21
Tetrachloro-m-xylene [2]	65.7	30-150		10/20/18 1:21

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
Dalalpon [1]	ND	75	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
Dinoseb [1]	ND	15	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	10/16/18	10/21/18 23:16	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	74.1	30-150		10/21/18 23:16
2,4-Dichlorophenylacetic acid [2]	103	30-150		10/21/18 23:16

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	21	9.8	mg/Kg dry	1		SW-846 8100 Modified	10/17/18	10/18/18 13:06	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	62.4	40-140				10/18/18 13:06	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Arsenic	14	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Barium	21	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Beryllium	0.31	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Cadmium	0.47	0.20	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Chromium	11	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Lead	6.4	0.59	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	10/22/18	10/23/18 12:34	EJB
Nickel	8.3	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Selenium	ND	3.9	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Silver	ND	0.39	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Vanadium	13	0.78	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW
Zinc	15	0.78	mg/Kg dry	1		SW-846 6010D	10/22/18	10/23/18 11:53	QNW

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J0746

Date Received: 10/15/2018

Field Sample #: SB49 | Sampled: 10/11/2018 14:25

Sample ID: 18J0746-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	10/17/18	10/17/18 15:30	LED
pH @21.4°C	5.9		pH Units	1	H-03	SW-846 9045C	10/16/18	10/16/18 20:34	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	10/20/18	10/23/18 12:30	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	10/20/18	10/23/18 12:00	DJM
Specific conductance	5.9	2.0	µmhos/cm	1		SM21-22 2510B Modified	10/23/18	10/23/18 13:00	EC
% Solids	83.9		% Wt	1		SM 2540G	10/19/18	10/21/18 9:20	MJR

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18J0746-01 [MP32]	B215260	10/19/18
18J0746-02 [MP34]	B215260	10/19/18
18J0746-03 [SB49]	B215260	10/19/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0746-01 [MP32]	B215406	1.00	10/23/18
18J0746-02 [MP34]	B215406	1.00	10/23/18
18J0746-03 [SB49]	B215406	1.00	10/23/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0746-01 [MP32]	B215075	50.0	10/17/18
18J0746-02 [MP34]	B215075	50.0	10/17/18
18J0746-03 [SB49]	B215075	50.0	10/17/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215319	1.52	50.0	10/22/18
18J0746-02 [MP34]	B215319	1.49	50.0	10/22/18
18J0746-03 [SB49]	B215319	1.53	50.0	10/22/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215349	0.609	50.0	10/22/18
18J0746-02 [MP34]	B215349	0.578	50.0	10/22/18
18J0746-03 [SB49]	B215349	0.608	50.0	10/22/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215027	10.4	10.0	10/17/18
18J0746-02 [MP34]	B215027	10.4	10.0	10/17/18
18J0746-03 [SB49]	B215027	10.6	10.0	10/17/18

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215049	10.4	10.0	10/17/18
18J0746-02 [MP34]	B215049	10.4	10.0	10/17/18
18J0746-03 [SB49]	B215049	10.6	10.0	10/17/18

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Sample Extraction Data

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215078	30.3	1.00	10/17/18
18J0746-02 [MP34]	B215078	30.8	1.00	10/17/18
18J0746-03 [SB49]	B215078	30.4	1.00	10/17/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B214866	20.0	5.00	10/16/18
18J0746-02 [MP34]	B214866	20.0	5.00	10/16/18
18J0746-03 [SB49]	B214866	20.0	5.00	10/16/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215140	12.2	10.0	10/18/18
18J0746-02 [MP34]	B215140	5.67	10.0	10/18/18
18J0746-03 [SB49]	B215140	6.68	10.0	10/18/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215149	30.0	1.00	10/18/18
18J0746-02 [MP34]	B215149	30.6	1.00	10/18/18
18J0746-02RE1 [MP34]	B215149	30.6	1.00	10/18/18
18J0746-03 [SB49]	B215149	30.4	1.00	10/18/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215274	25.3	250	10/20/18
18J0746-02 [MP34]	B215274	25.3	250	10/20/18
18J0746-03 [SB49]	B215274	25.5	250	10/20/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J0746-01 [MP32]	B215459	25.3	250	10/20/18
18J0746-02 [MP34]	B215459	25.3	250	10/20/18
18J0746-03 [SB49]	B215459	25.5	250	10/20/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18J0746-01 [MP32]	B214965	20.0	10/16/18
18J0746-02 [MP34]	B214965	20.0	10/16/18
18J0746-03 [SB49]	B214965	20.0	10/16/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215140 - SW-846 5035										
Blank (B215140-BLK1)				Prepared & Analyzed: 10/18/18						
Acetone	ND	0.10	mg/Kg wet							R-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B215140 - SW-846 5035											
Blank (B215140-BLK1)				Prepared & Analyzed: 10/18/18							
n-Propylbenzene	ND	0.0020	mg/Kg wet								
Styrene	ND	0.0020	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet								
Tetrachloroethylene	ND	0.0020	mg/Kg wet								
Tetrahydrofuran	ND	0.010	mg/Kg wet							V-16	
Toluene	ND	0.0020	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet								
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0498*		mg/Kg wet	0.0500		99.6	70-130				
Surrogate: Toluene-d8	*0.0482*		mg/Kg wet	0.0500		96.4	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0476*		mg/Kg wet	0.0500		95.2	70-130				
LCS (B215140-BS1)				Prepared & Analyzed: 10/18/18							
Acetone	0.314	0.10	mg/Kg wet	0.200		157	40-160			L-14, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0193	0.0010	mg/Kg wet	0.0200		96.6	70-130				
Benzene	0.0180	0.0020	mg/Kg wet	0.0200		89.8	70-130				
Bromobenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130				
Bromochloromethane	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Bromodichloromethane	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
Bromoform	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130				
Bromomethane	0.0115	0.010	mg/Kg wet	0.0200		57.7	40-160			L-14, V-34	†
2-Butanone (MEK)	0.265	0.040	mg/Kg wet	0.200		132	40-160			L-14	†
n-Butylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130				
sec-Butylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130				
tert-Butylbenzene	0.0180	0.0020	mg/Kg wet	0.0200		90.1	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0192	0.0010	mg/Kg wet	0.0200		96.0	70-130				
Carbon Disulfide	0.0191	0.0060	mg/Kg wet	0.0200		95.3	70-130				
Carbon Tetrachloride	0.0184	0.0020	mg/Kg wet	0.0200		92.0	70-130				
Chlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Chlorodibromomethane	0.0201	0.0010	mg/Kg wet	0.0200		100	70-130				
Chloroethane	0.0172	0.010	mg/Kg wet	0.0200		86.2	70-130				
Chloroform	0.0187	0.0040	mg/Kg wet	0.0200		93.7	70-130				
Chloromethane	0.0185	0.010	mg/Kg wet	0.0200		92.3	40-160				†
2-Chlorotoluene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130				
4-Chlorotoluene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130				
1,2-Dibromoethane (EDB)	0.0201	0.0010	mg/Kg wet	0.0200		100	70-130				
Dibromomethane	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130				
1,2-Dichlorobenzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130				
1,3-Dichlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
1,4-Dichlorobenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.0	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B215140 - SW-846 5035											
LCS (B215140-BS1)				Prepared & Analyzed: 10/18/18							
Dichlorodifluoromethane (Freon 12)	0.0184	0.010	mg/Kg wet	0.0200		91.9	40-160				†
1,1-Dichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130				
1,2-Dichloroethane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
1,1-Dichloroethylene	0.0180	0.0040	mg/Kg wet	0.0200		89.8	70-130				
cis-1,2-Dichloroethylene	0.0173	0.0020	mg/Kg wet	0.0200		86.6	70-130				
trans-1,2-Dichloroethylene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130				
1,2-Dichloropropane	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130				
1,3-Dichloropropane	0.0187	0.0010	mg/Kg wet	0.0200		93.6	70-130				
2,2-Dichloropropane	0.0177	0.0020	mg/Kg wet	0.0200		88.7	70-130				
1,1-Dichloropropene	0.0183	0.0020	mg/Kg wet	0.0200		91.7	70-130				
cis-1,3-Dichloropropene	0.0191	0.0010	mg/Kg wet	0.0200		95.3	70-130				
trans-1,3-Dichloropropene	0.0199	0.0010	mg/Kg wet	0.0200		99.5	70-130				
Diethyl Ether	0.0200	0.010	mg/Kg wet	0.0200		99.8	70-130				
Diisopropyl Ether (DIPE)	0.0190	0.0010	mg/Kg wet	0.0200		94.9	70-130				
1,4-Dioxane	0.262	0.10	mg/Kg wet	0.200		131	40-160			L-14, V-16, V-36	†
Ethylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130				
Hexachlorobutadiene	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130				
2-Hexanone (MBK)	0.239	0.020	mg/Kg wet	0.200		119	40-160				†
Isopropylbenzene (Cumene)	0.0194	0.0020	mg/Kg wet	0.0200		96.8	70-130				
p-Isopropyltoluene (p-Cymene)	0.0182	0.0020	mg/Kg wet	0.0200		91.0	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0200	0.0040	mg/Kg wet	0.0200		100	70-130				
Methylene Chloride	0.0235	0.010	mg/Kg wet	0.0200		117	70-130			V-20	
4-Methyl-2-pentanone (MIBK)	0.218	0.020	mg/Kg wet	0.200		109	40-160				†
Naphthalene	0.0200	0.0040	mg/Kg wet	0.0200		99.9	70-130				
n-Propylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130				
Styrene	0.0186	0.0020	mg/Kg wet	0.0200		92.8	70-130				
1,1,1,2-Tetrachloroethane	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130				
1,1,2,2-Tetrachloroethane	0.0199	0.0010	mg/Kg wet	0.0200		99.4	70-130				
Tetrachloroethylene	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130				
Tetrahydrofuran	0.0190	0.010	mg/Kg wet	0.0200		95.2	70-130			V-16	
Toluene	0.0175	0.0020	mg/Kg wet	0.0200		87.3	70-130				
1,2,3-Trichlorobenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130				
1,2,4-Trichlorobenzene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130				
1,1,1-Trichloroethane	0.0180	0.0020	mg/Kg wet	0.0200		90.1	70-130				
1,1,2-Trichloroethane	0.0189	0.0020	mg/Kg wet	0.0200		94.4	70-130				
Trichloroethylene	0.0189	0.0020	mg/Kg wet	0.0200		94.7	70-130				
Trichlorofluoromethane (Freon 11)	0.0179	0.010	mg/Kg wet	0.0200		89.4	70-130				
1,2,3-Trichloropropane	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
1,2,4-Trimethylbenzene	0.0182	0.0020	mg/Kg wet	0.0200		90.9	70-130				
1,3,5-Trimethylbenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.4	70-130				
Vinyl Chloride	0.0174	0.010	mg/Kg wet	0.0200		87.2	70-130				
m+p Xylene	0.0375	0.0040	mg/Kg wet	0.0400		93.8	70-130				
o-Xylene	0.0184	0.0020	mg/Kg wet	0.0200		91.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0509*		mg/Kg wet	0.0500		102	70-130				
Surrogate: Toluene-d8	*0.0479*		mg/Kg wet	0.0500		95.8	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0506*		mg/Kg wet	0.0500		101	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B215140 - SW-846 5035												
LCS Dup (B215140-BSD1)				Prepared & Analyzed: 10/18/18								
Acetone	0.246	0.10	mg/Kg wet	0.200		123	40-160	**24.1**	*	20	R-05	†
tert-Amyl Methyl Ether (TAME)	0.0195	0.0010	mg/Kg wet	0.0200		97.7	70-130	1.13		20		
Benzene	0.0183	0.0020	mg/Kg wet	0.0200		91.5	70-130	1.88		20		
Bromobenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130	1.14		20		
Bromochloromethane	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	1.55		20		
Bromodichloromethane	0.0188	0.0020	mg/Kg wet	0.0200		94.0	70-130	0.531		20		
Bromoform	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130	2.52		20		
Bromomethane	0.0123	0.010	mg/Kg wet	0.0200		61.4	40-160	6.21		20	L-14, V-34	†
2-Butanone (MEK)	0.226	0.040	mg/Kg wet	0.200		113	40-160	15.7		20		†
n-Butylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.8	70-130	1.47		20		
sec-Butylbenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130	3.05		20		
tert-Butylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.9	70-130	4.13		20		
tert-Butyl Ethyl Ether (TBEE)	0.0198	0.0010	mg/Kg wet	0.0200		98.9	70-130	2.98		20		
Carbon Disulfide	0.0198	0.0060	mg/Kg wet	0.0200		99.0	70-130	3.81		20		
Carbon Tetrachloride	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-130	2.47		20		
Chlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130	4.60		20		
Chlorodibromomethane	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130	3.71		20		
Chloroethane	0.0171	0.010	mg/Kg wet	0.0200		85.4	70-130	0.932		20		
Chloroform	0.0190	0.0040	mg/Kg wet	0.0200		95.1	70-130	1.48		20		
Chloromethane	0.0188	0.010	mg/Kg wet	0.0200		94.2	40-160	2.04		20		†
2-Chlorotoluene	0.0199	0.0020	mg/Kg wet	0.0200		99.5	70-130	5.58		20		
4-Chlorotoluene	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130	2.06		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	2.88		20		
1,2-Dibromoethane (EDB)	0.0203	0.0010	mg/Kg wet	0.0200		102	70-130	1.09		20		
Dibromomethane	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130	3.45		20		
1,2-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	4.26		20		
1,3-Dichlorobenzene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	1.87		20		
1,4-Dichlorobenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130	0.758		20		
Dichlorodifluoromethane (Freon 12)	0.0188	0.010	mg/Kg wet	0.0200		93.8	40-160	2.05		20		†
1,1-Dichloroethane	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	1.25		20		
1,2-Dichloroethane	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	0.596		20		
1,1-Dichloroethylene	0.0191	0.0040	mg/Kg wet	0.0200		95.3	70-130	5.94		20		
cis-1,2-Dichloroethylene	0.0181	0.0020	mg/Kg wet	0.0200		90.4	70-130	4.29		20		
trans-1,2-Dichloroethylene	0.0196	0.0020	mg/Kg wet	0.0200		98.2	70-130	1.85		20		
1,2-Dichloropropane	0.0192	0.0020	mg/Kg wet	0.0200		96.1	70-130	1.26		20		
1,3-Dichloropropane	0.0195	0.0010	mg/Kg wet	0.0200		97.5	70-130	4.08		20		
2,2-Dichloropropane	0.0178	0.0020	mg/Kg wet	0.0200		89.2	70-130	0.562		20		
1,1-Dichloropropene	0.0176	0.0020	mg/Kg wet	0.0200		87.8	70-130	4.35		20		
cis-1,3-Dichloropropene	0.0195	0.0010	mg/Kg wet	0.0200		97.5	70-130	2.28		20		
trans-1,3-Dichloropropene	0.0193	0.0010	mg/Kg wet	0.0200		96.3	70-130	3.27		20		
Diethyl Ether	0.0195	0.010	mg/Kg wet	0.0200		97.4	70-130	2.43		20		
Diisopropyl Ether (DIPE)	0.0192	0.0010	mg/Kg wet	0.0200		95.9	70-130	1.05		20		
1,4-Dioxane	0.256	0.10	mg/Kg wet	0.200		128	40-160	2.47		20	V-16, V-36	†
Ethylbenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130	1.81		20		
Hexachlorobutadiene	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130	4.19		20		
2-Hexanone (MBK)	0.220	0.020	mg/Kg wet	0.200		110	40-160	8.03		20		†
Isopropylbenzene (Cumene)	0.0196	0.0020	mg/Kg wet	0.0200		98.2	70-130	1.44		20		
p-Isopropyltoluene (p-Cymene)	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130	2.71		20		
Methyl tert-Butyl Ether (MTBE)	0.0201	0.0040	mg/Kg wet	0.0200		100	70-130	0.399		20		
Methylene Chloride	0.0246	0.010	mg/Kg wet	0.0200		123	70-130	4.74		20	V-20	
4-Methyl-2-pentanone (MIBK)	0.213	0.020	mg/Kg wet	0.200		107	40-160	2.02		20		†
Naphthalene	0.0195	0.0040	mg/Kg wet	0.0200		97.4	70-130	2.53		20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215140 - SW-846 5035										
LCS Dup (B215140-BSD1)				Prepared & Analyzed: 10/18/18						
n-Propylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	0.315	20	
Styrene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130	3.81	20	
1,1,1,2-Tetrachloroethane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	6.00	20	
1,1,2,2-Tetrachloroethane	0.0208	0.0010	mg/Kg wet	0.0200		104	70-130	4.52	20	
Tetrachloroethylene	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130	2.72	20	
Tetrahydrofuran	0.0157	0.010	mg/Kg wet	0.0200		78.7	70-130	19.0	20	V-16
Toluene	0.0176	0.0020	mg/Kg wet	0.0200		88.1	70-130	0.912	20	
1,2,3-Trichlorobenzene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	1.09	20	
1,2,4-Trichlorobenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	1.06	20	
1,1,1-Trichloroethane	0.0177	0.0020	mg/Kg wet	0.0200		88.7	70-130	1.57	20	
1,1,2-Trichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130	0.949	20	
Trichloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		92.8	70-130	2.03	20	
Trichlorofluoromethane (Freon 11)	0.0175	0.010	mg/Kg wet	0.0200		87.5	70-130	2.15	20	
1,2,3-Trichloropropane	0.0220	0.0020	mg/Kg wet	0.0200		110	70-130	8.23	20	
1,2,4-Trimethylbenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130	0.329	20	
1,3,5-Trimethylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.2	70-130	1.93	20	
Vinyl Chloride	0.0178	0.010	mg/Kg wet	0.0200		89.1	70-130	2.16	20	
m+p Xylene	0.0375	0.0040	mg/Kg wet	0.0400		93.6	70-130	0.213	20	
o-Xylene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	4.99	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0504*		mg/Kg wet	0.0500		101	70-130			
Surrogate: Toluene-d8	*0.0480*		mg/Kg wet	0.0500		96.1	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0492*		mg/Kg wet	0.0500		98.3	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215149 - SW-846 3546										
Blank (B215149-BLK1)				Prepared: 10/18/18 Analyzed: 10/20/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-34
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							V-05
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							V-20
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B215149 - SW-846 3546											
Blank (B215149-BLK1)				Prepared: 10/18/18 Analyzed: 10/20/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*3.28*		mg/Kg wet	6.67		49.3	30-130				
Surrogate: Phenol-d6	*3.51*		mg/Kg wet	6.67		52.6	30-130				
Surrogate: Nitrobenzene-d5	*1.59*		mg/Kg wet	3.33		47.6	30-130				
Surrogate: 2-Fluorobiphenyl	*1.77*		mg/Kg wet	3.33		53.2	30-130				
Surrogate: 2,4,6-Tribromophenol	*4.34*		mg/Kg wet	6.67		65.1	30-130				
Surrogate: p-Terphenyl-d14	*2.08*		mg/Kg wet	3.33		62.3	30-130				
LCS (B215149-BS1)				Prepared: 10/18/18 Analyzed: 10/20/18							
Acenaphthene	1.07	0.17	mg/Kg wet	1.67		64.4	40-140				
Acenaphthylene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140				
Acetophenone	1.08	0.34	mg/Kg wet	1.67		65.1	40-140				
Aniline	0.687	0.34	mg/Kg wet	1.67		41.2	40-140			V-34	
Anthracene	1.18	0.17	mg/Kg wet	1.67		70.8	40-140				
Benzo(a)anthracene	1.20	0.17	mg/Kg wet	1.67		72.1	40-140				
Benzo(a)pyrene	1.23	0.17	mg/Kg wet	1.67		73.7	40-140				
Benzo(b)fluoranthene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140				
Benzo(g,h,i)perylene	1.07	0.17	mg/Kg wet	1.67		63.9	40-140				
Benzo(k)fluoranthene	1.20	0.17	mg/Kg wet	1.67		71.9	40-140				
Bis(2-chloroethoxy)methane	1.26	0.34	mg/Kg wet	1.67		75.3	40-140				
Bis(2-chloroethyl)ether	1.11	0.34	mg/Kg wet	1.67		66.7	40-140				
Bis(2-chloroisopropyl)ether	1.09	0.34	mg/Kg wet	1.67		65.2	40-140				
Bis(2-Ethylhexyl)phthalate	1.15	0.34	mg/Kg wet	1.67		68.8	40-140				
4-Bromophenylphenylether	1.23	0.34	mg/Kg wet	1.67		73.7	40-140				
Butylbenzylphthalate	1.18	0.34	mg/Kg wet	1.67		70.6	40-140				
4-Chloroaniline	0.668	0.66	mg/Kg wet	1.67		40.1	15-140			V-34	†
2-Chloronaphthalene	1.00	0.34	mg/Kg wet	1.67		60.1	40-140				
2-Chlorophenol	1.04	0.34	mg/Kg wet	1.67		62.6	30-130				
Chrysene	1.16	0.17	mg/Kg wet	1.67		69.7	40-140				
Dibenz(a,h)anthracene	1.09	0.17	mg/Kg wet	1.67		65.1	40-140				
Dibenzofuran	1.16	0.34	mg/Kg wet	1.67		69.9	40-140				
Di-n-butylphthalate	1.16	0.34	mg/Kg wet	1.67		69.6	40-140				
1,2-Dichlorobenzene	0.950	0.34	mg/Kg wet	1.67		57.0	40-140				
1,3-Dichlorobenzene	0.909	0.34	mg/Kg wet	1.67		54.6	40-140				
1,4-Dichlorobenzene	0.901	0.34	mg/Kg wet	1.67		54.0	40-140				
3,3-Dichlorobenzidine	0.855	0.17	mg/Kg wet	1.67		51.3	40-140				
2,4-Dichlorophenol	1.22	0.34	mg/Kg wet	1.67		73.2	30-130				
Diethylphthalate	1.22	0.34	mg/Kg wet	1.67		73.4	40-140				
2,4-Dimethylphenol	1.32	0.34	mg/Kg wet	1.67		79.1	30-130				
Dimethylphthalate	1.23	0.34	mg/Kg wet	1.67		73.5	40-140				
2,4-Dinitrophenol	0.738	0.66	mg/Kg wet	1.67		44.3	15-140			V-05	†
2,4-Dinitrotoluene	1.25	0.34	mg/Kg wet	1.67		75.3	40-140				
2,6-Dinitrotoluene	1.26	0.34	mg/Kg wet	1.67		75.7	40-140				
Di-n-octylphthalate	1.16	0.34	mg/Kg wet	1.67		69.4	40-140				
1,2-Diphenylhydrazine (as Azobenzene)	1.18	0.34	mg/Kg wet	1.67		70.8	40-140				
Fluoranthene	1.18	0.17	mg/Kg wet	1.67		70.5	40-140				
Fluorene	1.14	0.17	mg/Kg wet	1.67		68.7	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B215149 - SW-846 3546											
LCS (B215149-BS1)				Prepared: 10/18/18 Analyzed: 10/20/18							
Hexachlorobenzene	1.19	0.34	mg/Kg wet	1.67		71.5	40-140				
Hexachlorobutadiene	1.05	0.34	mg/Kg wet	1.67		63.2	40-140				
Hexachloroethane	0.940	0.34	mg/Kg wet	1.67		56.4	40-140				
Indeno(1,2,3-cd)pyrene	1.09	0.17	mg/Kg wet	1.67		65.1	40-140				
Isophorone	1.17	0.34	mg/Kg wet	1.67		70.0	40-140				
2-Methylnaphthalene	1.16	0.17	mg/Kg wet	1.67		69.6	40-140				
2-Methylphenol	1.03	0.34	mg/Kg wet	1.67		61.6	30-130				
3/4-Methylphenol	1.12	0.34	mg/Kg wet	1.67		67.1	30-130				
Naphthalene	1.05	0.17	mg/Kg wet	1.67		63.3	40-140				
Nitrobenzene	1.07	0.34	mg/Kg wet	1.67		64.4	40-140				
2-Nitrophenol	1.11	0.34	mg/Kg wet	1.67		66.5	30-130				
4-Nitrophenol	1.56	0.66	mg/Kg wet	1.67		93.6	15-140			V-06	†
Pentachlorophenol	0.964	0.34	mg/Kg wet	1.67		57.8	30-130				
Phenanthrene	1.19	0.17	mg/Kg wet	1.67		71.4	40-140				
Phenol	1.17	0.34	mg/Kg wet	1.67		70.3	15-140				†
Pyrene	1.16	0.17	mg/Kg wet	1.67		69.8	40-140				
Pyridine	0.708	0.34	mg/Kg wet	1.67		42.5	30-140				†
1,2,4-Trichlorobenzene	1.07	0.34	mg/Kg wet	1.67		64.1	40-140				
2,4,5-Trichlorophenol	1.25	0.34	mg/Kg wet	1.67		74.9	30-130				
2,4,6-Trichlorophenol	1.24	0.34	mg/Kg wet	1.67		74.5	30-130				
Surrogate: 2-Fluorophenol	*3.67*		mg/Kg wet	6.67		55.0	30-130				
Surrogate: Phenol-d6	*4.07*		mg/Kg wet	6.67		61.0	30-130				
Surrogate: Nitrobenzene-d5	*1.97*		mg/Kg wet	3.33		59.0	30-130				
Surrogate: 2-Fluorobiphenyl	*2.13*		mg/Kg wet	3.33		63.9	30-130				
Surrogate: 2,4,6-Tribromophenol	*4.74*		mg/Kg wet	6.67		71.0	30-130				
Surrogate: p-Terphenyl-d14	*2.18*		mg/Kg wet	3.33		65.5	30-130				
LCS Dup (B215149-BSD1)				Prepared: 10/18/18 Analyzed: 10/20/18							
Acenaphthene	1.06	0.17	mg/Kg wet	1.67		63.4	40-140	1.53	30		
Acenaphthylene	1.11	0.17	mg/Kg wet	1.67		66.5	40-140	3.98	30		
Acetophenone	1.02	0.34	mg/Kg wet	1.67		61.3	40-140	6.01	30		
Aniline	0.738	0.34	mg/Kg wet	1.67		44.3	40-140	7.25	30	V-34	
Anthracene	1.16	0.17	mg/Kg wet	1.67		69.6	40-140	1.74	30		
Benzo(a)anthracene	1.17	0.17	mg/Kg wet	1.67		70.3	40-140	2.59	30		
Benzo(a)pyrene	1.22	0.17	mg/Kg wet	1.67		73.3	40-140	0.463	30		
Benzo(b)fluoranthene	1.13	0.17	mg/Kg wet	1.67		68.1	40-140	1.72	30		
Benzo(g,h,i)perylene	1.02	0.17	mg/Kg wet	1.67		61.2	40-140	4.41	30		
Benzo(k)fluoranthene	1.16	0.17	mg/Kg wet	1.67		69.8	40-140	3.02	30		
Bis(2-chloroethoxy)methane	1.20	0.34	mg/Kg wet	1.67		71.8	40-140	4.84	30		
Bis(2-chloroethyl)ether	1.06	0.34	mg/Kg wet	1.67		63.4	40-140	5.07	30		
Bis(2-chloroisopropyl)ether	1.06	0.34	mg/Kg wet	1.67		63.5	40-140	2.61	30		
Bis(2-Ethylhexyl)phthalate	1.11	0.34	mg/Kg wet	1.67		66.7	40-140	3.22	30		
4-Bromophenylphenylether	1.15	0.34	mg/Kg wet	1.67		69.0	40-140	6.48	30		
Butylbenzylphthalate	1.14	0.34	mg/Kg wet	1.67		68.4	40-140	3.19	30		
4-Chloroaniline	0.692	0.66	mg/Kg wet	1.67		41.5	15-140	3.48	30	V-34	†
2-Chloronaphthalene	0.980	0.34	mg/Kg wet	1.67		58.8	40-140	2.19	30		
2-Chlorophenol	1.01	0.34	mg/Kg wet	1.67		60.6	30-130	3.25	30		
Chrysene	1.10	0.17	mg/Kg wet	1.67		66.3	40-140	5.03	30		
Dibenz(a,h)anthracene	1.05	0.17	mg/Kg wet	1.67		63.0	40-140	3.37	30		
Dibenzofuran	1.14	0.34	mg/Kg wet	1.67		68.4	40-140	2.14	30		
Di-n-butylphthalate	1.13	0.34	mg/Kg wet	1.67		68.1	40-140	2.21	30		
1,2-Dichlorobenzene	0.883	0.34	mg/Kg wet	1.67		53.0	40-140	7.35	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B215149 - SW-846 3546											
LCS Dup (B215149-BSD1)				Prepared: 10/18/18 Analyzed: 10/20/18							
1,3-Dichlorobenzene	0.862	0.34	mg/Kg wet	1.67		51.7	40-140	5.31	30		
1,4-Dichlorobenzene	0.870	0.34	mg/Kg wet	1.67		52.2	40-140	3.46	30		
3,3-Dichlorobenzidine	0.833	0.17	mg/Kg wet	1.67		50.0	40-140	2.69	30		
2,4-Dichlorophenol	1.19	0.34	mg/Kg wet	1.67		71.4	30-130	2.54	30		
Diethylphthalate	1.16	0.34	mg/Kg wet	1.67		69.6	40-140	5.32	30		
2,4-Dimethylphenol	1.21	0.34	mg/Kg wet	1.67		72.6	30-130	8.54	30		
Dimethylphthalate	1.21	0.34	mg/Kg wet	1.67		72.5	40-140	1.42	30		
2,4-Dinitrophenol	0.660	0.66	mg/Kg wet	1.67		39.6	15-140	11.2	30	V-05	†
2,4-Dinitrotoluene	1.19	0.34	mg/Kg wet	1.67		71.3	40-140	5.35	30		
2,6-Dinitrotoluene	1.19	0.34	mg/Kg wet	1.67		71.7	40-140	5.51	30		
Di-n-octylphthalate	1.15	0.34	mg/Kg wet	1.67		69.1	40-140	0.462	30		
1,2-Diphenylhydrazine (as Azobenzene)	1.14	0.34	mg/Kg wet	1.67		68.3	40-140	3.54	30		
Fluoranthene	1.14	0.17	mg/Kg wet	1.67		68.6	40-140	2.73	30		
Fluorene	1.12	0.17	mg/Kg wet	1.67		67.2	40-140	2.18	30		
Hexachlorobenzene	1.14	0.34	mg/Kg wet	1.67		68.3	40-140	4.61	30		
Hexachlorobutadiene	1.00	0.34	mg/Kg wet	1.67		60.2	40-140	4.89	30		
Hexachloroethane	0.898	0.34	mg/Kg wet	1.67		53.9	40-140	4.57	30		
Indeno(1,2,3-cd)pyrene	1.02	0.17	mg/Kg wet	1.67		61.0	40-140	6.53	30		
Isophorone	1.11	0.34	mg/Kg wet	1.67		66.7	40-140	4.74	30		
2-Methylnaphthalene	1.13	0.17	mg/Kg wet	1.67		68.0	40-140	2.32	30		
2-Methylphenol	0.987	0.34	mg/Kg wet	1.67		59.2	30-130	3.84	30		
3/4-Methylphenol	1.08	0.34	mg/Kg wet	1.67		65.0	30-130	3.15	30		
Naphthalene	1.00	0.17	mg/Kg wet	1.67		60.2	40-140	4.99	30		
Nitrobenzene	1.02	0.34	mg/Kg wet	1.67		61.1	40-140	5.32	30		
2-Nitrophenol	1.05	0.34	mg/Kg wet	1.67		62.8	30-130	5.79	30		
4-Nitrophenol	1.42	0.66	mg/Kg wet	1.67		85.0	15-140	9.61	30	V-06	†
Pentachlorophenol	0.905	0.34	mg/Kg wet	1.67		54.3	30-130	6.32	30		
Phenanthrene	1.15	0.17	mg/Kg wet	1.67		69.0	40-140	3.36	30		
Phenol	1.10	0.34	mg/Kg wet	1.67		66.3	15-140	5.89	30		†
Pyrene	1.12	0.17	mg/Kg wet	1.67		67.0	40-140	4.18	30		
Pyridine	0.687	0.34	mg/Kg wet	1.67		41.2	30-140	3.06	30		†
1,2,4-Trichlorobenzene	0.991	0.34	mg/Kg wet	1.67		59.4	40-140	7.54	30		
2,4,5-Trichlorophenol	1.18	0.34	mg/Kg wet	1.67		71.1	30-130	5.18	30		
2,4,6-Trichlorophenol	1.16	0.34	mg/Kg wet	1.67		69.7	30-130	6.69	30		
Surrogate: 2-Fluorophenol	*3.78*		mg/Kg wet	6.67		56.7	30-130				
Surrogate: Phenol-d6	*4.18*		mg/Kg wet	6.67		62.7	30-130				
Surrogate: Nitrobenzene-d5	*2.03*		mg/Kg wet	3.33		61.0	30-130				
Surrogate: 2-Fluorobiphenyl	*2.23*		mg/Kg wet	3.33		67.0	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.14*		mg/Kg wet	6.67		77.1	30-130				
Surrogate: p-Terphenyl-d14	*2.26*		mg/Kg wet	3.33		67.8	30-130				

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215027 - SW-846 3546										
Blank (B215027-BLK1)				Prepared: 10/17/18 Analyzed: 10/18/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.167*		mg/Kg wet	0.200		83.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.154*		mg/Kg wet	0.200		77.0	30-150			
Surrogate: Tetrachloro-m-xylene	*0.158*		mg/Kg wet	0.200		78.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.153*		mg/Kg wet	0.200		76.3	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215027 - SW-846 3546										
LCS (B215027-BS1)				Prepared: 10/17/18 Analyzed: 10/18/18						
alpha-Chlordane	0.087	0.0050	mg/Kg wet	0.100		86.8	40-140			
alpha-Chlordane [2C]	0.086	0.0050	mg/Kg wet	0.100		85.8	40-140			
gamma-Chlordane	0.086	0.0050	mg/Kg wet	0.100		85.8	40-140			
gamma-Chlordane [2C]	0.087	0.0050	mg/Kg wet	0.100		87.0	40-140			
Alachlor	0.091	0.020	mg/Kg wet	0.100		90.7	40-140			
Alachlor [2C]	0.085	0.020	mg/Kg wet	0.100		84.9	40-140			
Aldrin	0.087	0.0050	mg/Kg wet	0.100		87.3	40-140			
Aldrin [2C]	0.086	0.0050	mg/Kg wet	0.100		86.3	40-140			
alpha-BHC	0.099	0.0050	mg/Kg wet	0.100		99.3	40-140			
alpha-BHC [2C]	0.085	0.0050	mg/Kg wet	0.100		85.4	40-140			
beta-BHC	0.084	0.0050	mg/Kg wet	0.100		84.3	40-140			
beta-BHC [2C]	0.080	0.0050	mg/Kg wet	0.100		80.2	40-140			
delta-BHC	0.072	0.0050	mg/Kg wet	0.100		71.6	40-140			
delta-BHC [2C]	0.074	0.0050	mg/Kg wet	0.100		73.7	40-140			
gamma-BHC (Lindane)	0.087	0.0020	mg/Kg wet	0.100		86.8	40-140			
gamma-BHC (Lindane) [2C]	0.083	0.0020	mg/Kg wet	0.100		83.1	40-140			
4,4'-DDD	0.088	0.0040	mg/Kg wet	0.100		88.5	40-140			
4,4'-DDD [2C]	0.093	0.0040	mg/Kg wet	0.100		93.3	40-140			
4,4'-DDE	0.089	0.0040	mg/Kg wet	0.100		89.3	40-140			
4,4'-DDE [2C]	0.090	0.0040	mg/Kg wet	0.100		89.6	40-140			
4,4'-DDT	0.088	0.0040	mg/Kg wet	0.100		88.1	40-140			
4,4'-DDT [2C]	0.082	0.0040	mg/Kg wet	0.100		81.9	40-140			
Dieldrin	0.082	0.0040	mg/Kg wet	0.100		82.1	40-140			
Dieldrin [2C]	0.090	0.0040	mg/Kg wet	0.100		89.7	40-140			
Endosulfan I	0.085	0.0050	mg/Kg wet	0.100		85.1	40-140			
Endosulfan I [2C]	0.084	0.0050	mg/Kg wet	0.100		83.9	40-140			
Endosulfan II	0.085	0.0080	mg/Kg wet	0.100		84.6	40-140			
Endosulfan II [2C]	0.085	0.0080	mg/Kg wet	0.100		84.6	40-140			
Endosulfan Sulfate	0.076	0.0080	mg/Kg wet	0.100		76.0	40-140			
Endosulfan Sulfate [2C]	0.076	0.0080	mg/Kg wet	0.100		75.8	40-140			
Endrin	0.085	0.0080	mg/Kg wet	0.100		84.5	40-140			
Endrin [2C]	0.084	0.0080	mg/Kg wet	0.100		84.3	40-140			
Endrin Aldehyde	0.097	0.0080	mg/Kg wet	0.100		97.3	40-140			
Endrin Aldehyde [2C]	0.095	0.0080	mg/Kg wet	0.100		95.1	40-140			
Endrin Ketone	0.083	0.0080	mg/Kg wet	0.100		82.8	40-140			
Endrin Ketone [2C]	0.080	0.0080	mg/Kg wet	0.100		80.2	40-140			
Heptachlor	0.071	0.0050	mg/Kg wet	0.100		70.6	40-140			
Heptachlor [2C]	0.083	0.0050	mg/Kg wet	0.100		82.6	40-140			
Heptachlor Epoxide	0.086	0.0050	mg/Kg wet	0.100		85.5	40-140			
Heptachlor Epoxide [2C]	0.084	0.0050	mg/Kg wet	0.100		84.0	40-140			
Hexachlorobenzene	0.099	0.0060	mg/Kg wet	0.100		98.6	40-140			
Hexachlorobenzene [2C]	0.089	0.0060	mg/Kg wet	0.100		88.8	40-140			
Methoxychlor	0.086	0.050	mg/Kg wet	0.100		86.2	40-140			
Methoxychlor [2C]	0.086	0.050	mg/Kg wet	0.100		86.4	40-140			
Surrogate: Decachlorobiphenyl	*0.171*		mg/Kg wet	0.200		85.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.165*		mg/Kg wet	0.200		82.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.170*		mg/Kg wet	0.200		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.169*		mg/Kg wet	0.200		84.5	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215027 - SW-846 3546										
LCS Dup (B215027-BSD1)				Prepared: 10/17/18 Analyzed: 10/18/18						
alpha-Chlordane	0.091	0.0050	mg/Kg wet	0.100		91.5	40-140	5.20	30	
alpha-Chlordane [2C]	0.091	0.0050	mg/Kg wet	0.100		90.6	40-140	5.40	30	
gamma-Chlordane	0.090	0.0050	mg/Kg wet	0.100		90.0	40-140	4.79	30	
gamma-Chlordane [2C]	0.092	0.0050	mg/Kg wet	0.100		92.1	40-140	5.69	30	
Alachlor	0.096	0.020	mg/Kg wet	0.100		95.8	40-140	5.40	30	
Alachlor [2C]	0.090	0.020	mg/Kg wet	0.100		89.6	40-140	5.33	30	
Aldrin	0.091	0.0050	mg/Kg wet	0.100		91.3	40-140	4.45	30	
Aldrin [2C]	0.091	0.0050	mg/Kg wet	0.100		90.6	40-140	4.85	30	
alpha-BHC	0.10	0.0050	mg/Kg wet	0.100		100	40-140	0.978	30	
alpha-BHC [2C]	0.089	0.0050	mg/Kg wet	0.100		88.8	40-140	3.94	30	
beta-BHC	0.088	0.0050	mg/Kg wet	0.100		88.3	40-140	4.59	30	
beta-BHC [2C]	0.085	0.0050	mg/Kg wet	0.100		84.7	40-140	5.55	30	
delta-BHC	0.054	0.0050	mg/Kg wet	0.100		53.7	40-140	28.6	30	
delta-BHC [2C]	0.056	0.0050	mg/Kg wet	0.100		56.4	40-140	26.7	30	
gamma-BHC (Lindane)	0.088	0.0020	mg/Kg wet	0.100		88.2	40-140	1.62	30	
gamma-BHC (Lindane) [2C]	0.086	0.0020	mg/Kg wet	0.100		85.7	40-140	3.17	30	
4,4'-DDD	0.091	0.0040	mg/Kg wet	0.100		91.0	40-140	2.87	30	
4,4'-DDD [2C]	0.096	0.0040	mg/Kg wet	0.100		95.5	40-140	2.40	30	
4,4'-DDE	0.096	0.0040	mg/Kg wet	0.100		95.8	40-140	6.96	30	
4,4'-DDE [2C]	0.096	0.0040	mg/Kg wet	0.100		96.1	40-140	7.07	30	
4,4'-DDT	0.091	0.0040	mg/Kg wet	0.100		91.0	40-140	3.19	30	
4,4'-DDT [2C]	0.085	0.0040	mg/Kg wet	0.100		85.0	40-140	3.73	30	
Dieldrin	0.086	0.0040	mg/Kg wet	0.100		86.1	40-140	4.85	30	
Dieldrin [2C]	0.094	0.0040	mg/Kg wet	0.100		94.1	40-140	4.78	30	
Endosulfan I	0.089	0.0050	mg/Kg wet	0.100		88.6	40-140	3.96	30	
Endosulfan I [2C]	0.087	0.0050	mg/Kg wet	0.100		87.2	40-140	3.94	30	
Endosulfan II	0.088	0.0080	mg/Kg wet	0.100		88.1	40-140	4.07	30	
Endosulfan II [2C]	0.088	0.0080	mg/Kg wet	0.100		88.1	40-140	4.01	30	
Endosulfan Sulfate	0.058	0.0080	mg/Kg wet	0.100		58.3	40-140	26.4	30	
Endosulfan Sulfate [2C]	0.059	0.0080	mg/Kg wet	0.100		58.8	40-140	25.2	30	
Endrin	0.089	0.0080	mg/Kg wet	0.100		88.9	40-140	5.05	30	
Endrin [2C]	0.088	0.0080	mg/Kg wet	0.100		88.5	40-140	4.80	30	
Endrin Aldehyde	0.097	0.0080	mg/Kg wet	0.100		96.8	40-140	0.530	30	
Endrin Aldehyde [2C]	0.095	0.0080	mg/Kg wet	0.100		95.1	40-140	0.0810	30	
Endrin Ketone	0.087	0.0080	mg/Kg wet	0.100		87.0	40-140	5.00	30	
Endrin Ketone [2C]	0.084	0.0080	mg/Kg wet	0.100		84.2	40-140	4.87	30	
Heptachlor	0.073	0.0050	mg/Kg wet	0.100		73.4	40-140	3.80	30	
Heptachlor [2C]	0.087	0.0050	mg/Kg wet	0.100		86.8	40-140	4.91	30	
Heptachlor Epoxide	0.090	0.0050	mg/Kg wet	0.100		90.1	40-140	5.16	30	
Heptachlor Epoxide [2C]	0.088	0.0050	mg/Kg wet	0.100		88.2	40-140	4.85	30	
Hexachlorobenzene	0.10	0.0060	mg/Kg wet	0.100		101	40-140	2.81	30	
Hexachlorobenzene [2C]	0.093	0.0060	mg/Kg wet	0.100		93.2	40-140	4.77	30	
Methoxychlor	0.091	0.050	mg/Kg wet	0.100		90.6	40-140	4.95	30	
Methoxychlor [2C]	0.090	0.050	mg/Kg wet	0.100		89.9	40-140	4.00	30	
Surrogate: Decachlorobiphenyl	*0.179*		mg/Kg wet	0.200		89.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.169*		mg/Kg wet	0.200		84.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.170*		mg/Kg wet	0.200		84.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.174*		mg/Kg wet	0.200		86.9	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215027 - SW-846 3546										
Matrix Spike (B215027-MS1)	**Source: 18J0746-01**			Prepared: 10/17/18 Analyzed: 10/19/18						
Alachlor	0.12	0.23	mg/Kg dry	0.117	ND	104	30-150			
Alachlor [2C]	0.12	0.23	mg/Kg dry	0.117	ND	105	30-150			
Aldrin	0.096	0.058	mg/Kg dry	0.117	ND	82.6	30-150			
Aldrin [2C]	0.089	0.058	mg/Kg dry	0.117	ND	75.9	30-150			
alpha-BHC	0.10	0.058	mg/Kg dry	0.117	ND	89.4	30-150			
alpha-BHC [2C]	0.083	0.058	mg/Kg dry	0.117	ND	71.4	30-150			
beta-BHC	0.097	0.058	mg/Kg dry	0.117	ND	83.2	30-150			
beta-BHC [2C]	0.086	0.058	mg/Kg dry	0.117	ND	73.7	30-150			
delta-BHC	0.094	0.058	mg/Kg dry	0.117	ND	80.1	30-150			
delta-BHC [2C]	0.079	0.058	mg/Kg dry	0.117	ND	67.8	30-150			
gamma-BHC (Lindane)	0.093	0.023	mg/Kg dry	0.117	ND	79.6	30-150			
gamma-BHC (Lindane) [2C]	0.084	0.023	mg/Kg dry	0.117	ND	71.7	30-150			
4,4'-DDD	0.090	0.047	mg/Kg dry	0.117	ND	76.8	30-150			
4,4'-DDD [2C]	0.089	0.047	mg/Kg dry	0.117	ND	75.8	30-150			
4,4'-DDE	0.094	0.047	mg/Kg dry	0.117	ND	80.8	30-150			
4,4'-DDE [2C]	0.091	0.047	mg/Kg dry	0.117	ND	78.1	30-150			
4,4'-DDT	0.093	0.047	mg/Kg dry	0.117	ND	79.4	30-150			
4,4'-DDT [2C]	0.088	0.047	mg/Kg dry	0.117	ND	75.5	30-150			
Dieldrin	0.087	0.047	mg/Kg dry	0.117	ND	74.5	30-150			
Dieldrin [2C]	0.098	0.047	mg/Kg dry	0.117	ND	84.0	30-150			
Endosulfan I	0.093	0.058	mg/Kg dry	0.117	ND	80.0	30-150			
Endosulfan I [2C]	0.088	0.058	mg/Kg dry	0.117	ND	75.6	30-150			
Endosulfan II	0.090	0.093	mg/Kg dry	0.117	ND	77.2	30-150			
Endosulfan II [2C]	0.089	0.093	mg/Kg dry	0.117	ND	76.5	30-150			
Endosulfan Sulfate	0.084	0.093	mg/Kg dry	0.117	ND	71.7	30-150			
Endosulfan Sulfate [2C]	0.087	0.093	mg/Kg dry	0.117	ND	74.6	30-150			
Endrin	0.095	0.093	mg/Kg dry	0.117	ND	81.5	30-150			
Endrin [2C]	0.086	0.093	mg/Kg dry	0.117	ND	73.4	30-150			
Endrin Aldehyde	0.10	0.093	mg/Kg dry	0.117	ND	87.5	30-150			
Endrin Aldehyde [2C]	0.089	0.093	mg/Kg dry	0.117	ND	76.2	30-150			
Endrin Ketone	0.089	0.093	mg/Kg dry	0.117	ND	76.0	30-150			
Endrin Ketone [2C]	0.086	0.093	mg/Kg dry	0.117	ND	73.4	30-150			
Heptachlor	0.098	0.058	mg/Kg dry	0.117	ND	83.5	30-150			
Heptachlor [2C]	0.091	0.058	mg/Kg dry	0.117	ND	77.9	30-150			
Heptachlor Epoxide	0.093	0.058	mg/Kg dry	0.117	ND	79.9	30-150			
Heptachlor Epoxide [2C]	0.087	0.058	mg/Kg dry	0.117	ND	74.8	30-150			
Hexachlorobenzene	0.12	0.070	mg/Kg dry	0.117	ND	101	30-150			
Hexachlorobenzene [2C]	0.099	0.070	mg/Kg dry	0.117	ND	85.1	30-150			
Methoxychlor	0.099	0.58	mg/Kg dry	0.117	ND	84.9	30-150			
Methoxychlor [2C]	0.10	0.58	mg/Kg dry	0.117	ND	85.6	30-150			
Surrogate: Decachlorobiphenyl	*0.210*		mg/Kg dry	0.234		89.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.164*		mg/Kg dry	0.234		70.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.189*		mg/Kg dry	0.234		81.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.178*		mg/Kg dry	0.234		76.2	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215027 - SW-846 3546										
Matrix Spike Dup (B215027-MSD1)	**Source: 18J0746-01**			Prepared: 10/17/18 Analyzed: 10/19/18						
Alachlor	0.13	0.23	mg/Kg dry	0.115	ND	115	30-150	7.80	30	
Alachlor [2C]	0.12	0.23	mg/Kg dry	0.115	ND	103	30-150	3.79	30	
Aldrin	0.093	0.057	mg/Kg dry	0.115	ND	81.1	30-150	3.75	30	
Aldrin [2C]	0.085	0.057	mg/Kg dry	0.115	ND	74.4	30-150	3.96	30	
alpha-BHC	0.097	0.057	mg/Kg dry	0.115	ND	85.1	30-150	6.97	30	
alpha-BHC [2C]	0.077	0.057	mg/Kg dry	0.115	ND	67.0	30-150	8.25	30	
beta-BHC	0.091	0.057	mg/Kg dry	0.115	ND	79.6	30-150	6.34	30	
beta-BHC [2C]	0.082	0.057	mg/Kg dry	0.115	ND	71.6	30-150	4.87	30	
delta-BHC	0.089	0.057	mg/Kg dry	0.115	ND	77.7	30-150	5.08	30	
delta-BHC [2C]	0.075	0.057	mg/Kg dry	0.115	ND	65.4	30-150	5.66	30	
gamma-BHC (Lindane)	0.087	0.023	mg/Kg dry	0.115	ND	76.2	30-150	6.27	30	
gamma-BHC (Lindane) [2C]	0.078	0.023	mg/Kg dry	0.115	ND	68.5	30-150	6.48	30	
4,4'-DDD	0.086	0.046	mg/Kg dry	0.115	ND	75.0	30-150	4.19	30	
4,4'-DDD [2C]	0.085	0.046	mg/Kg dry	0.115	ND	74.2	30-150	4.16	30	
4,4'-DDE	0.092	0.046	mg/Kg dry	0.115	ND	80.1	30-150	2.84	30	
4,4'-DDE [2C]	0.088	0.046	mg/Kg dry	0.115	ND	76.7	30-150	3.80	30	
4,4'-DDT	0.089	0.046	mg/Kg dry	0.115	ND	77.6	30-150	4.30	30	
4,4'-DDT [2C]	0.085	0.046	mg/Kg dry	0.115	ND	74.2	30-150	3.66	30	
Dieldrin	0.084	0.046	mg/Kg dry	0.115	ND	73.1	30-150	3.85	30	
Dieldrin [2C]	0.094	0.046	mg/Kg dry	0.115	ND	82.1	30-150	4.24	30	
Endosulfan I	0.090	0.057	mg/Kg dry	0.115	ND	78.8	30-150	3.41	30	
Endosulfan I [2C]	0.085	0.057	mg/Kg dry	0.115	ND	74.2	30-150	3.81	30	
Endosulfan II	0.086	0.092	mg/Kg dry	0.115	ND	75.2	30-150	4.46	30	
Endosulfan II [2C]	0.086	0.092	mg/Kg dry	0.115	ND	75.2	30-150	3.64	30	
Endosulfan Sulfate	0.081	0.092	mg/Kg dry	0.115	ND	70.5	30-150	3.67	30	
Endosulfan Sulfate [2C]	0.084	0.092	mg/Kg dry	0.115	ND	73.2	30-150	3.90	30	
Endrin	0.091	0.092	mg/Kg dry	0.115	ND	79.8	30-150	4.14	30	
Endrin [2C]	0.082	0.092	mg/Kg dry	0.115	ND	71.5	30-150	4.65	30	
Endrin Aldehyde	0.098	0.092	mg/Kg dry	0.115	ND	85.8	30-150	3.89	30	
Endrin Aldehyde [2C]	0.086	0.092	mg/Kg dry	0.115	ND	75.0	30-150	3.56	30	
Endrin Ketone	0.087	0.092	mg/Kg dry	0.115	ND	76.4	30-150	1.50	30	
Endrin Ketone [2C]	0.086	0.092	mg/Kg dry	0.115	ND	75.0	30-150	0.188	30	
Heptachlor	0.092	0.057	mg/Kg dry	0.115	ND	80.7	30-150	5.31	30	
Heptachlor [2C]	0.087	0.057	mg/Kg dry	0.115	ND	75.6	30-150	4.97	30	
Heptachlor Epoxide	0.089	0.057	mg/Kg dry	0.115	ND	77.6	30-150	4.80	30	
Heptachlor Epoxide [2C]	0.084	0.057	mg/Kg dry	0.115	ND	73.2	30-150	4.18	30	
Hexachlorobenzene	0.11	0.069	mg/Kg dry	0.115	ND	98.9	30-150	3.81	30	
Hexachlorobenzene [2C]	0.093	0.069	mg/Kg dry	0.115	ND	81.5	30-150	6.29	30	
Methoxychlor	0.094	0.57	mg/Kg dry	0.115	ND	82.5	30-150	4.87	30	
Methoxychlor [2C]	0.095	0.57	mg/Kg dry	0.115	ND	83.1	30-150	4.87	30	
Surrogate: Decachlorobiphenyl	*0.209*		mg/Kg dry	0.229		91.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.165*		mg/Kg dry	0.229		72.2	30-150			
Surrogate: Tetrachloro-m-xylene	*0.181*		mg/Kg dry	0.229		78.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.168*		mg/Kg dry	0.229		73.1	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215049 - SW-846 3546										
Blank (B215049-BLK1)				Prepared: 10/17/18 Analyzed: 10/19/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.174*		mg/Kg wet	0.200		86.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.212*		mg/Kg wet	0.200		106	30-150			
Surrogate: Tetrachloro-m-xylene	*0.159*		mg/Kg wet	0.200		79.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.169*		mg/Kg wet	0.200		84.7	30-150			
LCS (B215049-BS1)				Prepared: 10/17/18 Analyzed: 10/19/18						
Aroclor-1016	0.15	0.020	mg/Kg wet	0.200		76.6	40-140			
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		82.3	40-140			
Aroclor-1260	0.16	0.020	mg/Kg wet	0.200		80.0	40-140			
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		92.9	40-140			
Surrogate: Decachlorobiphenyl	*0.173*		mg/Kg wet	0.200		86.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.210*		mg/Kg wet	0.200		105	30-150			
Surrogate: Tetrachloro-m-xylene	*0.114*		mg/Kg wet	0.200		57.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.119*		mg/Kg wet	0.200		59.7	30-150			
LCS Dup (B215049-BSD1)				Prepared: 10/17/18 Analyzed: 10/19/18						
Aroclor-1016	0.17	0.020	mg/Kg wet	0.200		84.5	40-140	9.79	30	
Aroclor-1016 [2C]	0.19	0.020	mg/Kg wet	0.200		92.6	40-140	11.8	30	
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		88.6	40-140	10.3	30	
Aroclor-1260 [2C]	0.21	0.020	mg/Kg wet	0.200		105	40-140	12.6	30	
Surrogate: Decachlorobiphenyl	*0.189*		mg/Kg wet	0.200		94.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.230*		mg/Kg wet	0.200		115	30-150			
Surrogate: Tetrachloro-m-xylene	*0.123*		mg/Kg wet	0.200		61.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.132*		mg/Kg wet	0.200		65.9	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214866 - SW-846 8151										
Blank (B214866-BLK1)				Prepared: 10/16/18 Analyzed: 10/19/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							V-20, V-35
Dinoseb [2C]	ND	12	µg/kg wet							V-35
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*75.4*		µg/kg wet	95.2		79.2	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*75.6*		µg/kg wet	95.2		79.3	30-150			
LCS (B214866-BS1)				Prepared: 10/16/18 Analyzed: 10/19/18						
2,4-D	89.3	25	µg/kg wet	125		71.4	40-140			
2,4-D [2C]	93.4	25	µg/kg wet	125		74.7	40-140			
2,4-DB	91.7	25	µg/kg wet	125		73.3	40-140			
2,4-DB [2C]	97.1	25	µg/kg wet	125		77.7	40-140			
2,4,5-TP (Silvex)	8.96	2.5	µg/kg wet	12.5		71.7	40-140			
2,4,5-TP (Silvex) [2C]	9.24	2.5	µg/kg wet	12.5		73.9	40-140			
2,4,5-T	8.70	2.5	µg/kg wet	12.5		69.6	40-140			
2,4,5-T [2C]	8.98	2.5	µg/kg wet	12.5		71.9	40-140			
Dalapon	150	62	µg/kg wet	312		47.9	40-140			
Dalapon [2C]	152	62	µg/kg wet	312		48.7	40-140			
Dicamba	8.85	2.5	µg/kg wet	12.5		70.8	40-140			
Dicamba [2C]	9.14	2.5	µg/kg wet	12.5		73.1	40-140			
Dichloroprop	92.2	25	µg/kg wet	125		73.7	40-140			
Dichloroprop [2C]	95.6	25	µg/kg wet	125		76.5	40-140			
Dinoseb	11.8	12	µg/kg wet	62.5		18.9	0-42.4			V-06, V-35
Dinoseb [2C]	11.1	12	µg/kg wet	62.5		17.7	0-41.1			V-06, V-35
MCPA	8560	2500	µg/kg wet	12500		68.5	40-140			
MCPA [2C]	7100	2500	µg/kg wet	12500		56.8	40-140			
MCPP	11600	2500	µg/kg wet	12500		92.6	40-140			
MCPP [2C]	7290	2500	µg/kg wet	12500		58.3	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*67.5*		µg/kg wet	100		67.5	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*70.2*		µg/kg wet	100		70.2	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214866 - SW-846 8151										
LCS Dup (B214866-BSD1)				Prepared: 10/16/18 Analyzed: 10/19/18						
2,4-D	103	25	µg/kg wet	125		82.4	40-140	14.3	30	
2,4-D [2C]	108	25	µg/kg wet	125		86.6	40-140	14.7	30	
2,4-DB	107	25	µg/kg wet	125		85.7	40-140	15.6	30	
2,4-DB [2C]	114	25	µg/kg wet	125		91.2	40-140	16.0	30	
2,4,5-TP (Silvex)	10.3	2.5	µg/kg wet	12.5		82.3	40-140	13.8	30	
2,4,5-TP (Silvex) [2C]	10.7	2.5	µg/kg wet	12.5		85.2	40-140	14.2	30	
2,4,5-T	10.1	2.5	µg/kg wet	12.5		80.7	40-140	14.8	30	
2,4,5-T [2C]	10.5	2.5	µg/kg wet	12.5		84.2	40-140	15.8	30	
Dalapon	165	62	µg/kg wet	312		52.9	40-140	9.87	30	
Dalapon [2C]	169	62	µg/kg wet	312		54.1	40-140	10.6	30	
Dicamba	10.1	2.5	µg/kg wet	12.5		80.9	40-140	13.3	30	
Dicamba [2C]	10.6	2.5	µg/kg wet	12.5		84.5	40-140	14.5	30	
Dichloroprop	105	25	µg/kg wet	125		84.0	40-140	13.0	30	
Dichloroprop [2C]	110	25	µg/kg wet	125		87.6	40-140	13.6	30	
Dinoseb	8.84	12	µg/kg wet	62.5		14.2	0-42.4	28.9	30	V-06, V-35
Dinoseb [2C]	8.22	12	µg/kg wet	62.5		13.2	0-41.1	29.7	30	V-06, V-35
MCPA	9940	2500	µg/kg wet	12500		79.5	40-140	14.9	30	
MCPA [2C]	7600	2500	µg/kg wet	12500		60.8	40-140	6.80	30	
MCPP	13600	2500	µg/kg wet	12500		109	40-140	15.8	30	
MCPP [2C]	8030	2500	µg/kg wet	12500		64.2	40-140	9.67	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*79.0*		µg/kg wet	100		79.0	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*81.2*		µg/kg wet	100		81.2	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B215078 - SW-846 3546											
Blank (B215078-BLK1)				Prepared: 10/17/18 Analyzed: 10/18/18							
TPH (C9-C36)	ND	8.3	mg/Kg wet								
Surrogate: 2-Fluorobiphenyl	*1.91*		mg/Kg wet	3.33		57.3		40-140			
LCS (B215078-BS1)				Prepared: 10/17/18 Analyzed: 10/18/18							
TPH (C9-C36)	23.4	8.3	mg/Kg wet	33.3		70.3		40-140			
Surrogate: 2-Fluorobiphenyl	*2.00*		mg/Kg wet	3.33		60.0		40-140			
LCS Dup (B215078-BSD1)				Prepared: 10/17/18 Analyzed: 10/18/18							
TPH (C9-C36)	24.8	8.3	mg/Kg wet	33.3		74.4		40-140	5.68	30	
Surrogate: 2-Fluorobiphenyl	*2.04*		mg/Kg wet	3.33		61.3		40-140			
Matrix Spike (B215078-MS1)	**Source: 18J0746-01**			Prepared: 10/17/18 Analyzed: 10/18/18							
TPH (C9-C36)	324	98	mg/Kg dry	39.2	331	**-17.5**	*	40-140			MS-19
Surrogate: 2-Fluorobiphenyl	*1.96*		mg/Kg dry	3.92		50.1		40-140			
Matrix Spike Dup (B215078-MSD1)	**Source: 18J0746-01**			Prepared: 10/17/18 Analyzed: 10/18/18							
TPH (C9-C36)	282	98	mg/Kg dry	39.2	331	**-123**	*	40-140	13.7	30	MS-19
Surrogate: 2-Fluorobiphenyl	*1.59*		mg/Kg dry	3.92		40.6		40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215319 - SW-846 3050B										
Blank (B215319-BLK1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B215319-BS1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Antimony	43.0	5.0	mg/Kg wet	75.5		57.0	3.8-196			
Arsenic	158	5.0	mg/Kg wet	161		97.9	83.2-116.8			
Barium	264	5.0	mg/Kg wet	260		101	82.7-117.3			
Beryllium	98.2	0.50	mg/Kg wet	97.6		101	83.4-116.8			
Cadmium	206	0.50	mg/Kg wet	211		97.5	83.4-116.6			
Chromium	131	0.99	mg/Kg wet	136		96.6	82.4-117.6			
Lead	109	1.5	mg/Kg wet	111		98.0	83-117.1			
Nickel	93.7	0.99	mg/Kg wet	91.9		102	82.9-117.5			
Selenium	183	9.9	mg/Kg wet	191		95.9	79.6-120.9			
Silver	44.8	0.99	mg/Kg wet	43.3		104	79.9-119.9			
Thallium	160	5.0	mg/Kg wet	156		102	81.4-119.2			
Vanadium	49.1	2.0	mg/Kg wet	56.7		86.7	79-121.2			
Zinc	195	2.0	mg/Kg wet	199		98.0	81.4-119.1			
LCS Dup (B215319-BSD1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Antimony	40.0	4.9	mg/Kg wet	75.5		53.0	3.8-196	7.17	30	
Arsenic	152	4.9	mg/Kg wet	161		94.4	83.2-116.8	3.73	30	
Barium	259	4.9	mg/Kg wet	260		99.7	82.7-117.3	1.68	30	
Beryllium	96.4	0.49	mg/Kg wet	97.6		98.7	83.4-116.8	1.85	30	
Cadmium	204	0.49	mg/Kg wet	211		96.5	83.4-116.6	1.00	30	
Chromium	130	0.97	mg/Kg wet	136		95.8	82.4-117.6	0.833	30	
Lead	103	1.5	mg/Kg wet	111		93.2	83-117.1	5.04	30	
Nickel	91.8	0.97	mg/Kg wet	91.9		99.9	82.9-117.5	2.02	30	
Selenium	176	9.7	mg/Kg wet	191		92.0	79.6-120.9	4.07	30	
Silver	42.2	0.97	mg/Kg wet	43.3		97.5	79.9-119.9	6.02	30	
Thallium	155	4.9	mg/Kg wet	156		99.6	81.4-119.2	2.64	30	
Vanadium	48.7	1.9	mg/Kg wet	56.7		86.0	79-121.2	0.811	30	
Zinc	196	1.9	mg/Kg wet	199		98.7	81.4-119.1	0.706	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215319 - SW-846 3050B										
MRL Check (B215319-MRL1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Lead	0.568	0.50	mg/Kg wet	0.498		114	80-120			
Batch B215349 - SW-846 7471										
Blank (B215349-BLK1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B215349-BS1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Mercury	11.1	2.0	mg/Kg wet	11.5		96.7	71.6-127.8			
LCS Dup (B215349-BSD1)				Prepared: 10/22/18 Analyzed: 10/23/18						
Mercury	11.5	1.9	mg/Kg wet	11.5		100	71.6-127.8	3.67	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B214965 - SW-846 9045C										
LCS (B214965-BS1)				Prepared & Analyzed: 10/16/18						
pH	5.98		pH Units	6.00		99.7	90-110			
LCS (B214965-BS2)				Prepared & Analyzed: 10/16/18						
pH	6.00		pH Units	6.00		99.9	90-110			
Batch B215260 - % Solids										
Duplicate (B215260-DUP1)	**Source: 18J0746-01**			Prepared: 10/19/18 Analyzed: 10/21/18						
% Solids	81.2		% Wt		84.0			3.32	20	
Duplicate (B215260-DUP2)	**Source: 18J0746-02**			Prepared: 10/19/18 Analyzed: 10/21/18						
% Solids	84.0		% Wt		84.5			0.582	20	
Duplicate (B215260-DUP3)	**Source: 18J0746-03**			Prepared: 10/19/18 Analyzed: 10/21/18						
% Solids	84.4		% Wt		83.9			0.589	20	
Batch B215274 - SW-846 9014										
Blank (B215274-BLK1)				Prepared: 10/20/18 Analyzed: 10/23/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B215274-BS1)				Prepared: 10/20/18 Analyzed: 10/23/18						
Reactive Cyanide	9.3	0.40	mg/Kg	10.0		92.7	83.6-111			
Batch B215406 - SM21-22 2510B Modified										
Blank (B215406-BLK1)				Prepared & Analyzed: 10/23/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B215406-BS1)				Prepared & Analyzed: 10/23/18						
Specific conductance	200		µmhos/cm	192		102	90-110			
Duplicate (B215406-DUP1)	**Source: 18J0746-01**			Prepared & Analyzed: 10/23/18						
Specific conductance	8.8	2.0	µmhos/cm		8.1			7.34	21	
Batch B215459 - SW-846 9030A										
Blank (B215459-BLK1)				Prepared: 10/20/18 Analyzed: 10/23/18						
Reactive Sulfide	ND	2.0	mg/Kg							

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B215459 - SW-846 9030A										
LCS (B215459-BS1)				Prepared: 10/20/18 Analyzed: 10/23/18						
Reactive Sulfide	13	2.0	mg/Kg	14.8		89.2	54.9-121			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

MP34

Lab Sample ID: 18J0746-02 Date(s) Analyzed: 10/18/2018 10/18/2018

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDE	1	6.425	-0.030	0.030	0.0084	
	2	6.538	-0.030	0.030	0.013	43.0
4,4'-DDT	1	7.044	-0.030	0.030	0.050	
	2	7.182	-0.030	0.030	0.047	6.2

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.

DL-03	Elevated reporting limit due to matrix.
H-03	Sample received after recommended holding time was exceeded.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
O-32	A dilution was performed as part of the standard analytical procedure.
P-02	Sample RPD between primary and confirmatory analysis exceeded 40%. Per EPA method 8000, the lower value was reported due to obvious chromatographic interference on the column with the higher result.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-19	Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-35	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Soil	
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

18T0746

con-test ANALYTICAL LABORATORY

KCM

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Tran
Project Location: Sudbury, Massa
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: PEC & TJP

Requested Turnaround Time
7-Day [✓] 10-Day [ ]
Due Date:

Rush-Approval Required
1-Day [ ] 3-Day [ ]
2-Day [ ] 4-Day [ ]

Data Delivery
Format: PDF [✓] EXCEL [✓]
Other: Limit Check
CLP Like Data Pkg Required: [ ]
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	[1]Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals						
								3	3	3		9							
								I	I	I	I	M/O	I						
								A	A	A	A	V	A						
1	MP32	10/11/18	10:15	x	x	S	U	x	x	x	x	x	x						
2	MP34	10/11/18	14:21	x	x	S	U	x	x	x	x	x	x						
3	SB49	10/11/18	14:25	x	x	S	U	x	x	x	x	x	x						

ANALYSIS REQUESTED

# of Containers
[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) DI H2O

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Vials frozen on day of generation by 16:00

TCLP 20x Rule

Relinquished by: (signature)	Date/Time: 10/15/18 1815
Received by: (signature)	Date/Time: 10/15/18 1815
Relinquished by: (signature)	Date/Time: 10/15/18 2020
Received by: (signature) 10-15-18 20:20	Date/Time: 2.4
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
GT
Other:

Special Requirements
[✓] MA MCP Required
MCP Certification Form Required
[ ] CT RCP Required
RCP Certification Form Required
[ ] MA State DW Required
PWSID #

DI Frozen 10-15-18 @ 20:20

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
[ ] Government [ ] Municipality [ ] MWRA [ ] WRTA
[ ] Federal [ ] 21 J [ ] School
[ ] City [ ] Brownfield [ ] MBTA

Other
[ ] Chromatogram
[ ] *AIHA-LAP,LLC*

PCB ONLY
[ ] Soxhlet
[ ] Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By ESD Date 10-5-18 Time 20:20

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 517 Actual Temp - 3.4 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Lwe

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	9
Meoh-	3	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-	6	Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen: 10-5-18 @ 20:20	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18J0746
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18J0746-01 thru 18J0746-03

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]
	A response to questions G, H and I below is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]
	***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**		
H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Tod Kopyscinski Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 10/24/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 9, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18J1553

Enclosed are results of analyses for samples received by the laboratory on October 31, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

Table of Contents (continued)

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/9/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1553

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-51	18J1553-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB-50	18J1553-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/9/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1553

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-37	18J1553-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB-38	18J1553-04	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/9/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1553

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-39	18J1553-05	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP37	18J1553-06	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/9/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1553

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP38	18J1553-07	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP39	18J1553-08	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 11/02/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 6010D

Qualifications:

MS-07

Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

Antimony

18J1553-04[SB-38], B216433-MS1

MS-14

Matrix spike recovery is outside of control limits. Data validation is not affected since sample result is "not detected" and recovery bias is on the high side for this compound.

Analyte & Samples(s) Qualified:

Thallium

18J1553-04[SB-38], B216433-MS1

SW-846 8081B

Qualifications:

P-01

Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. In accordance with the method, the higher result was reported.

Analyte & Samples(s) Qualified:

4,4'-DDT

18J1553-05[SB-39]

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39]

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Aroclor-1016 [2C]

B216139-BS1, B216139-BSD1

Aroclor-1260 [2C]

B216139-BS1, B216139-BSD1

SW-846 8260C

Qualifications:

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)

B216165-BSD1

Acetone

B216165-BSD1

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R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

1,1,2,2-Tetrachloroethane
18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216165-BLK1, B216165-BS1, B216165-BSD1

1,2-Dibromo-3-chloropropane (DB
18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216165-BLK1, B216165-BS1, B216165-BSD1

2-Butanone (MEK)
18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216161-BLK1, B216161-BS1, B216161-BSD1, B216165-BLK1, B216165-BS1, B216165-BSD1, S029100-CCV1

2-Hexanone (MBK)
18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216165-BLK1, B216165-BS1, B216165-BSD1

Acetone
18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216161-BLK1, B216161-BS1, B216161-BSD1, B216165-BLK1, B216165-BS1, B216165-BSD1, S029100-CCV1

Bromomethane
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

RL-07

Elevated reporting limit based on lowest point in calibration.
MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

1,2,3-Trichlorobenzene
18J1553-01[SB-51]

Carbon Disulfide
18J1553-01[SB-51]

Methylene Chloride
18J1553-01[SB-51]

Naphthalene
18J1553-01[SB-51]

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

1,2-Dibromo-3-chloropropane (DB
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

1,4-Dioxane
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

2-Butanone (MEK)
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

2-Hexanone (MBK)
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

Acetone
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

tert-Amyl Methyl Ether (TAME)
18J1553-01[SB-51], B216161-BLK1, B216161-BS1, B216161-BSD1, S029100-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216161-BLK1, B216161-BS1, B216161-BSD1, B216165-BLK1, B216165-BS1, B216165-BSD1, S029100-CCV1

Tetrahydrofuran
18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216165-BLK1, B216165-BS1, B216165-BSD1

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V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane

18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216165-BLK1, B216165-BS1, B216165-BSD1, S028948-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane

B216165-BS1, B216165-BSD1, S028948-CCV1

SW-846 8270D

Qualifications:

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

Aniline

B216271-BS1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Aniline

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216271-BLK1, B216271-BS1, B216271-BSD1

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

B216271-BS1, B216271-BSD1

2,6-Dinitrotoluene

B216271-BS1, B216271-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216271-BLK1

2,6-Dinitrotoluene

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216271-BLK1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216271-BLK1, B216271-BS1, B216271-BSD1

Aniline

18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39], B216271-BLK1, B216271-BS1, B216271-BSD1

SW-846 9045C

Qualifications:

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H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18J1553-01[SB-51], 18J1553-02[SB-50], 18J1553-03[SB-37], 18J1553-04[SB-38], 18J1553-05[SB-39], 18J1553-06[MP37], 18J1553-07[MP38], 18J1553-08[MP39]

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	2.1	mg/Kg dry	1	V-05, R-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.084	mg/Kg dry	1	V-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Benzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Bromobenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Bromochloromethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Bromodichloromethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Bromoform	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Bromomethane	ND	0.084	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
2-Butanone (MEK)	ND	0.84	mg/Kg dry	1	V-05, R-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
n-Butylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
sec-Butylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
tert-Butylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Carbon Disulfide	ND	0.42	mg/Kg dry	1	RL-07	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Carbon Tetrachloride	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Chlorobenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Chlorodibromomethane	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Chloroethane	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Chloroform	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Chloromethane	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
2-Chlorotoluene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
4-Chlorotoluene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.17	mg/Kg dry	1	V-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2-Dibromoethane (EDB)	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Dibromomethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2-Dichlorobenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,3-Dichlorobenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,4-Dichlorobenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Dichlorodifluoromethane (Freon 12)	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1-Dichloroethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2-Dichloroethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1-Dichloroethylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
cis-1,2-Dichloroethylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
trans-1,2-Dichloroethylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2-Dichloropropane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,3-Dichloropropane	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
2,2-Dichloropropane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1-Dichloropropene	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
cis-1,3-Dichloropropene	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
trans-1,3-Dichloropropene	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Diethyl Ether	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Diisopropyl Ether (DIPE)	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,4-Dioxane	ND	2.1	mg/Kg dry	1	V-05, V-16	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Ethylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
2-Hexanone (MBK)	ND	0.42	mg/Kg dry	1	V-05	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Isopropylbenzene (Cumene)	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
p-Isopropyltoluene (p-Cymene)	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Methylene Chloride	ND	0.21	mg/Kg dry	1	RL-07	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
4-Methyl-2-pentanone (MIBK)	ND	0.42	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Naphthalene	ND	0.21	mg/Kg dry	1	RL-07	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
n-Propylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Styrene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1,1,2-Tetrachloroethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1,2,2-Tetrachloroethane	ND	0.021	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Tetrachloroethylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Tetrahydrofuran	ND	0.17	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Toluene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2,3-Trichlorobenzene	ND	0.21	mg/Kg dry	1	RL-07	SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2,4-Trichlorobenzene	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1,1-Trichloroethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,1,2-Trichloroethane	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Trichloroethylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Trichlorofluoromethane (Freon 11)	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2,3-Trichloropropane	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,2,4-Trimethylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
1,3,5-Trimethylbenzene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
Vinyl Chloride	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
m+p Xylene	ND	0.084	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH
o-Xylene	ND	0.042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/6/18 12:24	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	92.5	70-130		11/6/18 12:24
Toluene-d8	102	70-130		11/6/18 12:24
4-Bromofluorobenzene	103	70-130		11/6/18 12:24

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Aniline	ND	0.39	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
4-Chloroaniline	ND	0.76	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4-Dinitrophenol	ND	0.76	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Fluoranthene	0.23	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
4-Nitrophenol	ND	0.76	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Pyrene	0.27	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
Pyridine	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 16:53	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	68.8	30-130		11/3/18 16:53
Phenol-d6	72.8	30-130		11/3/18 16:53
Nitrobenzene-d5	71.0	30-130		11/3/18 16:53
2-Fluorobiphenyl	63.0	30-130		11/3/18 16:53
2,4,6-Tribromophenol	81.2	30-130		11/3/18 16:53
p-Terphenyl-d14	85.7	30-130		11/3/18 16:53

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Aldrin [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
alpha-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
beta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
delta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
gamma-BHC (Lindane) [1]	ND	0.0023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Chlordane [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
4,4'-DDD [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
4,4'-DDE [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
4,4'-DDT [1]	0.0088	0.0046	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Dieldrin [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endosulfan I [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endosulfan II [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endosulfan sulfate [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endrin [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endrin aldehyde [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Endrin ketone [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Heptachlor [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Heptachlor epoxide [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Hexachlorobenzene [1]	ND	0.0069	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Methoxychlor [1]	ND	0.057	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:01	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	73.1	30-150		11/3/18 14:01
Decachlorobiphenyl [2]	73.4	30-150		11/3/18 14:01
Tetrachloro-m-xylene [1]	78.2	30-150		11/3/18 14:01
Tetrachloro-m-xylene [2]	66.8	30-150		11/3/18 14:01

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:18	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.3	30-150		11/6/18 14:18
Decachlorobiphenyl [2]	86.8	30-150		11/6/18 14:18
Tetrachloro-m-xylene [1]	87.6	30-150		11/6/18 14:18
Tetrachloro-m-xylene [2]	89.9	30-150		11/6/18 14:18

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
2,4-DB [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
2,4,5-TP (Silvex) [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
2,4,5-T [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
Dalalpon [1]	ND	73	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
Dicamba [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
Dichloroprop [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
Dinoseb [1]	ND	15	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
MCPA [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG
MCPP [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 17:49	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	75.4	30-150		11/2/18 17:49
2,4-Dichlorophenylacetic acid [2]	81.4	30-150		11/2/18 17:49

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	24	9.8	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 23:39	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	72.9	40-140		11/2/18 23:39

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Arsenic	18	2.0	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Barium	61	2.0	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Beryllium	0.43	0.20	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Cadmium	0.57	0.20	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Chromium	18	0.40	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Lead	13	0.60	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:37	EJB
Nickel	15	0.40	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Selenium	ND	4.0	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Silver	ND	0.40	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Vanadium	26	0.80	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW
Zinc	26	0.80	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:28	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-51 | Sampled: 10/24/2018 10:57

Sample ID: 18J1553-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.6°C	6.5		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	2.9	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	84.6		% Wt	1		SM 2540G	11/5/18	11/6/18 9:19	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.085	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Bromomethane	ND	0.0085	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
2-Butanone (MEK)	ND	0.034	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Carbon Disulfide	ND	0.0051	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Chlorodibromomethane	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Chloroethane	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Chloroform	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Chloromethane	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2-Dibromoethane (EDB)	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1-Dichloroethylene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,3-Dichloropropane	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
cis-1,3-Dichloropropene	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
trans-1,3-Dichloropropene	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Diethyl Ether	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Diisopropyl Ether (DIPE)	ND	0.00085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,4-Dioxane	ND	0.085	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Methylene Chloride	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Naphthalene	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1,2,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Tetrahydrofuran	ND	0.0085	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2,3-Trichlorobenzene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2,4-Trichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
Vinyl Chloride	ND	0.0085	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
m+p Xylene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 8:40	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	96.0	70-130		11/1/18 8:40
Toluene-d8	95.6	70-130		11/1/18 8:40
4-Bromofluorobenzene	96.1	70-130		11/1/18 8:40

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Acenaphthylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Acetophenone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Aniline	ND	0.42	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Benzo(a)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Benzo(a)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Benzo(b)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Benzo(g,h,i)perylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Benzo(k)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Bis(2-chloroethoxy)methane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Bis(2-chloroethyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Bis(2-chloroisopropyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
4-Bromophenylphenylether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Butylbenzylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
4-Chloroaniline	ND	0.81	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2-Chloronaphthalene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2-Chlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Chrysene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Dibenzofuran	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Di-n-butylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
1,2-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
1,3-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
1,4-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4-Dichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Diethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4-Dimethylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Dimethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4-Dinitrophenol	ND	0.81	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,6-Dinitrotoluene	ND	0.42	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Di-n-octylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Hexachlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Hexachlorobutadiene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Hexachloroethane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Indeno(1,2,3-cd)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Isophorone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
3/4-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Nitrobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2-Nitrophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
4-Nitrophenol	ND	0.81	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Pentachlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Phenanthrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Phenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
Pyridine	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
1,2,4-Trichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4,5-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL
2,4,6-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 18:57	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	59.2	30-130		11/3/18 18:57
Phenol-d6	59.7	30-130		11/3/18 18:57
Nitrobenzene-d5	59.6	30-130		11/3/18 18:57
2-Fluorobiphenyl	50.6	30-130		11/3/18 18:57
2,4,6-Tribromophenol	63.0	30-130		11/3/18 18:57
p-Terphenyl-d14	69.8	30-130		11/3/18 18:57

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Aldrin [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
alpha-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
beta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
delta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
gamma-BHC (Lindane) [1]	ND	0.0025	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Chlordane [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
4,4'-DDD [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
4,4'-DDE [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
4,4'-DDT [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Dieldrin [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endosulfan I [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endosulfan II [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endosulfan sulfate [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endrin [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endrin aldehyde [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Endrin ketone [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Heptachlor [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Heptachlor epoxide [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Hexachlorobenzene [1]	ND	0.0074	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Methoxychlor [1]	ND	0.062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:29	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.3	30-150		11/3/18 14:29
Decachlorobiphenyl [2]	86.7	30-150		11/3/18 14:29
Tetrachloro-m-xylene [1]	95.2	30-150		11/3/18 14:29
Tetrachloro-m-xylene [2]	74.8	30-150		11/3/18 14:29

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1221 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1232 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1242 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1248 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1254 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1260 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1262 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG
Aroclor-1268 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:36	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	81.8	30-150		11/6/18 14:36
Decachlorobiphenyl [2]	81.8	30-150		11/6/18 14:36
Tetrachloro-m-xylene [1]	82.8	30-150		11/6/18 14:36
Tetrachloro-m-xylene [2]	85.8	30-150		11/6/18 14:36

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
2,4-DB [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
2,4,5-TP (Silvex) [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
2,4,5-T [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
Dalalpon [1]	ND	78	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
Dicamba [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
Dichloroprop [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
Dinoseb [1]	ND	16	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
MCPA [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG
MCPP [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 18:29	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	81.5	30-150		11/2/18 18:29
2,4-Dichlorophenylacetic acid [2]	87.6	30-150		11/2/18 18:29

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	12	10	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 22:09	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	71.6	40-140					11/2/18 22:09

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Arsenic	7.2	2.1	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Barium	36	2.1	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Beryllium	0.42	0.21	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Cadmium	0.26	0.21	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Chromium	14	0.42	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Lead	9.3	0.63	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Mercury	ND	0.031	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:39	EJB
Nickel	8.2	0.42	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Selenium	ND	4.2	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Silver	ND	0.42	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Thallium	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Vanadium	15	0.84	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW
Zinc	21	0.84	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:32	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-50 | Sampled: 10/25/2018 09:14

Sample ID: 18J1553-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.5°C	5.6		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	3.8	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	79.6		% Wt	1		SM 2540G	11/5/18	11/6/18 9:19	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.082	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Bromomethane	ND	0.0082	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
2-Butanone (MEK)	ND	0.033	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Carbon Disulfide	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Chlorodibromomethane	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Chloroethane	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Chloroform	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Chloromethane	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2-Dibromoethane (EDB)	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1-Dichloroethylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,3-Dichloropropane	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
cis-1,3-Dichloropropene	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
trans-1,3-Dichloropropene	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Diethyl Ether	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Diisopropyl Ether (DIPE)	ND	0.00082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,4-Dioxane	ND	0.082	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Methylene Chloride	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Naphthalene	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1,2,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Tetrahydrofuran	ND	0.0082	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2,3-Trichlorobenzene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
Vinyl Chloride	ND	0.0082	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
m+p Xylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:07	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	100	70-130		11/1/18 9:07
Toluene-d8	99.1	70-130		11/1/18 9:07
4-Bromofluorobenzene	99.8	70-130		11/1/18 9:07

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Acetophenone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Aniline	ND	0.37	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Benzo(b)fluoranthene	0.23	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Bis(2-chloroethoxy)methane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Bis(2-chloroisopropyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
4-Bromophenylphenylether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Butylbenzylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
4-Chloroaniline	ND	0.72	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2-Chloronaphthalene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2-Chlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Chrysene	0.19	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Dibenzofuran	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Di-n-butylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
1,2-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
1,3-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
1,4-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4-Dichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Diethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4-Dimethylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Dimethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4-Dinitrophenol	ND	0.72	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4-Dinitrotoluene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,6-Dinitrotoluene	ND	0.37	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Di-n-octylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Fluoranthene	0.26	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Hexachlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Hexachlorobutadiene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Hexachloroethane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Isophorone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
3/4-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Nitrobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2-Nitrophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
4-Nitrophenol	ND	0.72	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Pentachlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Phenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Pyrene	0.30	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
Pyridine	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
1,2,4-Trichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4,5-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL
2,4,6-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:23	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	64.7	30-130		11/3/18 19:23
Phenol-d6	66.9	30-130		11/3/18 19:23
Nitrobenzene-d5	65.3	30-130		11/3/18 19:23
2-Fluorobiphenyl	56.9	30-130		11/3/18 19:23
2,4,6-Tribromophenol	72.2	30-130		11/3/18 19:23
p-Terphenyl-d14	77.0	30-130		11/3/18 19:23

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Aldrin [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
alpha-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
beta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
delta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
gamma-BHC (Lindane) [1]	ND	0.0021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Chlordane [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
4,4'-DDD [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
4,4'-DDE [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
4,4'-DDT [1]	0.0098	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Dieldrin [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endosulfan I [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endosulfan II [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endosulfan sulfate [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endrin [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endrin aldehyde [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Endrin ketone [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Heptachlor [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Heptachlor epoxide [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Hexachlorobenzene [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Methoxychlor [1]	ND	0.052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG
Toxaphene [1]	ND	0.10	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 14:56	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	90.6	30-150		11/3/18 14:56
Decachlorobiphenyl [2]	91.8	30-150		11/3/18 14:56
Tetrachloro-m-xylene [1]	92.5	30-150		11/3/18 14:56
Tetrachloro-m-xylene [2]	75.1	30-150		11/3/18 14:56

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1221 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1232 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1242 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1248 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1254 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1260 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1262 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG
Aroclor-1268 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 14:54	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	89.3	30-150		11/6/18 14:54
Decachlorobiphenyl [2]	88.7	30-150		11/6/18 14:54
Tetrachloro-m-xylene [1]	86.5	30-150		11/6/18 14:54
Tetrachloro-m-xylene [2]	89.2	30-150		11/6/18 14:54

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
Dalalpon [1]	ND	69	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:09	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	73.0	30-150		11/2/18 19:09
2,4-Dichlorophenylacetic acid [2]	75.1	30-150		11/2/18 19:09

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	32	9.1	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 23:57	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	71.0	40-140		11/2/18 23:57

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Arsenic	14	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Barium	52	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Beryllium	0.48	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Cadmium	0.43	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Chromium	17	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Lead	14	0.55	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:40	EJB
Nickel	13	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Vanadium	21	0.73	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW
Zinc	29	0.73	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:37	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-37 | Sampled: 10/25/2018 10:20

Sample ID: 18J1553-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.3°C	4.8		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	ND	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	90.7		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.091	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Bromomethane	ND	0.0091	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
2-Butanone (MEK)	ND	0.036	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Carbon Disulfide	ND	0.0054	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Chlorodibromomethane	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Chloroethane	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Chloroform	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Chloromethane	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2-Dibromoethane (EDB)	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1-Dichloroethylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,3-Dichloropropane	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
cis-1,3-Dichloropropene	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
trans-1,3-Dichloropropene	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Diethyl Ether	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Diisopropyl Ether (DIPE)	ND	0.00091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,4-Dioxane	ND	0.091	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Methylene Chloride	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Naphthalene	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1,2,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Tetrahydrofuran	ND	0.0091	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2,3-Trichlorobenzene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
Vinyl Chloride	ND	0.0091	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
m+p Xylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 9:35	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	97.1	70-130		11/1/18 9:35
Toluene-d8	95.2	70-130		11/1/18 9:35
4-Bromofluorobenzene	98.2	70-130		11/1/18 9:35

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Aniline	ND	0.39	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
4-Chloroaniline	ND	0.77	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4-Dinitrophenol	ND	0.77	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
4-Nitrophenol	ND	0.77	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
Pyridine	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 19:49	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	63.7	30-130		11/3/18 19:49
Phenol-d6	64.8	30-130		11/3/18 19:49
Nitrobenzene-d5	65.4	30-130		11/3/18 19:49
2-Fluorobiphenyl	55.2	30-130		11/3/18 19:49
2,4,6-Tribromophenol	69.9	30-130		11/3/18 19:49
p-Terphenyl-d14	75.3	30-130		11/3/18 19:49

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Aldrin [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
alpha-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
beta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
delta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
gamma-BHC (Lindane) [1]	ND	0.0023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Chlordane [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
4,4'-DDD [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
4,4'-DDE [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
4,4'-DDT [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Dieldrin [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endosulfan I [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endosulfan II [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endosulfan sulfate [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endrin [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endrin aldehyde [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Endrin ketone [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Heptachlor [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Heptachlor epoxide [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Hexachlorobenzene [1]	ND	0.0068	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Methoxychlor [1]	ND	0.056	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:23	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.4	30-150		11/3/18 15:23
Decachlorobiphenyl [2]	74.7	30-150		11/3/18 15:23
Tetrachloro-m-xylene [1]	80.1	30-150		11/3/18 15:23
Tetrachloro-m-xylene [2]	65.9	30-150		11/3/18 15:23

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:11	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	79.2	30-150		11/6/18 15:11
Decachlorobiphenyl [2]	79.4	30-150		11/6/18 15:11
Tetrachloro-m-xylene [1]	79.3	30-150		11/6/18 15:11
Tetrachloro-m-xylene [2]	81.5	30-150		11/6/18 15:11

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
2,4-DB [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
2,4,5-TP (Silvex) [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
2,4,5-T [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
Dalalpon [1]	ND	72	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
Dicamba [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
Dichloroprop [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
MCPA [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG
MCPP [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 19:48	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	69.7	30-150		11/2/18 19:48	
2,4-Dichlorophenylacetic acid [2]	73.9	30-150		11/2/18 19:48	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	12	9.6	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 22:27	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	78.4	40-140					11/2/18 22:27

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1	MS-07	SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Arsenic	3.9	1.9	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Barium	26	1.9	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Beryllium	0.43	0.19	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Cadmium	ND	0.19	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Chromium	12	0.38	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Lead	13	0.57	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Mercury	ND	0.028	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:42	EJB
Nickel	8.1	0.38	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Selenium	ND	3.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Silver	ND	0.38	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Thallium	ND	1.9	mg/Kg dry	1	MS-14	SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Vanadium	15	0.77	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW
Zinc	16	0.77	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:23	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-38 | Sampled: 10/25/2018 11:05

Sample ID: 18J1553-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.6°C	4.3		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	4.4	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	86.2		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.086	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Bromomethane	ND	0.0086	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
2-Butanone (MEK)	ND	0.034	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Carbon Disulfide	ND	0.0052	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Chlorodibromomethane	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Chloroethane	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Chloroform	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Chloromethane	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2-Dibromoethane (EDB)	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1-Dichloroethylene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,3-Dichloropropane	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
cis-1,3-Dichloropropene	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
trans-1,3-Dichloropropene	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Diethyl Ether	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Diisopropyl Ether (DIPE)	ND	0.00086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,4-Dioxane	ND	0.086	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Methylene Chloride	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Naphthalene	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1,2,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Tetrahydrofuran	ND	0.0086	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2,3-Trichlorobenzene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2,4-Trichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
Vinyl Chloride	ND	0.0086	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
m+p Xylene	ND	0.0034	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:02	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	98.5	70-130		11/1/18 10:02
Toluene-d8	97.5	70-130		11/1/18 10:02
4-Bromofluorobenzene	97.6	70-130		11/1/18 10:02

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Acetophenone	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Aniline	ND	0.36	mg/Kg dry	1	V-34, V-05	SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Benzo(a)anthracene	0.57	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Benzo(a)pyrene	0.29	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Benzo(b)fluoranthene	0.59	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Benzo(k)fluoranthene	0.24	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Bis(2-chloroethoxy)methane	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Bis(2-chloroisopropyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
4-Bromophenylphenylether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Butylbenzylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
4-Chloroaniline	ND	0.71	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2-Chloronaphthalene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2-Chlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Chrysene	0.56	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Dibenzofuran	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Di-n-butylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
1,2-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
1,3-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
1,4-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4-Dichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Diethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4-Dimethylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Dimethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4-Dinitrophenol	ND	0.71	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,6-Dinitrotoluene	ND	0.36	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Di-n-octylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Fluoranthene	1.0	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Hexachlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Hexachlorobutadiene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Hexachloroethane	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Indeno(1,2,3-cd)pyrene	0.20	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Isophorone	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
3/4-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Nitrobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2-Nitrophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
4-Nitrophenol	ND	0.71	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Pentachlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Phenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Pyrene	1.1	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
Pyridine	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
1,2,4-Trichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4,5-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL
2,4,6-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:15	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	51.6	30-130		11/3/18 20:15
Phenol-d6	53.8	30-130		11/3/18 20:15
Nitrobenzene-d5	53.4	30-130		11/3/18 20:15
2-Fluorobiphenyl	46.5	30-130		11/3/18 20:15
2,4,6-Tribromophenol	55.4	30-130		11/3/18 20:15
p-Terphenyl-d14	60.3	30-130		11/3/18 20:15

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Aldrin [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
alpha-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
beta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
delta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
4,4'-DDD [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
4,4'-DDE [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
4,4'-DDT [1]	0.0089	0.0044	mg/Kg dry	1	P-01	SW-846 8081B	11/1/18	11/3/18 15:50	TG
Dieldrin [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endosulfan I [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endosulfan II [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endosulfan sulfate [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endrin [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endrin aldehyde [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Endrin ketone [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Heptachlor [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Heptachlor epoxide [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Hexachlorobenzene [1]	ND	0.0065	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Methoxychlor [1]	ND	0.054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 15:50	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	93.4	30-150		11/3/18 15:50
Decachlorobiphenyl [2]	93.4	30-150		11/3/18 15:50
Tetrachloro-m-xylene [1]	91.0	30-150		11/3/18 15:50
Tetrachloro-m-xylene [2]	72.5	30-150		11/3/18 15:50

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:28	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.2	30-150		11/6/18 15:28
Decachlorobiphenyl [2]	85.7	30-150		11/6/18 15:28
Tetrachloro-m-xylene [1]	83.2	30-150		11/6/18 15:28
Tetrachloro-m-xylene [2]	84.9	30-150		11/6/18 15:28

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
Dalalpon [1]	ND	68	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/2/18 20:28	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	74.4	30-150		11/2/18 20:28
2,4-Dichlorophenylacetic acid [2]	76.4	30-150		11/2/18 20:28

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	100	9.1	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/3/18 0:33	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	82.7	40-140					11/3/18 0:33

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Arsenic	11	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Barium	92	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Beryllium	0.48	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Cadmium	0.38	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Chromium	21	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Lead	12	0.55	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:48	EJB
Nickel	16	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Vanadium	29	0.74	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW
Zinc	40	0.74	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:42	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: SB-39 | Sampled: 10/25/2018 13:10

Sample ID: 18J1553-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.6°C	5.7		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	2.8	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	90.9		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.069	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Benzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Bromobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Bromochloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Bromodichloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Bromoform	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Bromomethane	ND	0.0069	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
2-Butanone (MEK)	ND	0.028	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
n-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
sec-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
tert-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Carbon Disulfide	ND	0.0042	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Carbon Tetrachloride	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Chlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Chlorodibromomethane	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Chloroethane	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Chloroform	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Chloromethane	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
2-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
4-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0014	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2-Dibromoethane (EDB)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Dibromomethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,3-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,4-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1-Dichloroethylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
cis-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
trans-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,3-Dichloropropane	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
2,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1-Dichloropropene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
cis-1,3-Dichloropropene	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
trans-1,3-Dichloropropene	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Diethyl Ether	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Diisopropyl Ether (DIPE)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,4-Dioxane	ND	0.069	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Ethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
2-Hexanone (MBK)	ND	0.014	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Isopropylbenzene (Cumene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Methylene Chloride	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Naphthalene	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
n-Propylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Styrene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1,1,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1,2,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Tetrachloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Tetrahydrofuran	ND	0.0069	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Toluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2,3-Trichlorobenzene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2,4-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1,1-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,1,2-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Trichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2,3-Trichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,2,4-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
1,3,5-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
Vinyl Chloride	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
m+p Xylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF
o-Xylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:29	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	99.1	70-130		11/1/18 10:29
Toluene-d8	96.0	70-130		11/1/18 10:29
4-Bromofluorobenzene	95.8	70-130		11/1/18 10:29

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Acetophenone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Aniline	ND	0.37	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Benzo(b)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Bis(2-chloroethoxy)methane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Bis(2-chloroisopropyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
4-Bromophenylphenylether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Butylbenzylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
4-Chloroaniline	ND	0.71	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2-Chloronaphthalene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2-Chlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Chrysene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Dibenzofuran	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Di-n-butylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
1,2-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
1,3-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
1,4-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4-Dichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Diethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4-Dimethylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Dimethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4-Dinitrophenol	ND	0.71	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4-Dinitrotoluene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,6-Dinitrotoluene	ND	0.37	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Di-n-octylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Hexachlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Hexachlorobutadiene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Hexachloroethane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Isophorone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
3/4-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Nitrobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2-Nitrophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
4-Nitrophenol	ND	0.71	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Pentachlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Phenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
Pyridine	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
1,2,4-Trichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4,5-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL
2,4,6-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 20:41	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	47.5	30-130		11/3/18 20:41
Phenol-d6	48.3	30-130		11/3/18 20:41
Nitrobenzene-d5	50.8	30-130		11/3/18 20:41
2-Fluorobiphenyl	41.3	30-130		11/3/18 20:41
2,4,6-Tribromophenol	50.6	30-130		11/3/18 20:41
p-Terphenyl-d14	55.3	30-130		11/3/18 20:41

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Aldrin [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
alpha-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
beta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
delta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
gamma-BHC (Lindane) [1]	ND	0.0021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Chlordane [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
4,4'-DDD [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
4,4'-DDE [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
4,4'-DDT [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Dieldrin [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endosulfan I [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endosulfan II [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endosulfan sulfate [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endrin [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endrin aldehyde [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Endrin ketone [1]	ND	0.0083	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Heptachlor [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Heptachlor epoxide [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Hexachlorobenzene [1]	ND	0.0063	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Methoxychlor [1]	ND	0.052	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG
Toxaphene [1]	ND	0.10	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 16:17	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	98.3	30-150		11/3/18 16:17
Decachlorobiphenyl [2]	98.6	30-150		11/3/18 16:17
Tetrachloro-m-xylene [1]	104	30-150		11/3/18 16:17
Tetrachloro-m-xylene [2]	84.0	30-150		11/3/18 16:17

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1221 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1232 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1242 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1248 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1254 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1260 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1262 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG
Aroclor-1268 [1]	ND	0.081	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 15:46	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	79.7	30-150		11/6/18 15:46
Decachlorobiphenyl [2]	79.9	30-150		11/6/18 15:46
Tetrachloro-m-xylene [1]	77.0	30-150		11/6/18 15:46
Tetrachloro-m-xylene [2]	79.1	30-150		11/6/18 15:46

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
Dalalpon [1]	ND	68	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 0:27	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	76.9	30-150		11/3/18 0:27
2,4-Dichlorophenylacetic acid [2]	82.7	30-150		11/3/18 0:27

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Sample ID: 18J1553-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	26	9.1	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 22:45	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	75.3	40-140					11/2/18 22:45

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Sample ID: 18J1553-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Arsenic	5.6	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Barium	26	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Beryllium	0.26	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Cadmium	0.18	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Chromium	8.6	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Lead	19	0.54	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:35	EJB
Nickel	7.2	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Selenium	ND	3.6	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Silver	ND	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Vanadium	11	0.72	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW
Zinc	15	0.72	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:47	QNW

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Date Received: 10/31/2018

Field Sample #: MP37 | Sampled: 10/26/2018 08:30

Sample ID: 18J1553-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @21.6°C	4.9		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	3.0	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	91.3		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.073	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Bromomethane	ND	0.0073	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
2-Butanone (MEK)	ND	0.029	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Carbon Disulfide	ND	0.0044	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Chlorodibromomethane	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Chloroethane	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Chloroform	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Chloromethane	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2-Dibromoethane (EDB)	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1-Dichloroethylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,3-Dichloropropane	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
cis-1,3-Dichloropropene	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
trans-1,3-Dichloropropene	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Diethyl Ether	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Diisopropyl Ether (DIPE)	ND	0.00073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,4-Dioxane	ND	0.073	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Methylene Chloride	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Naphthalene	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1,2,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Tetrahydrofuran	ND	0.0073	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2,3-Trichlorobenzene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
Vinyl Chloride	ND	0.0073	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
m+p Xylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 10:56	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	95.8	70-130		11/1/18 10:56
Toluene-d8	95.4	70-130		11/1/18 10:56
4-Bromofluorobenzene	96.2	70-130		11/1/18 10:56

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Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Acetophenone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Aniline	ND	0.37	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Benzo(b)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Bis(2-chloroethoxy)methane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Bis(2-chloroisopropyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
4-Bromophenylphenylether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Butylbenzylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
4-Chloroaniline	ND	0.71	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2-Chloronaphthalene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2-Chlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Chrysene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Dibenzofuran	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Di-n-butylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
1,2-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
1,3-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
1,4-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4-Dichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Diethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4-Dimethylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Dimethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4-Dinitrophenol	ND	0.71	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4-Dinitrotoluene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,6-Dinitrotoluene	ND	0.37	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Di-n-octylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Hexachlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Hexachlorobutadiene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Hexachloroethane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Isophorone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
3/4-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Nitrobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2-Nitrophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
4-Nitrophenol	ND	0.71	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Pentachlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Phenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
Pyridine	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
1,2,4-Trichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4,5-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL
2,4,6-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:07	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	68.7	30-130		11/3/18 21:07
Phenol-d6	72.6	30-130		11/3/18 21:07
Nitrobenzene-d5	70.6	30-130		11/3/18 21:07
2-Fluorobiphenyl	60.0	30-130		11/3/18 21:07
2,4,6-Tribromophenol	78.6	30-130		11/3/18 21:07
p-Terphenyl-d14	82.4	30-130		11/3/18 21:07

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Aldrin [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
alpha-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
beta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
delta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
4,4'-DDD [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
4,4'-DDE [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
4,4'-DDT [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Dieldrin [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endosulfan I [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endosulfan II [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endosulfan sulfate [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endrin [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endrin aldehyde [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Endrin ketone [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Heptachlor [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Heptachlor epoxide [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Hexachlorobenzene [1]	ND	0.0065	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Methoxychlor [1]	ND	0.054	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:23	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.9	30-150		11/3/18 19:23
Decachlorobiphenyl [2]	86.8	30-150		11/3/18 19:23
Tetrachloro-m-xylene [1]	89.7	30-150		11/3/18 19:23
Tetrachloro-m-xylene [2]	74.9	30-150		11/3/18 19:23

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:03	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	92.9	30-150		11/6/18 16:03
Decachlorobiphenyl [2]	92.9	30-150		11/6/18 16:03
Tetrachloro-m-xylene [1]	91.0	30-150		11/6/18 16:03
Tetrachloro-m-xylene [2]	93.8	30-150		11/6/18 16:03

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Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
Dalalpon [1]	ND	68	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:07	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	101	30-150		11/3/18 1:07
2,4-Dichlorophenylacetic acid [2]	104	30-150		11/3/18 1:07

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Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	18	9.0	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 23:03	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	76.9	40-140		11/2/18 23:03

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Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Arsenic	11	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Barium	78	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Beryllium	0.49	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Cadmium	0.35	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Chromium	21	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Lead	12	0.54	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:49	EJB
Nickel	18	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Selenium	ND	3.6	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Silver	ND	0.36	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Vanadium	23	0.71	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW
Zinc	43	0.71	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:52	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP38 | Sampled: 10/26/2018 10:05

Sample ID: 18J1553-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @22.2°C	5.6		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	3.5	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	91.5		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.077	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Bromomethane	ND	0.0077	mg/Kg dry	1	V-34	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
2-Butanone (MEK)	ND	0.031	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Carbon Disulfide	ND	0.0046	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Chlorodibromomethane	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Chloroethane	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Chloroform	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Chloromethane	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2-Dibromoethane (EDB)	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1-Dichloroethylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,3-Dichloropropane	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
cis-1,3-Dichloropropene	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
trans-1,3-Dichloropropene	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Diethyl Ether	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Diisopropyl Ether (DIPE)	ND	0.00077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,4-Dioxane	ND	0.077	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Methylene Chloride	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Naphthalene	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1,2,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1	R-05	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Tetrahydrofuran	ND	0.0077	mg/Kg dry	1	V-16	SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2,3-Trichlorobenzene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
Vinyl Chloride	ND	0.0077	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
m+p Xylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/1/18	11/1/18 11:30	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	99.8	70-130		11/1/18 11:30
Toluene-d8	96.5	70-130		11/1/18 11:30
4-Bromofluorobenzene	98.3	70-130		11/1/18 11:30

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Acetophenone	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Aniline	ND	0.38	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Benzo(a)anthracene	0.45	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Benzo(a)pyrene	0.45	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Benzo(b)fluoranthene	0.83	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Benzo(g,h,i)perylene	0.22	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Benzo(k)fluoranthene	0.35	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Bis(2-chloroethoxy)methane	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Bis(2-chloroethyl)ether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Bis(2-chloroisopropyl)ether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
4-Bromophenylphenylether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Butylbenzylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
4-Chloroaniline	ND	0.73	mg/Kg dry	1	V-34	SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2-Chloronaphthalene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2-Chlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Chrysene	0.46	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Dibenzofuran	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Di-n-butylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
1,2-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
1,3-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
1,4-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4-Dichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Diethylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4-Dimethylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Dimethylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4-Dinitrophenol	ND	0.73	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4-Dinitrotoluene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,6-Dinitrotoluene	ND	0.38	mg/Kg dry	1	V-20	SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Di-n-octylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Fluoranthene	0.45	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Hexachlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Hexachlorobutadiene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Hexachloroethane	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Indeno(1,2,3-cd)pyrene	0.30	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Isophorone	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
3/4-Methylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Nitrobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2-Nitrophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
4-Nitrophenol	ND	0.73	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Pentachlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Phenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Pyrene	0.72	0.19	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
Pyridine	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
1,2,4-Trichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4,5-Trichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL
2,4,6-Trichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/2/18	11/3/18 21:33	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	72.8	30-130		11/3/18 21:33
Phenol-d6	78.1	30-130		11/3/18 21:33
Nitrobenzene-d5	74.5	30-130		11/3/18 21:33
2-Fluorobiphenyl	64.9	30-130		11/3/18 21:33
2,4,6-Tribromophenol	86.1	30-130		11/3/18 21:33
p-Terphenyl-d14	86.4	30-130		11/3/18 21:33

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Aldrin [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
alpha-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
beta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
delta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
4,4'-DDD [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
4,4'-DDE [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
4,4'-DDT [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Dieldrin [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endosulfan I [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endosulfan II [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endosulfan sulfate [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endrin [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endrin aldehyde [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Endrin ketone [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Heptachlor [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Heptachlor epoxide [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Hexachlorobenzene [1]	ND	0.0066	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Methoxychlor [1]	ND	0.055	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/1/18	11/3/18 19:50	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	109	30-150		11/3/18 19:50
Decachlorobiphenyl [2]	112	30-150		11/3/18 19:50
Tetrachloro-m-xylene [1]	95.5	30-150		11/3/18 19:50
Tetrachloro-m-xylene [2]	80.3	30-150		11/3/18 19:50

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1221 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1232 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1242 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1248 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1254 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1260 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1262 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG
Aroclor-1268 [1]	ND	0.082	mg/Kg dry	4		SW-846 8082A	11/1/18	11/6/18 16:21	PJG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	86.4	30-150		11/6/18 16:21
Decachlorobiphenyl [2]	86.7	30-150		11/6/18 16:21
Tetrachloro-m-xylene [1]	85.1	30-150		11/6/18 16:21
Tetrachloro-m-xylene [2]	87.1	30-150		11/6/18 16:21

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
Dalalpon [1]	ND	69	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/1/18	11/3/18 1:47	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	72.0	30-150		11/3/18 1:47
2,4-Dichlorophenylacetic acid [2]	78.4	30-150		11/3/18 1:47

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	31	9.0	mg/Kg dry	1		SW-846 8100 Modified	11/2/18	11/2/18 23:21	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	80.1	40-140		11/2/18 23:21

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Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Arsenic	7.3	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Barium	120	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Beryllium	0.60	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Cadmium	0.27	0.18	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Chromium	20	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Lead	8.7	0.55	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	11/6/18	11/6/18 13:51	EJB
Nickel	16	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Vanadium	22	0.73	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW
Zinc	33	0.73	mg/Kg dry	1		SW-846 6010D	11/5/18	11/6/18 13:57	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18J1553

Date Received: 10/31/2018

Field Sample #: MP39 | Sampled: 10/26/2018 12:35

Sample ID: 18J1553-08

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/2/18	11/2/18 14:48	LED
pH @22.3°C	5.7		pH Units	1	H-03	SW-846 9045C	11/1/18	11/1/18 19:46	AIA
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/1/18	11/5/18 17:05	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/1/18	11/5/18 15:05	DJM
Specific conductance	2.4	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/1/18	11/1/18 15:00	EC
% Solids	90.6		% Wt	1		SM 2540G	11/5/18	11/6/18 9:20	MJR

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18J1553-01 [SB-51]	B216456	11/05/18
18J1553-02 [SB-50]	B216456	11/05/18
18J1553-03 [SB-37]	B216456	11/05/18
18J1553-04 [SB-38]	B216456	11/05/18
18J1553-05 [SB-39]	B216456	11/05/18
18J1553-06 [MP37]	B216456	11/05/18
18J1553-07 [MP38]	B216456	11/05/18
18J1553-08 [MP39]	B216456	11/05/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18J1553-01 [SB-51]	B216167	1.00	11/01/18
18J1553-02 [SB-50]	B216167	1.00	11/01/18
18J1553-03 [SB-37]	B216167	1.00	11/01/18
18J1553-04 [SB-38]	B216167	1.00	11/01/18
18J1553-05 [SB-39]	B216167	1.00	11/01/18
18J1553-06 [MP37]	B216167	1.00	11/01/18
18J1553-07 [MP38]	B216167	1.00	11/01/18
18J1553-08 [MP39]	B216167	1.00	11/01/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18J1553-01 [SB-51]	B216314	50.0	11/02/18
18J1553-02 [SB-50]	B216314	50.0	11/02/18
18J1553-03 [SB-37]	B216314	50.0	11/02/18
18J1553-04 [SB-38]	B216314	50.0	11/02/18
18J1553-05 [SB-39]	B216314	50.0	11/02/18
18J1553-06 [MP37]	B216314	50.0	11/02/18
18J1553-07 [MP38]	B216314	50.0	11/02/18
18J1553-08 [MP39]	B216314	50.0	11/02/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216433	1.48	50.0	11/05/18
18J1553-02 [SB-50]	B216433	1.50	50.0	11/05/18
18J1553-03 [SB-37]	B216433	1.51	50.0	11/05/18
18J1553-04 [SB-38]	B216433	1.52	50.0	11/05/18
18J1553-05 [SB-39]	B216433	1.49	50.0	11/05/18
18J1553-06 [MP37]	B216433	1.51	50.0	11/05/18
18J1553-07 [MP38]	B216433	1.53	50.0	11/05/18
18J1553-08 [MP39]	B216433	1.50	50.0	11/05/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216478	0.596	50.0	11/06/18
18J1553-02 [SB-50]	B216478	0.613	50.0	11/06/18

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Sample Extraction Data

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-03 [SB-37]	B216478	0.604	50.0	11/06/18
18J1553-04 [SB-38]	B216478	0.621	50.0	11/06/18
18J1553-05 [SB-39]	B216478	0.605	50.0	11/06/18
18J1553-06 [MP37]	B216478	0.619	50.0	11/06/18
18J1553-07 [MP38]	B216478	0.612	50.0	11/06/18
18J1553-08 [MP39]	B216478	0.614	50.0	11/06/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216154	10.3	10.0	11/01/18
18J1553-02 [SB-50]	B216154	10.2	10.0	11/01/18
18J1553-03 [SB-37]	B216154	10.6	10.0	11/01/18
18J1553-04 [SB-38]	B216154	10.3	10.0	11/01/18
18J1553-05 [SB-39]	B216154	10.1	10.0	11/01/18
18J1553-06 [MP37]	B216154	10.5	10.0	11/01/18
18J1553-07 [MP38]	B216154	10.1	10.0	11/01/18
18J1553-08 [MP39]	B216154	10.1	10.0	11/01/18

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216139	10.5	10.0	11/01/18
18J1553-02 [SB-50]	B216139	10.1	10.0	11/01/18
18J1553-03 [SB-37]	B216139	10.9	10.0	11/01/18
18J1553-04 [SB-38]	B216139	10.4	10.0	11/01/18
18J1553-05 [SB-39]	B216139	10.3	10.0	11/01/18
18J1553-06 [MP37]	B216139	10.8	10.0	11/01/18
18J1553-07 [MP38]	B216139	10.2	10.0	11/01/18
18J1553-08 [MP39]	B216139	10.8	10.0	11/01/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216247	30.1	1.00	11/02/18
18J1553-02 [SB-50]	B216247	30.1	1.00	11/02/18
18J1553-03 [SB-37]	B216247	30.2	1.00	11/02/18
18J1553-04 [SB-38]	B216247	30.1	1.00	11/02/18
18J1553-05 [SB-39]	B216247	30.3	1.00	11/02/18
18J1553-06 [MP37]	B216247	30.1	1.00	11/02/18
18J1553-07 [MP38]	B216247	30.2	1.00	11/02/18
18J1553-08 [MP39]	B216247	30.7	1.00	11/02/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216140	20.1	5.00	11/01/18
18J1553-02 [SB-50]	B216140	20.1	5.00	11/01/18
18J1553-03 [SB-37]	B216140	20.1	5.00	11/01/18
18J1553-04 [SB-38]	B216140	20.2	5.00	11/01/18

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Sample Extraction Data

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-05 [SB-39]	B216140	20.2	5.00	11/01/18
18J1553-06 [MP37]	B216140	20.0	5.00	11/01/18
18J1553-07 [MP38]	B216140	20.1	5.00	11/01/18
18J1553-08 [MP39]	B216140	20.1	5.00	11/01/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Sample Amount(g)	Methanol Volume(mL)	Methanol Aliquot(mL)	Final Volume(mL)	Date
18J1553-01 [SB-51]	B216161	8.91	6.37	1	50	11/01/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-02 [SB-50]	B216165	7.35	10.0	11/01/18
18J1553-03 [SB-37]	B216165	6.69	10.0	11/01/18
18J1553-04 [SB-38]	B216165	6.39	10.0	11/01/18
18J1553-05 [SB-39]	B216165	6.39	10.0	11/01/18
18J1553-06 [MP37]	B216165	7.90	10.0	11/01/18
18J1553-07 [MP38]	B216165	7.51	10.0	11/01/18
18J1553-08 [MP39]	B216165	7.21	10.0	11/01/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216271	30.8	1.00	11/02/18
18J1553-02 [SB-50]	B216271	30.7	1.00	11/02/18
18J1553-03 [SB-37]	B216271	30.5	1.00	11/02/18
18J1553-04 [SB-38]	B216271	30.0	1.00	11/02/18
18J1553-05 [SB-39]	B216271	30.8	1.00	11/02/18
18J1553-06 [MP37]	B216271	30.5	1.00	11/02/18
18J1553-07 [MP38]	B216271	30.5	1.00	11/02/18
18J1553-08 [MP39]	B216271	30.0	1.00	11/02/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216215	25.5	250	11/01/18
18J1553-02 [SB-50]	B216215	25.1	250	11/01/18
18J1553-03 [SB-37]	B216215	25.7	250	11/01/18
18J1553-04 [SB-38]	B216215	25.2	250	11/01/18
18J1553-05 [SB-39]	B216215	25.3	250	11/01/18
18J1553-06 [MP37]	B216215	25.8	250	11/01/18
18J1553-07 [MP38]	B216215	25.2	250	11/01/18
18J1553-08 [MP39]	B216215	25.6	250	11/01/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-01 [SB-51]	B216441	25.5	250	11/01/18

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Sample Extraction Data

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1553-02 [SB-50]	B216441	25.1	250	11/01/18
18J1553-03 [SB-37]	B216441	25.7	250	11/01/18
18J1553-04 [SB-38]	B216441	25.2	250	11/01/18
18J1553-05 [SB-39]	B216441	25.3	250	11/01/18
18J1553-06 [MP37]	B216441	25.8	250	11/01/18
18J1553-07 [MP38]	B216441	25.2	250	11/01/18
18J1553-08 [MP39]	B216441	25.6	250	11/01/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18J1553-01 [SB-51]	B216238	20.0	11/01/18
18J1553-02 [SB-50]	B216238	20.0	11/01/18
18J1553-03 [SB-37]	B216238	20.0	11/01/18
18J1553-04 [SB-38]	B216238	20.0	11/01/18
18J1553-05 [SB-39]	B216238	20.0	11/01/18
18J1553-06 [MP37]	B216238	20.0	11/01/18
18J1553-07 [MP38]	B216238	20.0	11/01/18
18J1553-08 [MP39]	B216238	20.0	11/01/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216161 - SW-846 5035										
Blank (B216161-BLK1)				Prepared: 11/01/18 Analyzed: 11/06/18						
Acetone	ND	2.5	mg/Kg wet							R-05, V-05
tert-Amyl Methyl Ether (TAME)	ND	0.025	mg/Kg wet							V-05
Benzene	ND	0.050	mg/Kg wet							
Bromobenzene	ND	0.050	mg/Kg wet							
Bromochloromethane	ND	0.050	mg/Kg wet							
Bromodichloromethane	ND	0.050	mg/Kg wet							
Bromoform	ND	0.050	mg/Kg wet							
Bromomethane	ND	0.10	mg/Kg wet							R-05
2-Butanone (MEK)	ND	1.0	mg/Kg wet							R-05, V-05
n-Butylbenzene	ND	0.050	mg/Kg wet							
sec-Butylbenzene	ND	0.050	mg/Kg wet							
tert-Butylbenzene	ND	0.050	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.025	mg/Kg wet							
Carbon Disulfide	ND	0.50	mg/Kg wet							
Carbon Tetrachloride	ND	0.050	mg/Kg wet							
Chlorobenzene	ND	0.050	mg/Kg wet							
Chlorodibromomethane	ND	0.025	mg/Kg wet							
Chloroethane	ND	0.10	mg/Kg wet							
Chloroform	ND	0.10	mg/Kg wet							
Chloromethane	ND	0.10	mg/Kg wet							
2-Chlorotoluene	ND	0.050	mg/Kg wet							
4-Chlorotoluene	ND	0.050	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.20	mg/Kg wet							V-05
1,2-Dibromoethane (EDB)	ND	0.025	mg/Kg wet							
Dibromomethane	ND	0.050	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.050	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.050	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.050	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.10	mg/Kg wet							
1,1-Dichloroethane	ND	0.050	mg/Kg wet							
1,2-Dichloroethane	ND	0.050	mg/Kg wet							
1,1-Dichloroethylene	ND	0.050	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.050	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.050	mg/Kg wet							
1,2-Dichloropropane	ND	0.050	mg/Kg wet							
1,3-Dichloropropane	ND	0.025	mg/Kg wet							
2,2-Dichloropropane	ND	0.050	mg/Kg wet							
1,1-Dichloropropene	ND	0.10	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.025	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.025	mg/Kg wet							
Diethyl Ether	ND	0.10	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.025	mg/Kg wet							
1,4-Dioxane	ND	2.5	mg/Kg wet							V-05, V-16
Ethylbenzene	ND	0.050	mg/Kg wet							
Hexachlorobutadiene	ND	0.050	mg/Kg wet							
2-Hexanone (MBK)	ND	0.50	mg/Kg wet							V-05
Isopropylbenzene (Cumene)	ND	0.050	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
Methylene Chloride	ND	0.25	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.50	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216161 - SW-846 5035											
Blank (B216161-BLK1)				Prepared: 11/01/18 Analyzed: 11/06/18							
n-Propylbenzene	ND	0.050	mg/Kg wet								
Styrene	ND	0.050	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.050	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.025	mg/Kg wet								
Tetrachloroethylene	ND	0.050	mg/Kg wet								
Tetrahydrofuran	ND	0.20	mg/Kg wet								
Toluene	ND	0.050	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.20	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.050	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.050	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.050	mg/Kg wet								
Trichloroethylene	ND	0.050	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.10	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.10	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.050	mg/Kg wet								
Vinyl Chloride	ND	0.10	mg/Kg wet								
m+p Xylene	ND	0.10	mg/Kg wet								
o-Xylene	ND	0.050	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0218*		mg/Kg wet	0.0250		87.3	70-130				
Surrogate: Toluene-d8	*0.0257*		mg/Kg wet	0.0250		103	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0259*		mg/Kg wet	0.0250		104	70-130				
LCS (B216161-BS1)				Prepared: 11/01/18 Analyzed: 11/06/18							
Acetone	0.0843	0.057	mg/Kg wet	0.113		74.4	40-160			V-05, R-05	†
tert-Amyl Methyl Ether (TAME)	0.00862	0.00057	mg/Kg wet	0.0113		76.1	70-130			V-05	
Benzene	0.0110	0.0011	mg/Kg wet	0.0113		97.4	70-130				
Bromobenzene	0.0112	0.0011	mg/Kg wet	0.0113		98.8	70-130				
Bromochloromethane	0.0121	0.0011	mg/Kg wet	0.0113		106	70-130				
Bromodichloromethane	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130				
Bromoform	0.0102	0.0011	mg/Kg wet	0.0113		90.1	70-130				
Bromomethane	0.00677	0.0023	mg/Kg wet	0.0113		59.7	40-160			R-05, L-14	†
2-Butanone (MEK)	0.0800	0.023	mg/Kg wet	0.113		70.6	40-160			V-05, R-05	†
n-Butylbenzene	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130				
sec-Butylbenzene	0.0125	0.0011	mg/Kg wet	0.0113		110	70-130				
tert-Butylbenzene	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.00954	0.00057	mg/Kg wet	0.0113		84.2	70-130				
Carbon Disulfide	0.0140	0.011	mg/Kg wet	0.0113		124	70-130				
Carbon Tetrachloride	0.0122	0.0011	mg/Kg wet	0.0113		108	70-130				
Chlorobenzene	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130				
Chlorodibromomethane	0.0129	0.00057	mg/Kg wet	0.0113		114	70-130				
Chloroethane	0.0108	0.0023	mg/Kg wet	0.0113		94.9	70-130				
Chloroform	0.0115	0.0023	mg/Kg wet	0.0113		102	70-130				
Chloromethane	0.0106	0.0023	mg/Kg wet	0.0113		93.3	40-160				†
2-Chlorotoluene	0.0105	0.0011	mg/Kg wet	0.0113		93.0	70-130				
4-Chlorotoluene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.00839	0.0045	mg/Kg wet	0.0113		74.0	70-130			V-05	
1,2-Dibromoethane (EDB)	0.0115	0.00057	mg/Kg wet	0.0113		102	70-130				
Dibromomethane	0.0125	0.0011	mg/Kg wet	0.0113		110	70-130				
1,2-Dichlorobenzene	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130				
1,3-Dichlorobenzene	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130				
1,4-Dichlorobenzene	0.0113	0.0011	mg/Kg wet	0.0113		99.9	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216161 - SW-846 5035											
LCS (B216161-BS1)				Prepared: 11/01/18 Analyzed: 11/06/18							
Dichlorodifluoromethane (Freon 12)	0.0120	0.0023	mg/Kg wet	0.0113		106	40-160				†
1,1-Dichloroethane	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130				
1,2-Dichloroethane	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130				
1,1-Dichloroethylene	0.0113	0.0011	mg/Kg wet	0.0113		99.4	70-130				
cis-1,2-Dichloroethylene	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130				
trans-1,2-Dichloroethylene	0.0125	0.0011	mg/Kg wet	0.0113		111	70-130				
1,2-Dichloropropane	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130				
1,3-Dichloropropane	0.0110	0.00057	mg/Kg wet	0.0113		96.7	70-130				
2,2-Dichloropropane	0.0128	0.0011	mg/Kg wet	0.0113		113	70-130				
1,1-Dichloropropene	0.0119	0.0023	mg/Kg wet	0.0113		105	70-130				
cis-1,3-Dichloropropene	0.0125	0.00057	mg/Kg wet	0.0113		111	70-130				
trans-1,3-Dichloropropene	0.0134	0.00057	mg/Kg wet	0.0113		118	70-130				
Diethyl Ether	0.0118	0.0023	mg/Kg wet	0.0113		104	70-130				
Diisopropyl Ether (DIPE)	0.0113	0.00057	mg/Kg wet	0.0113		99.3	70-130				
1,4-Dioxane	0.0826	0.057	mg/Kg wet	0.113		72.9	40-160			V-05, V-16	†
Ethylbenzene	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130				
Hexachlorobutadiene	0.0130	0.0011	mg/Kg wet	0.0113		114	70-130				
2-Hexanone (MBK)	0.0914	0.011	mg/Kg wet	0.113		80.6	40-160			V-05	†
Isopropylbenzene (Cumene)	0.0117	0.0011	mg/Kg wet	0.0113		104	70-130				
p-Isopropyltoluene (p-Cymene)	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0109	0.0011	mg/Kg wet	0.0113		96.4	70-130				
Methylene Chloride	0.0113	0.0057	mg/Kg wet	0.0113		100	70-130				
4-Methyl-2-pentanone (MIBK)	0.0910	0.011	mg/Kg wet	0.113		80.3	40-160				†
Naphthalene	0.0102	0.0023	mg/Kg wet	0.0113		90.4	70-130				
n-Propylbenzene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130				
Styrene	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130				
1,1,1,2-Tetrachloroethane	0.0116	0.0011	mg/Kg wet	0.0113		102	70-130				
1,1,2,2-Tetrachloroethane	0.00954	0.00057	mg/Kg wet	0.0113		84.2	70-130				
Tetrachloroethylene	0.0123	0.0011	mg/Kg wet	0.0113		109	70-130				
Tetrahydrofuran	0.00916	0.0045	mg/Kg wet	0.0113		80.8	70-130				
Toluene	0.0117	0.0011	mg/Kg wet	0.0113		104	70-130				
1,2,3-Trichlorobenzene	0.0112	0.0045	mg/Kg wet	0.0113		99.1	70-130				
1,2,4-Trichlorobenzene	0.0102	0.0011	mg/Kg wet	0.0113		90.3	70-130				
1,1,1-Trichloroethane	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130				
1,1,2-Trichloroethane	0.0113	0.0011	mg/Kg wet	0.0113		100	70-130				
Trichloroethylene	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130				
Trichlorofluoromethane (Freon 11)	0.0110	0.0023	mg/Kg wet	0.0113		96.9	70-130				
1,2,3-Trichloropropane	0.00920	0.0023	mg/Kg wet	0.0113		81.2	70-130				
1,2,4-Trimethylbenzene	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130				
1,3,5-Trimethylbenzene	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130				
Vinyl Chloride	0.0142	0.0023	mg/Kg wet	0.0113		125	70-130				
m+p Xylene	0.0232	0.0023	mg/Kg wet	0.0227		102	70-130				
o-Xylene	0.0117	0.0011	mg/Kg wet	0.0113		103	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0254*		mg/Kg wet	0.0283		89.6	70-130				
Surrogate: Toluene-d8	*0.0284*		mg/Kg wet	0.0283		100	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0287*		mg/Kg wet	0.0283		101	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B216161 - SW-846 5035												
LCS Dup (B216161-BSD1)				Prepared: 11/01/18 Analyzed: 11/06/18								
Acetone	0.139	0.057	mg/Kg wet	0.113		122	40-160	**48.7**	*	20	R-05, V-05	†
tert-Amyl Methyl Ether (TAME)	0.00859	0.00057	mg/Kg wet	0.0113		75.8	70-130	0.395		20	V-05	
Benzene	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130	3.53		20		
Bromobenzene	0.0116	0.0011	mg/Kg wet	0.0113		102	70-130	3.29		20		
Bromochloromethane	0.0129	0.0011	mg/Kg wet	0.0113		114	70-130	6.63		20		
Bromodichloromethane	0.0127	0.0011	mg/Kg wet	0.0113		112	70-130	6.65		20		
Bromoform	0.00996	0.0011	mg/Kg wet	0.0113		87.9	70-130	2.47		20		
Bromomethane	0.00884	0.0023	mg/Kg wet	0.0113		78.0	40-160	**26.6**	*	20	R-05	†
2-Butanone (MEK)	0.108	0.023	mg/Kg wet	0.113		95.3	40-160	**29.7**	*	20	R-05, V-05	†
n-Butylbenzene	0.0122	0.0011	mg/Kg wet	0.0113		108	70-130	1.20		20		
sec-Butylbenzene	0.0122	0.0011	mg/Kg wet	0.0113		108	70-130	1.84		20		
tert-Butylbenzene	0.0116	0.0011	mg/Kg wet	0.0113		102	70-130	0.393		20		
tert-Butyl Ethyl Ether (TBEE)	0.00874	0.00057	mg/Kg wet	0.0113		77.1	70-130	8.80		20		
Carbon Disulfide	0.0138	0.011	mg/Kg wet	0.0113		122	70-130	1.96		20		
Carbon Tetrachloride	0.0123	0.0011	mg/Kg wet	0.0113		109	70-130	0.833		20		
Chlorobenzene	0.0117	0.0011	mg/Kg wet	0.0113		104	70-130	2.44		20		
Chlorodibromomethane	0.0130	0.00057	mg/Kg wet	0.0113		115	70-130	0.961		20		
Chloroethane	0.0124	0.0023	mg/Kg wet	0.0113		109	70-130	14.0		20		
Chloroform	0.0119	0.0023	mg/Kg wet	0.0113		105	70-130	3.48		20		
Chloromethane	0.0128	0.0023	mg/Kg wet	0.0113		113	40-160	19.0		20		†
2-Chlorotoluene	0.0107	0.0011	mg/Kg wet	0.0113		94.3	70-130	1.39		20		
4-Chlorotoluene	0.0123	0.0011	mg/Kg wet	0.0113		108	70-130	2.24		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.00841	0.0045	mg/Kg wet	0.0113		74.2	70-130	0.270		20	V-05	
1,2-Dibromoethane (EDB)	0.0123	0.00057	mg/Kg wet	0.0113		109	70-130	6.66		20		
Dibromomethane	0.0130	0.0011	mg/Kg wet	0.0113		115	70-130	3.91		20		
1,2-Dichlorobenzene	0.0114	0.0011	mg/Kg wet	0.0113		101	70-130	0.691		20		
1,3-Dichlorobenzene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130	1.92		20		
1,4-Dichlorobenzene	0.0115	0.0011	mg/Kg wet	0.0113		102	70-130	1.59		20		
Dichlorodifluoromethane (Freon 12)	0.0122	0.0023	mg/Kg wet	0.0113		108	40-160	1.59		20		†
1,1-Dichloroethane	0.0124	0.0011	mg/Kg wet	0.0113		109	70-130	2.04		20		
1,2-Dichloroethane	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130	4.14		20		
1,1-Dichloroethylene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130	5.29		20		
cis-1,2-Dichloroethylene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130	2.49		20		
trans-1,2-Dichloroethylene	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130	0.181		20		
1,2-Dichloropropane	0.0122	0.0011	mg/Kg wet	0.0113		108	70-130	5.73		20		
1,3-Dichloropropane	0.0115	0.00057	mg/Kg wet	0.0113		102	70-130	5.14		20		
2,2-Dichloropropane	0.0124	0.0011	mg/Kg wet	0.0113		110	70-130	2.79		20		
1,1-Dichloropropene	0.0119	0.0023	mg/Kg wet	0.0113		105	70-130	0.477		20		
cis-1,3-Dichloropropene	0.0132	0.00057	mg/Kg wet	0.0113		117	70-130	5.45		20		
trans-1,3-Dichloropropene	0.0139	0.00057	mg/Kg wet	0.0113		123	70-130	3.56		20		
Diethyl Ether	0.0123	0.0023	mg/Kg wet	0.0113		109	70-130	3.85		20		
Diisopropyl Ether (DIPE)	0.0117	0.00057	mg/Kg wet	0.0113		103	70-130	3.85		20		
1,4-Dioxane	0.0919	0.057	mg/Kg wet	0.113		81.1	40-160	10.7		20	V-05, V-16	†
Ethylbenzene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130	4.57		20		
Hexachlorobutadiene	0.0134	0.0011	mg/Kg wet	0.0113		118	70-130	3.44		20		
2-Hexanone (MBK)	0.107	0.011	mg/Kg wet	0.113		94.0	40-160	15.4		20	V-05	†
Isopropylbenzene (Cumene)	0.0121	0.0011	mg/Kg wet	0.0113		106	70-130	2.76		20		
p-Isopropyltoluene (p-Cymene)	0.0115	0.0011	mg/Kg wet	0.0113		101	70-130	1.47		20		
Methyl tert-Butyl Ether (MTBE)	0.0105	0.0011	mg/Kg wet	0.0113		92.5	70-130	4.13		20		
Methylene Chloride	0.0121	0.0057	mg/Kg wet	0.0113		106	70-130	6.20		20		
4-Methyl-2-pentanone (MIBK)	0.0908	0.011	mg/Kg wet	0.113		80.1	40-160	0.187		20		†
Naphthalene	0.00963	0.0023	mg/Kg wet	0.0113		85.0	70-130	6.16		20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216161 - SW-846 5035										
LCS Dup (B216161-BSD1)				Prepared: 11/01/18 Analyzed: 11/06/18						
n-Propylbenzene	0.0123	0.0011	mg/Kg wet	0.0113		108	70-130	3.19	20	
Styrene	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130	4.61	20	
1,1,1,2-Tetrachloroethane	0.0118	0.0011	mg/Kg wet	0.0113		104	70-130	1.65	20	
1,1,2,2-Tetrachloroethane	0.00969	0.00057	mg/Kg wet	0.0113		85.5	70-130	1.53	20	
Tetrachloroethylene	0.0126	0.0011	mg/Kg wet	0.0113		112	70-130	2.45	20	
Tetrahydrofuran	0.00912	0.0045	mg/Kg wet	0.0113		80.5	70-130	0.372	20	
Toluene	0.0123	0.0011	mg/Kg wet	0.0113		108	70-130	4.44	20	
1,2,3-Trichlorobenzene	0.0104	0.0045	mg/Kg wet	0.0113		91.5	70-130	7.97	20	
1,2,4-Trichlorobenzene	0.00992	0.0011	mg/Kg wet	0.0113		87.5	70-130	3.15	20	
1,1,1-Trichloroethane	0.0126	0.0011	mg/Kg wet	0.0113		111	70-130	5.46	20	
1,1,2-Trichloroethane	0.0121	0.0011	mg/Kg wet	0.0113		107	70-130	6.57	20	
Trichloroethylene	0.0129	0.0011	mg/Kg wet	0.0113		114	70-130	2.76	20	
Trichlorofluoromethane (Freon 11)	0.0114	0.0023	mg/Kg wet	0.0113		101	70-130	3.85	20	
1,2,3-Trichloropropane	0.00944	0.0023	mg/Kg wet	0.0113		83.3	70-130	2.55	20	
1,2,4-Trimethylbenzene	0.0114	0.0011	mg/Kg wet	0.0113		100	70-130	1.09	20	
1,3,5-Trimethylbenzene	0.0119	0.0011	mg/Kg wet	0.0113		105	70-130	1.63	20	
Vinyl Chloride	0.0142	0.0023	mg/Kg wet	0.0113		125	70-130	0.400	20	
m+p Xylene	0.0240	0.0023	mg/Kg wet	0.0227		106	70-130	3.46	20	
o-Xylene	0.0120	0.0011	mg/Kg wet	0.0113		106	70-130	2.77	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0255*		mg/Kg wet	0.0283		89.9	70-130			
Surrogate: Toluene-d8	*0.0288*		mg/Kg wet	0.0283		102	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0294*		mg/Kg wet	0.0283		104	70-130			
Batch B216165 - SW-846 5035										
Blank (B216165-BLK1)				Prepared & Analyzed: 11/01/18						
Acetone	ND	0.10	mg/Kg wet							R-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							R-05
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							R-05
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216165 - SW-846 5035										
Blank (B216165-BLK1)				Prepared & Analyzed: 11/01/18						
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							R-05
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							
n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							R-05
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							V-16
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet							
Trichloroethylene	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet							
Vinyl Chloride	ND	0.010	mg/Kg wet							
m+p Xylene	ND	0.0040	mg/Kg wet							
o-Xylene	ND	0.0020	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0497*		mg/Kg wet	0.0500		99.4	70-130			
Surrogate: Toluene-d8	*0.0474*		mg/Kg wet	0.0500		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0485*		mg/Kg wet	0.0500		96.9	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216165 - SW-846 5035											
LCS (B216165-BS1)				Prepared & Analyzed: 11/01/18							
Acetone	0.256	0.10	mg/Kg wet	0.200		128	40-160			R-05	†
tert-Amyl Methyl Ether (TAME)	0.0192	0.0010	mg/Kg wet	0.0200		96.1	70-130				
Benzene	0.0180	0.0020	mg/Kg wet	0.0200		89.8	70-130				
Bromobenzene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130				
Bromochloromethane	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130				
Bromodichloromethane	0.0184	0.0020	mg/Kg wet	0.0200		91.8	70-130				
Bromoform	0.0220	0.0020	mg/Kg wet	0.0200		110	70-130				
Bromomethane	0.0103	0.010	mg/Kg wet	0.0200		51.5	40-160			L-14, V-34	†
2-Butanone (MEK)	0.230	0.040	mg/Kg wet	0.200		115	40-160			R-05	†
n-Butylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.7	70-130				
sec-Butylbenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
tert-Butylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0188	0.0010	mg/Kg wet	0.0200		93.9	70-130				
Carbon Disulfide	0.0186	0.0060	mg/Kg wet	0.0200		93.2	70-130				
Carbon Tetrachloride	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130				
Chlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
Chlorodibromomethane	0.0231	0.0010	mg/Kg wet	0.0200		115	70-130				
Chloroethane	0.0171	0.010	mg/Kg wet	0.0200		85.4	70-130				
Chloroform	0.0187	0.0040	mg/Kg wet	0.0200		93.7	70-130				
Chloromethane	0.0193	0.010	mg/Kg wet	0.0200		96.4	40-160				†
2-Chlorotoluene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
4-Chlorotoluene	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0243	0.0020	mg/Kg wet	0.0200		122	70-130			R-05	
1,2-Dibromoethane (EDB)	0.0203	0.0010	mg/Kg wet	0.0200		102	70-130				
Dibromomethane	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130				
1,2-Dichlorobenzene	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130				
1,3-Dichlorobenzene	0.0215	0.0020	mg/Kg wet	0.0200		107	70-130				
1,4-Dichlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Dichlorodifluoromethane (Freon 12)	0.0187	0.010	mg/Kg wet	0.0200		93.6	40-160				†
1,1-Dichloroethane	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130				
1,2-Dichloroethane	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
1,1-Dichloroethylene	0.0182	0.0040	mg/Kg wet	0.0200		91.1	70-130				
cis-1,2-Dichloroethylene	0.0181	0.0020	mg/Kg wet	0.0200		90.6	70-130				
trans-1,2-Dichloroethylene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130				
1,2-Dichloropropane	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130				
1,3-Dichloropropane	0.0208	0.0010	mg/Kg wet	0.0200		104	70-130				
2,2-Dichloropropane	0.0179	0.0020	mg/Kg wet	0.0200		89.5	70-130				
1,1-Dichloropropene	0.0184	0.0020	mg/Kg wet	0.0200		91.8	70-130				
cis-1,3-Dichloropropene	0.0195	0.0010	mg/Kg wet	0.0200		97.5	70-130				
trans-1,3-Dichloropropene	0.0198	0.0010	mg/Kg wet	0.0200		99.0	70-130				
Diethyl Ether	0.0192	0.010	mg/Kg wet	0.0200		96.1	70-130				
Diisopropyl Ether (DIPE)	0.0190	0.0010	mg/Kg wet	0.0200		95.1	70-130				
1,4-Dioxane	0.215	0.10	mg/Kg wet	0.200		108	40-160			V-16, V-36	†
Ethylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130				
Hexachlorobutadiene	0.0220	0.0020	mg/Kg wet	0.0200		110	70-130				
2-Hexanone (MBK)	0.230	0.020	mg/Kg wet	0.200		115	40-160			R-05	†
Isopropylbenzene (Cumene)	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
p-Isopropyltoluene (p-Cymene)	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0198	0.0040	mg/Kg wet	0.0200		99.2	70-130				
Methylene Chloride	0.0213	0.010	mg/Kg wet	0.0200		106	70-130				
4-Methyl-2-pentanone (MIBK)	0.222	0.020	mg/Kg wet	0.200		111	40-160				†
Naphthalene	0.0196	0.0040	mg/Kg wet	0.0200		98.2	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B216165 - SW-846 5035													
LCS (B216165-BS1)				Prepared & Analyzed: 11/01/18									
n-Propylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130					
Styrene	0.0205	0.0020	mg/Kg wet	0.0200		102		70-130					
1,1,1,2-Tetrachloroethane	0.0211	0.0020	mg/Kg wet	0.0200		106		70-130					
1,1,2,2-Tetrachloroethane	0.0210	0.0010	mg/Kg wet	0.0200		105		70-130				R-05	
Tetrachloroethylene	0.0187	0.0020	mg/Kg wet	0.0200		93.5		70-130					
Tetrahydrofuran	0.0208	0.010	mg/Kg wet	0.0200		104		70-130				V-16	
Toluene	0.0177	0.0020	mg/Kg wet	0.0200		88.7		70-130					
1,2,3-Trichlorobenzene	0.0210	0.0020	mg/Kg wet	0.0200		105		70-130					
1,2,4-Trichlorobenzene	0.0221	0.0020	mg/Kg wet	0.0200		110		70-130					
1,1,1-Trichloroethane	0.0180	0.0020	mg/Kg wet	0.0200		90.0		70-130					
1,1,2-Trichloroethane	0.0207	0.0020	mg/Kg wet	0.0200		104		70-130					
Trichloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		92.9		70-130					
Trichlorofluoromethane (Freon 11)	0.0176	0.010	mg/Kg wet	0.0200		87.8		70-130					
1,2,3-Trichloropropane	0.0231	0.0020	mg/Kg wet	0.0200		116		70-130					
1,2,4-Trimethylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.2		70-130					
1,3,5-Trimethylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130					
Vinyl Chloride	0.0173	0.010	mg/Kg wet	0.0200		86.3		70-130					
m+p Xylene	0.0376	0.0040	mg/Kg wet	0.0400		94.0		70-130					
o-Xylene	0.0193	0.0020	mg/Kg wet	0.0200		96.3		70-130					
Surrogate: 1,2-Dichloroethane-d4	*0.0505*		mg/Kg wet	0.0500		101		70-130					
Surrogate: Toluene-d8	*0.0478*		mg/Kg wet	0.0500		95.6		70-130					
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/Kg wet	0.0500		98.5		70-130					
LCS Dup (B216165-BSD1)				Prepared & Analyzed: 11/01/18									
Acetone	0.575	0.10	mg/Kg wet	0.200		**287**	*	40-160	**76.8**	*	20	L-07A, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0187	0.0010	mg/Kg wet	0.0200		93.7		70-130	2.53		20		
Benzene	0.0179	0.0020	mg/Kg wet	0.0200		89.4		70-130	0.446		20		
Bromobenzene	0.0178	0.0020	mg/Kg wet	0.0200		88.8		70-130	15.5		20		
Bromochloromethane	0.0198	0.0020	mg/Kg wet	0.0200		99.1		70-130	6.54		20		
Bromodichloromethane	0.0178	0.0020	mg/Kg wet	0.0200		89.0		70-130	3.10		20		
Bromoform	0.0183	0.0020	mg/Kg wet	0.0200		91.7		70-130	18.0		20		
Bromomethane	0.0116	0.010	mg/Kg wet	0.0200		58.2		40-160	12.2		20	L-14, V-34	†
2-Butanone (MEK)	0.399	0.040	mg/Kg wet	0.200		**200**	*	40-160	**54.0**	*	20	L-07A, R-05	†
n-Butylbenzene	0.0177	0.0020	mg/Kg wet	0.0200		88.3		70-130	11.1		20		
sec-Butylbenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.0		70-130	12.0		20		
tert-Butylbenzene	0.0173	0.0020	mg/Kg wet	0.0200		86.6		70-130	14.9		20		
tert-Butyl Ethyl Ether (TBEE)	0.0185	0.0010	mg/Kg wet	0.0200		92.6		70-130	1.39		20		
Carbon Disulfide	0.0186	0.0060	mg/Kg wet	0.0200		93.2		70-130	0.00		20		
Carbon Tetrachloride	0.0186	0.0020	mg/Kg wet	0.0200		92.9		70-130	3.18		20		
Chlorobenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.0		70-130	11.1		20		
Chlorodibromomethane	0.0212	0.0010	mg/Kg wet	0.0200		106		70-130	8.22		20		
Chloroethane	0.0175	0.010	mg/Kg wet	0.0200		87.6		70-130	2.54		20		
Chloroform	0.0185	0.0040	mg/Kg wet	0.0200		92.5		70-130	1.29		20		
Chloromethane	0.0180	0.010	mg/Kg wet	0.0200		90.0		40-160	6.87		20		†
2-Chlorotoluene	0.0178	0.0020	mg/Kg wet	0.0200		88.8		70-130	12.3		20		
4-Chlorotoluene	0.0184	0.0020	mg/Kg wet	0.0200		91.9		70-130	9.73		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0198	0.0020	mg/Kg wet	0.0200		98.9		70-130	**20.5**	*	20	R-05	
1,2-Dibromoethane (EDB)	0.0193	0.0010	mg/Kg wet	0.0200		96.7		70-130	4.84		20		
Dibromomethane	0.0201	0.0020	mg/Kg wet	0.0200		100		70-130	0.499		20		
1,2-Dichlorobenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.3		70-130	16.7		20		
1,3-Dichlorobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.3		70-130	11.8		20		
1,4-Dichlorobenzene	0.0171	0.0020	mg/Kg wet	0.0200		85.4		70-130	17.6		20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B216165 - SW-846 5035												
LCS Dup (B216165-BSD1)				Prepared & Analyzed: 11/01/18								
Dichlorodifluoromethane (Freon 12)	0.0204	0.010	mg/Kg wet	0.0200		102	40-160	8.69		20		†
1,1-Dichloroethane	0.0182	0.0020	mg/Kg wet	0.0200		90.9	70-130	3.99		20		
1,2-Dichloroethane	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130	4.89		20		
1,1-Dichloroethylene	0.0181	0.0040	mg/Kg wet	0.0200		90.3	70-130	0.882		20		
cis-1,2-Dichloroethylene	0.0177	0.0020	mg/Kg wet	0.0200		88.4	70-130	2.46		20		
trans-1,2-Dichloroethylene	0.0184	0.0020	mg/Kg wet	0.0200		91.9	70-130	2.37		20		
1,2-Dichloropropane	0.0198	0.0020	mg/Kg wet	0.0200		98.8	70-130	0.711		20		
1,3-Dichloropropane	0.0190	0.0010	mg/Kg wet	0.0200		94.8	70-130	9.16		20		
2,2-Dichloropropane	0.0172	0.0020	mg/Kg wet	0.0200		86.1	70-130	3.87		20		
1,1-Dichloropropene	0.0181	0.0020	mg/Kg wet	0.0200		90.3	70-130	1.65		20		
cis-1,3-Dichloropropene	0.0193	0.0010	mg/Kg wet	0.0200		96.4	70-130	1.13		20		
trans-1,3-Dichloropropene	0.0191	0.0010	mg/Kg wet	0.0200		95.3	70-130	3.81		20		
Diethyl Ether	0.0186	0.010	mg/Kg wet	0.0200		93.1	70-130	3.17		20		
Diisopropyl Ether (DIPE)	0.0185	0.0010	mg/Kg wet	0.0200		92.7	70-130	2.56		20		
1,4-Dioxane	0.209	0.10	mg/Kg wet	0.200		105	40-160	2.91		20	V-16, V-36	†
Ethylbenzene	0.0174	0.0020	mg/Kg wet	0.0200		87.0	70-130	11.2		20		
Hexachlorobutadiene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130	13.3		20		
2-Hexanone (MBK)	0.320	0.020	mg/Kg wet	0.200		160	40-160	**32.7**	*	20	L-14, R-05	†
Isopropylbenzene (Cumene)	0.0177	0.0020	mg/Kg wet	0.0200		88.6	70-130	13.4		20		
p-Isopropyltoluene (p-Cymene)	0.0171	0.0020	mg/Kg wet	0.0200		85.5	70-130	10.0		20		
Methyl tert-Butyl Ether (MTBE)	0.0199	0.0040	mg/Kg wet	0.0200		99.7	70-130	0.503		20		
Methylene Chloride	0.0204	0.010	mg/Kg wet	0.0200		102	70-130	4.13		20		
4-Methyl-2-pentanone (MIBK)	0.214	0.020	mg/Kg wet	0.200		107	40-160	3.70		20		†
Naphthalene	0.0183	0.0040	mg/Kg wet	0.0200		91.4	70-130	7.17		20		
n-Propylbenzene	0.0179	0.0020	mg/Kg wet	0.0200		89.6	70-130	11.7		20		
Styrene	0.0179	0.0020	mg/Kg wet	0.0200		89.6	70-130	13.4		20		
1,1,1,2-Tetrachloroethane	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130	8.69		20		
1,1,2,2-Tetrachloroethane	0.0172	0.0010	mg/Kg wet	0.0200		86.0	70-130	**20.1**	*	20	R-05	
Tetrachloroethylene	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130	1.91		20		
Tetrahydrofuran	0.0192	0.010	mg/Kg wet	0.0200		95.9	70-130	8.10		20	V-16	
Toluene	0.0170	0.0020	mg/Kg wet	0.0200		85.0	70-130	4.26		20		
1,2,3-Trichlorobenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.1	70-130	13.0		20		
1,2,4-Trichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	13.4		20		
1,1,1-Trichloroethane	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130	1.54		20		
1,1,2-Trichloroethane	0.0181	0.0020	mg/Kg wet	0.0200		90.7	70-130	13.2		20		
Trichloroethylene	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130	1.63		20		
Trichlorofluoromethane (Freon 11)	0.0168	0.010	mg/Kg wet	0.0200		83.8	70-130	4.66		20		
1,2,3-Trichloropropane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	13.5		20		
1,2,4-Trimethylbenzene	0.0167	0.0020	mg/Kg wet	0.0200		83.3	70-130	14.4		20		
1,3,5-Trimethylbenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.3	70-130	10.8		20		
Vinyl Chloride	0.0173	0.010	mg/Kg wet	0.0200		86.3	70-130	0.00		20		
m+p Xylene	0.0357	0.0040	mg/Kg wet	0.0400		89.3	70-130	5.08		20		
o-Xylene	0.0177	0.0020	mg/Kg wet	0.0200		88.3	70-130	8.67		20		
Surrogate: 1,2-Dichloroethane-d4	*0.0516*		mg/Kg wet	0.0500		103	70-130					
Surrogate: Toluene-d8	*0.0479*		mg/Kg wet	0.0500		95.9	70-130					
Surrogate: 4-Bromofluorobenzene	*0.0501*		mg/Kg wet	0.0500		100	70-130					

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216271 - SW-846 3546										
Blank (B216271-BLK1)				Prepared: 11/02/18 Analyzed: 11/03/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-05, V-34
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							V-20
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							V-20
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B216271 - SW-846 3546												
Blank (B216271-BLK1)				Prepared: 11/02/18 Analyzed: 11/03/18								
Phenol	ND	0.34	mg/Kg wet									
Pyrene	ND	0.17	mg/Kg wet									
Pyridine	ND	0.34	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet									
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet									
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet									
Surrogate: 2-Fluorophenol	*5.10*		mg/Kg wet	6.67		76.5		30-130				
Surrogate: Phenol-d6	*4.93*		mg/Kg wet	6.67		74.0		30-130				
Surrogate: Nitrobenzene-d5	*2.54*		mg/Kg wet	3.33		76.2		30-130				
Surrogate: 2-Fluorobiphenyl	*1.97*		mg/Kg wet	3.33		59.0		30-130				
Surrogate: 2,4,6-Tribromophenol	*4.68*		mg/Kg wet	6.67		70.2		30-130				
Surrogate: p-Terphenyl-d14	*2.76*		mg/Kg wet	3.33		82.9		30-130				
LCS (B216271-BS1)				Prepared: 11/02/18 Analyzed: 11/03/18								
Acenaphthene	0.814	0.17	mg/Kg wet	1.67		48.9		40-140				
Acenaphthylene	0.875	0.17	mg/Kg wet	1.67		52.5		40-140				
Acetophenone	0.873	0.34	mg/Kg wet	1.67		52.4		40-140				
Aniline	0.625	0.34	mg/Kg wet	1.67		**37.5**	*	40-140			V-05, L-07, V-34	
Anthracene	0.815	0.17	mg/Kg wet	1.67		48.9		40-140				
Benzo(a)anthracene	0.913	0.17	mg/Kg wet	1.67		54.8		40-140				
Benzo(a)pyrene	0.899	0.17	mg/Kg wet	1.67		53.9		40-140				
Benzo(b)fluoranthene	0.834	0.17	mg/Kg wet	1.67		50.0		40-140				
Benzo(g,h,i)perylene	1.07	0.17	mg/Kg wet	1.67		64.3		40-140				
Benzo(k)fluoranthene	0.846	0.17	mg/Kg wet	1.67		50.8		40-140				
Bis(2-chloroethoxy)methane	1.00	0.34	mg/Kg wet	1.67		60.3		40-140				
Bis(2-chloroethyl)ether	0.973	0.34	mg/Kg wet	1.67		58.4		40-140				
Bis(2-chloroisopropyl)ether	1.05	0.34	mg/Kg wet	1.67		62.9		40-140				
Bis(2-Ethylhexyl)phthalate	1.01	0.34	mg/Kg wet	1.67		60.6		40-140				
4-Bromophenylphenylether	0.805	0.34	mg/Kg wet	1.67		48.3		40-140				
Butylbenzylphthalate	1.05	0.34	mg/Kg wet	1.67		63.3		40-140				
4-Chloroaniline	0.631	0.66	mg/Kg wet	1.67		37.9		15-140			V-34	†
2-Chloronaphthalene	0.766	0.34	mg/Kg wet	1.67		46.0		40-140				
2-Chlorophenol	0.881	0.34	mg/Kg wet	1.67		52.8		30-130				
Chrysene	0.842	0.17	mg/Kg wet	1.67		50.5		40-140				
Dibenz(a,h)anthracene	0.938	0.17	mg/Kg wet	1.67		56.3		40-140				
Dibenzofuran	0.906	0.34	mg/Kg wet	1.67		54.4		40-140				
Di-n-butylphthalate	0.870	0.34	mg/Kg wet	1.67		52.2		40-140				
1,2-Dichlorobenzene	0.866	0.34	mg/Kg wet	1.67		52.0		40-140				
1,3-Dichlorobenzene	0.842	0.34	mg/Kg wet	1.67		50.5		40-140				
1,4-Dichlorobenzene	0.858	0.34	mg/Kg wet	1.67		51.5		40-140				
3,3-Dichlorobenzidine	0.701	0.17	mg/Kg wet	1.67		42.0		40-140				
2,4-Dichlorophenol	0.783	0.34	mg/Kg wet	1.67		47.0		30-130				
Diethylphthalate	0.966	0.34	mg/Kg wet	1.67		58.0		40-140				
2,4-Dimethylphenol	0.792	0.34	mg/Kg wet	1.67		47.5		30-130				
Dimethylphthalate	0.952	0.34	mg/Kg wet	1.67		57.1		40-140				
2,4-Dinitrophenol	0.606	0.66	mg/Kg wet	1.67		36.3		15-140			V-06	†
2,4-Dinitrotoluene	1.13	0.34	mg/Kg wet	1.67		67.9		40-140				
2,6-Dinitrotoluene	1.13	0.34	mg/Kg wet	1.67		67.9		40-140			V-06	
Di-n-octylphthalate	1.01	0.34	mg/Kg wet	1.67		60.6		40-140				
1,2-Diphenylhydrazine (as Azobenzene)	0.880	0.34	mg/Kg wet	1.67		52.8		40-140				
Fluoranthene	0.784	0.17	mg/Kg wet	1.67		47.1		40-140				
Fluorene	0.878	0.17	mg/Kg wet	1.67		52.7		40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216271 - SW-846 3546											
LCS (B216271-BS1)				Prepared: 11/02/18 Analyzed: 11/03/18							
Hexachlorobenzene	0.784	0.34	mg/Kg wet	1.67		47.1	40-140				
Hexachlorobutadiene	0.823	0.34	mg/Kg wet	1.67		49.4	40-140				
Hexachloroethane	0.927	0.34	mg/Kg wet	1.67		55.6	40-140				
Indeno(1,2,3-cd)pyrene	0.989	0.17	mg/Kg wet	1.67		59.4	40-140				
Isophorone	0.921	0.34	mg/Kg wet	1.67		55.3	40-140				
2-Methylnaphthalene	0.888	0.17	mg/Kg wet	1.67		53.3	40-140				
2-Methylphenol	0.822	0.34	mg/Kg wet	1.67		49.3	30-130				
3/4-Methylphenol	0.844	0.34	mg/Kg wet	1.67		50.6	30-130				
Naphthalene	0.842	0.17	mg/Kg wet	1.67		50.5	40-140				
Nitrobenzene	0.920	0.34	mg/Kg wet	1.67		55.2	40-140				
2-Nitrophenol	0.981	0.34	mg/Kg wet	1.67		58.8	30-130				
4-Nitrophenol	1.08	0.66	mg/Kg wet	1.67		64.7	15-140				†
Pentachlorophenol	0.620	0.34	mg/Kg wet	1.67		37.2	30-130				
Phenanthrene	0.815	0.17	mg/Kg wet	1.67		48.9	40-140				
Phenol	0.879	0.34	mg/Kg wet	1.67		52.7	15-140				†
Pyrene	0.939	0.17	mg/Kg wet	1.67		56.3	40-140				
Pyridine	0.740	0.34	mg/Kg wet	1.67		44.4	30-140				†
1,2,4-Trichlorobenzene	0.849	0.34	mg/Kg wet	1.67		51.0	40-140				
2,4,5-Trichlorophenol	0.925	0.34	mg/Kg wet	1.67		55.5	30-130				
2,4,6-Trichlorophenol	0.921	0.34	mg/Kg wet	1.67		55.3	30-130				
Surrogate: 2-Fluorophenol	*3.93*		mg/Kg wet	6.67		58.9	30-130				
Surrogate: Phenol-d6	*3.84*		mg/Kg wet	6.67		57.6	30-130				
Surrogate: Nitrobenzene-d5	*2.06*		mg/Kg wet	3.33		61.7	30-130				
Surrogate: 2-Fluorobiphenyl	*1.58*		mg/Kg wet	3.33		47.5	30-130				
Surrogate: 2,4,6-Tribromophenol	*3.97*		mg/Kg wet	6.67		59.5	30-130				
Surrogate: p-Terphenyl-d14	*2.00*		mg/Kg wet	3.33		59.9	30-130				
LCS Dup (B216271-BSD1)				Prepared: 11/02/18 Analyzed: 11/03/18							
Acenaphthene	0.917	0.17	mg/Kg wet	1.67		55.0	40-140	11.8	30		
Acenaphthylene	0.971	0.17	mg/Kg wet	1.67		58.2	40-140	10.3	30		
Acetophenone	0.970	0.34	mg/Kg wet	1.67		58.2	40-140	10.6	30		
Aniline	0.715	0.34	mg/Kg wet	1.67		42.9	40-140	13.4	30	V-05, V-34	
Anthracene	0.923	0.17	mg/Kg wet	1.67		55.4	40-140	12.4	30		
Benzo(a)anthracene	1.03	0.17	mg/Kg wet	1.67		61.9	40-140	12.2	30		
Benzo(a)pyrene	1.03	0.17	mg/Kg wet	1.67		61.7	40-140	13.5	30		
Benzo(b)fluoranthene	0.956	0.17	mg/Kg wet	1.67		57.4	40-140	13.7	30		
Benzo(g,h,i)perylene	1.20	0.17	mg/Kg wet	1.67		71.8	40-140	11.0	30		
Benzo(k)fluoranthene	0.968	0.17	mg/Kg wet	1.67		58.1	40-140	13.5	30		
Bis(2-chloroethoxy)methane	1.09	0.34	mg/Kg wet	1.67		65.4	40-140	8.18	30		
Bis(2-chloroethyl)ether	1.06	0.34	mg/Kg wet	1.67		63.6	40-140	8.49	30		
Bis(2-chloroisopropyl)ether	1.15	0.34	mg/Kg wet	1.67		68.9	40-140	9.14	30		
Bis(2-Ethylhexyl)phthalate	1.14	0.34	mg/Kg wet	1.67		68.3	40-140	12.1	30		
4-Bromophenylphenylether	0.929	0.34	mg/Kg wet	1.67		55.8	40-140	14.4	30		
Butylbenzylphthalate	1.21	0.34	mg/Kg wet	1.67		72.8	40-140	14.0	30		
4-Chloroaniline	0.664	0.66	mg/Kg wet	1.67		39.9	15-140	5.15	30	V-34	†
2-Chloronaphthalene	0.860	0.34	mg/Kg wet	1.67		51.6	40-140	11.5	30		
2-Chlorophenol	0.967	0.34	mg/Kg wet	1.67		58.0	30-130	9.38	30		
Chrysene	0.959	0.17	mg/Kg wet	1.67		57.5	40-140	12.9	30		
Dibenz(a,h)anthracene	1.05	0.17	mg/Kg wet	1.67		62.8	40-140	11.0	30		
Dibenzofuran	1.02	0.34	mg/Kg wet	1.67		60.9	40-140	11.4	30		
Di-n-butylphthalate	0.979	0.34	mg/Kg wet	1.67		58.7	40-140	11.8	30		
1,2-Dichlorobenzene	0.928	0.34	mg/Kg wet	1.67		55.7	40-140	6.87	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216271 - SW-846 3546											
LCS Dup (B216271-BSD1)				Prepared: 11/02/18 Analyzed: 11/03/18							
1,3-Dichlorobenzene	0.906	0.34	mg/Kg wet	1.67		54.4	40-140	7.36	30		
1,4-Dichlorobenzene	0.912	0.34	mg/Kg wet	1.67		54.7	40-140	6.14	30		
3,3-Dichlorobenzidine	0.799	0.17	mg/Kg wet	1.67		47.9	40-140	13.1	30		
2,4-Dichlorophenol	0.872	0.34	mg/Kg wet	1.67		52.3	30-130	10.8	30		
Diethylphthalate	1.06	0.34	mg/Kg wet	1.67		63.9	40-140	9.69	30		
2,4-Dimethylphenol	0.870	0.34	mg/Kg wet	1.67		52.2	30-130	9.39	30		
Dimethylphthalate	1.06	0.34	mg/Kg wet	1.67		63.4	40-140	10.5	30		
2,4-Dinitrophenol	0.705	0.66	mg/Kg wet	1.67		42.3	15-140	15.1	30	V-06	†
2,4-Dinitrotoluene	1.22	0.34	mg/Kg wet	1.67		73.5	40-140	7.95	30		
2,6-Dinitrotoluene	1.26	0.34	mg/Kg wet	1.67		75.8	40-140	10.9	30	V-06	
Di-n-octylphthalate	1.15	0.34	mg/Kg wet	1.67		69.2	40-140	13.2	30		
1,2-Diphenylhydrazine (as Azobenzene)	1.01	0.34	mg/Kg wet	1.67		60.6	40-140	13.7	30		
Fluoranthene	0.875	0.17	mg/Kg wet	1.67		52.5	40-140	11.0	30		
Fluorene	0.992	0.17	mg/Kg wet	1.67		59.5	40-140	12.2	30		
Hexachlorobenzene	0.907	0.34	mg/Kg wet	1.67		54.4	40-140	14.5	30		
Hexachlorobutadiene	0.892	0.34	mg/Kg wet	1.67		53.5	40-140	8.08	30		
Hexachloroethane	0.983	0.34	mg/Kg wet	1.67		59.0	40-140	5.90	30		
Indeno(1,2,3-cd)pyrene	1.11	0.17	mg/Kg wet	1.67		66.4	40-140	11.2	30		
Isophorone	0.996	0.34	mg/Kg wet	1.67		59.8	40-140	7.79	30		
2-Methylnaphthalene	0.985	0.17	mg/Kg wet	1.67		59.1	40-140	10.3	30		
2-Methylphenol	0.912	0.34	mg/Kg wet	1.67		54.7	30-130	10.4	30		
3/4-Methylphenol	0.936	0.34	mg/Kg wet	1.67		56.2	30-130	10.4	30		
Naphthalene	0.916	0.17	mg/Kg wet	1.67		55.0	40-140	8.42	30		
Nitrobenzene	1.00	0.34	mg/Kg wet	1.67		60.1	40-140	8.50	30		
2-Nitrophenol	1.09	0.34	mg/Kg wet	1.67		65.2	30-130	10.3	30		
4-Nitrophenol	1.15	0.66	mg/Kg wet	1.67		69.0	15-140	6.43	30		†
Pentachlorophenol	0.752	0.34	mg/Kg wet	1.67		45.1	30-130	19.2	30		
Phenanthrene	0.926	0.17	mg/Kg wet	1.67		55.6	40-140	12.8	30		
Phenol	0.986	0.34	mg/Kg wet	1.67		59.1	15-140	11.5	30		†
Pyrene	1.09	0.17	mg/Kg wet	1.67		65.3	40-140	14.7	30		
Pyridine	0.771	0.34	mg/Kg wet	1.67		46.3	30-140	4.06	30		†
1,2,4-Trichlorobenzene	0.915	0.34	mg/Kg wet	1.67		54.9	40-140	7.48	30		
2,4,5-Trichlorophenol	1.06	0.34	mg/Kg wet	1.67		63.7	30-130	13.7	30		
2,4,6-Trichlorophenol	1.04	0.34	mg/Kg wet	1.67		62.1	30-130	11.7	30		
Surrogate: 2-Fluorophenol	*4.30*		mg/Kg wet	6.67		64.5	30-130				
Surrogate: Phenol-d6	*4.24*		mg/Kg wet	6.67		63.5	30-130				
Surrogate: Nitrobenzene-d5	*2.17*		mg/Kg wet	3.33		65.1	30-130				
Surrogate: 2-Fluorobiphenyl	*1.79*		mg/Kg wet	3.33		53.6	30-130				
Surrogate: 2,4,6-Tribromophenol	*4.48*		mg/Kg wet	6.67		67.2	30-130				
Surrogate: p-Terphenyl-d14	*2.28*		mg/Kg wet	3.33		68.4	30-130				

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216154 - SW-846 3546										
Blank (B216154-BLK1)				Prepared: 11/01/18 Analyzed: 11/02/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0020	mg/Kg wet							
Aldrin [2C]	ND	0.0020	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0010	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDE	ND	0.0010	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDT	ND	0.0010	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0010	mg/Kg wet							
Dieldrin	ND	0.0020	mg/Kg wet							
Dieldrin [2C]	ND	0.0020	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.175*		mg/Kg wet	0.200		87.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.175*		mg/Kg wet	0.200		87.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.121*		mg/Kg wet	0.200		60.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.118*		mg/Kg wet	0.200		58.8	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216154 - SW-846 3546										
LCS (B216154-BS1)				Prepared: 11/01/18 Analyzed: 11/02/18						
alpha-Chlordane	0.081	0.0050	mg/Kg wet	0.100		81.5	40-140			
alpha-Chlordane [2C]	0.078	0.0050	mg/Kg wet	0.100		77.7	40-140			
gamma-Chlordane	0.079	0.0050	mg/Kg wet	0.100		79.5	40-140			
gamma-Chlordane [2C]	0.076	0.0050	mg/Kg wet	0.100		75.6	40-140			
Alachlor	0.073	0.020	mg/Kg wet	0.100		73.1	40-140			
Alachlor [2C]	0.070	0.020	mg/Kg wet	0.100		69.8	40-140			
Aldrin	0.072	0.0020	mg/Kg wet	0.100		72.3	40-140			
Aldrin [2C]	0.069	0.0020	mg/Kg wet	0.100		68.8	40-140			
alpha-BHC	0.046	0.0050	mg/Kg wet	0.100		46.5	40-140			
alpha-BHC [2C]	0.041	0.0050	mg/Kg wet	0.100		41.0	40-140			
beta-BHC	0.055	0.0050	mg/Kg wet	0.100		55.2	40-140			
beta-BHC [2C]	0.054	0.0050	mg/Kg wet	0.100		53.9	40-140			
delta-BHC	0.052	0.0050	mg/Kg wet	0.100		52.0	40-140			
delta-BHC [2C]	0.047	0.0050	mg/Kg wet	0.100		47.1	40-140			
gamma-BHC (Lindane)	0.052	0.0020	mg/Kg wet	0.100		52.4	40-140			
gamma-BHC (Lindane) [2C]	0.049	0.0020	mg/Kg wet	0.100		49.4	40-140			
4,4'-DDD	0.093	0.0010	mg/Kg wet	0.100		92.7	40-140			
4,4'-DDD [2C]	0.087	0.0010	mg/Kg wet	0.100		87.0	40-140			
4,4'-DDE	0.093	0.0010	mg/Kg wet	0.100		93.1	40-140			
4,4'-DDE [2C]	0.085	0.0010	mg/Kg wet	0.100		85.2	40-140			
4,4'-DDT	0.098	0.0010	mg/Kg wet	0.100		98.3	40-140			
4,4'-DDT [2C]	0.088	0.0010	mg/Kg wet	0.100		87.6	40-140			
Dieldrin	0.085	0.0020	mg/Kg wet	0.100		85.5	40-140			
Dieldrin [2C]	0.076	0.0020	mg/Kg wet	0.100		75.6	40-140			
Endosulfan I	0.078	0.0050	mg/Kg wet	0.100		78.1	40-140			
Endosulfan I [2C]	0.075	0.0050	mg/Kg wet	0.100		75.3	40-140			
Endosulfan II	0.084	0.0080	mg/Kg wet	0.100		84.1	40-140			
Endosulfan II [2C]	0.081	0.0080	mg/Kg wet	0.100		80.9	40-140			
Endosulfan Sulfate	0.068	0.0080	mg/Kg wet	0.100		68.0	40-140			
Endosulfan Sulfate [2C]	0.066	0.0080	mg/Kg wet	0.100		65.8	40-140			
Endrin	0.087	0.0080	mg/Kg wet	0.100		86.7	40-140			
Endrin [2C]	0.081	0.0080	mg/Kg wet	0.100		80.9	40-140			
Endrin Aldehyde	0.082	0.0080	mg/Kg wet	0.100		82.1	40-140			
Endrin Aldehyde [2C]	0.088	0.0080	mg/Kg wet	0.100		87.5	40-140			
Endrin Ketone	0.086	0.0080	mg/Kg wet	0.100		85.7	40-140			
Endrin Ketone [2C]	0.082	0.0080	mg/Kg wet	0.100		82.2	40-140			
Heptachlor	0.064	0.0050	mg/Kg wet	0.100		64.4	40-140			
Heptachlor [2C]	0.063	0.0050	mg/Kg wet	0.100		62.6	40-140			
Heptachlor Epoxide	0.078	0.0050	mg/Kg wet	0.100		78.1	40-140			
Heptachlor Epoxide [2C]	0.068	0.0050	mg/Kg wet	0.100		68.0	40-140			
Hexachlorobenzene	0.059	0.0060	mg/Kg wet	0.100		58.8	40-140			
Hexachlorobenzene [2C]	0.054	0.0060	mg/Kg wet	0.100		53.9	40-140			
Methoxychlor	0.10	0.050	mg/Kg wet	0.100		99.7	40-140			
Methoxychlor [2C]	0.10	0.050	mg/Kg wet	0.100		102	40-140			
Surrogate: Decachlorobiphenyl	*0.181*		mg/Kg wet	0.200		90.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.181*		mg/Kg wet	0.200		90.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.120*		mg/Kg wet	0.200		60.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.117*		mg/Kg wet	0.200		58.3	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216154 - SW-846 3546										
LCS Dup (B216154-BSD1)				Prepared: 11/01/18 Analyzed: 11/02/18						
alpha-Chlordane	0.088	0.0050	mg/Kg wet	0.100		88.2	40-140	7.89	30	
alpha-Chlordane [2C]	0.084	0.0050	mg/Kg wet	0.100		83.9	40-140	7.75	30	
gamma-Chlordane	0.087	0.0050	mg/Kg wet	0.100		87.3	40-140	9.36	30	
gamma-Chlordane [2C]	0.083	0.0050	mg/Kg wet	0.100		83.0	40-140	9.35	30	
Alachlor	0.079	0.020	mg/Kg wet	0.100		79.3	40-140	8.21	30	
Alachlor [2C]	0.076	0.020	mg/Kg wet	0.100		76.3	40-140	8.93	30	
Aldrin	0.079	0.0020	mg/Kg wet	0.100		78.6	40-140	8.41	30	
Aldrin [2C]	0.075	0.0020	mg/Kg wet	0.100		74.5	40-140	8.07	30	
alpha-BHC	0.054	0.0050	mg/Kg wet	0.100		53.6	40-140	14.4	30	
alpha-BHC [2C]	0.047	0.0050	mg/Kg wet	0.100		47.1	40-140	13.7	30	
beta-BHC	0.063	0.0050	mg/Kg wet	0.100		63.2	40-140	13.5	30	
beta-BHC [2C]	0.062	0.0050	mg/Kg wet	0.100		61.7	40-140	13.5	30	
delta-BHC	0.063	0.0050	mg/Kg wet	0.100		62.9	40-140	19.0	30	
delta-BHC [2C]	0.059	0.0050	mg/Kg wet	0.100		58.7	40-140	21.9	30	
gamma-BHC (Lindane)	0.060	0.0020	mg/Kg wet	0.100		60.0	40-140	13.4	30	
gamma-BHC (Lindane) [2C]	0.057	0.0020	mg/Kg wet	0.100		56.5	40-140	13.5	30	
4,4'-DDD	0.099	0.0010	mg/Kg wet	0.100		99.3	40-140	6.94	30	
4,4'-DDD [2C]	0.093	0.0010	mg/Kg wet	0.100		93.3	40-140	6.97	30	
4,4'-DDE	0.10	0.0010	mg/Kg wet	0.100		100	40-140	7.26	30	
4,4'-DDE [2C]	0.091	0.0010	mg/Kg wet	0.100		90.9	40-140	6.53	30	
4,4'-DDT	0.10	0.0010	mg/Kg wet	0.100		105	40-140	6.30	30	
4,4'-DDT [2C]	0.094	0.0010	mg/Kg wet	0.100		94.0	40-140	7.04	30	
Dieldrin	0.092	0.0020	mg/Kg wet	0.100		91.6	40-140	6.89	30	
Dieldrin [2C]	0.081	0.0020	mg/Kg wet	0.100		81.0	40-140	6.89	30	
Endosulfan I	0.083	0.0050	mg/Kg wet	0.100		83.1	40-140	6.20	30	
Endosulfan I [2C]	0.080	0.0050	mg/Kg wet	0.100		80.5	40-140	6.60	30	
Endosulfan II	0.090	0.0080	mg/Kg wet	0.100		90.2	40-140	7.01	30	
Endosulfan II [2C]	0.087	0.0080	mg/Kg wet	0.100		86.5	40-140	6.70	30	
Endosulfan Sulfate	0.077	0.0080	mg/Kg wet	0.100		76.9	40-140	12.4	30	
Endosulfan Sulfate [2C]	0.073	0.0080	mg/Kg wet	0.100		73.5	40-140	11.0	30	
Endrin	0.093	0.0080	mg/Kg wet	0.100		92.8	40-140	6.73	30	
Endrin [2C]	0.087	0.0080	mg/Kg wet	0.100		86.8	40-140	7.08	30	
Endrin Aldehyde	0.078	0.0080	mg/Kg wet	0.100		77.9	40-140	5.35	30	
Endrin Aldehyde [2C]	0.083	0.0080	mg/Kg wet	0.100		83.3	40-140	4.89	30	
Endrin Ketone	0.090	0.0080	mg/Kg wet	0.100		89.9	40-140	4.79	30	
Endrin Ketone [2C]	0.086	0.0080	mg/Kg wet	0.100		86.3	40-140	4.81	30	
Heptachlor	0.071	0.0050	mg/Kg wet	0.100		70.7	40-140	9.35	30	
Heptachlor [2C]	0.069	0.0050	mg/Kg wet	0.100		68.8	40-140	9.35	30	
Heptachlor Epoxide	0.084	0.0050	mg/Kg wet	0.100		84.1	40-140	7.44	30	
Heptachlor Epoxide [2C]	0.075	0.0050	mg/Kg wet	0.100		75.2	40-140	9.99	30	
Hexachlorobenzene	0.067	0.0060	mg/Kg wet	0.100		67.1	40-140	13.2	30	
Hexachlorobenzene [2C]	0.062	0.0060	mg/Kg wet	0.100		61.9	40-140	13.8	30	
Methoxychlor	0.10	0.050	mg/Kg wet	0.100		104	40-140	4.38	30	
Methoxychlor [2C]	0.10	0.050	mg/Kg wet	0.100		104	40-140	1.39	30	
Surrogate: Decachlorobiphenyl	*0.196*		mg/Kg wet	0.200		98.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.191*		mg/Kg wet	0.200		95.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.141*		mg/Kg wet	0.200		70.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.137*		mg/Kg wet	0.200		68.3	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216139 - SW-846 3546										
Blank (B216139-BLK1)				Prepared: 11/01/18 Analyzed: 11/02/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.184*		mg/Kg wet	0.200		92.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.201*		mg/Kg wet	0.200		100	30-150			
Surrogate: Tetrachloro-m-xylene	*0.160*		mg/Kg wet	0.200		80.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.169*		mg/Kg wet	0.200		84.5	30-150			
LCS (B216139-BS1)				Prepared: 11/01/18 Analyzed: 11/02/18						
Aroclor-1016	0.15	0.020	mg/Kg wet	0.200		75.8	40-140			
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		82.0	40-140			V-06
Aroclor-1260	0.16	0.020	mg/Kg wet	0.200		79.4	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		83.8	40-140			V-06
Surrogate: Decachlorobiphenyl	*0.160*		mg/Kg wet	0.200		80.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.176*		mg/Kg wet	0.200		87.9	30-150			
Surrogate: Tetrachloro-m-xylene	*0.136*		mg/Kg wet	0.200		68.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.145*		mg/Kg wet	0.200		72.6	30-150			
LCS Dup (B216139-BSD1)				Prepared: 11/01/18 Analyzed: 11/02/18						
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		82.0	40-140	7.93	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		90.4	40-140	9.84	30	V-06
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		87.5	40-140	9.66	30	
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		96.4	40-140	14.0	30	V-06
Surrogate: Decachlorobiphenyl	*0.178*		mg/Kg wet	0.200		89.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.196*		mg/Kg wet	0.200		97.8	30-150			
Surrogate: Tetrachloro-m-xylene	*0.146*		mg/Kg wet	0.200		72.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.157*		mg/Kg wet	0.200		78.3	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216140 - SW-846 8151										
Blank (B216140-BLK1)				Prepared: 11/01/18 Analyzed: 11/02/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*67.2*		µg/kg wet	95.2		70.6	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*68.1*		µg/kg wet	95.2		71.5	30-150			
LCS (B216140-BS1)				Prepared: 11/01/18 Analyzed: 11/02/18						
2,4-D	105	25	µg/kg wet	125		84.2	40-140			
2,4-D [2C]	109	25	µg/kg wet	125		87.5	40-140			
2,4-DB	108	25	µg/kg wet	125		86.7	40-140			
2,4-DB [2C]	118	25	µg/kg wet	125		94.3	40-140			
2,4,5-TP (Silvex)	10.9	2.5	µg/kg wet	12.5		87.0	40-140			
2,4,5-TP (Silvex) [2C]	11.4	2.5	µg/kg wet	12.5		91.3	40-140			
2,4,5-T	10.6	2.5	µg/kg wet	12.5		84.6	40-140			
2,4,5-T [2C]	11.6	2.5	µg/kg wet	12.5		93.1	40-140			
Dalapon	196	62	µg/kg wet	312		62.9	40-140			
Dalapon [2C]	197	62	µg/kg wet	312		63.2	40-140			
Dicamba	10.9	2.5	µg/kg wet	12.5		87.5	40-140			
Dicamba [2C]	11.1	2.5	µg/kg wet	12.5		88.4	40-140			
Dichloroprop	118	25	µg/kg wet	125		94.1	40-140			
Dichloroprop [2C]	116	25	µg/kg wet	125		93.0	40-140			
Dinoseb	19.2	12	µg/kg wet	62.5		30.7	0-42.4			
Dinoseb [2C]	21.8	12	µg/kg wet	62.5		34.8	0-41.1			
MCPA	10300	2500	µg/kg wet	12500		82.7	40-140			
MCPA [2C]	9710	2500	µg/kg wet	12500		77.7	40-140			
MCPP	13500	2500	µg/kg wet	12500		108	40-140			
MCPP [2C]	10400	2500	µg/kg wet	12500		83.4	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*81.5*		µg/kg wet	100		81.5	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*84.8*		µg/kg wet	100		84.8	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216140 - SW-846 8151										
LCS Dup (B216140-BSD1)				Prepared: 11/01/18 Analyzed: 11/02/18						
2,4-D	110	25	µg/kg wet	125		87.8	40-140	4.18	30	
2,4-D [2C]	120	25	µg/kg wet	125		95.9	40-140	9.13	30	
2,4-DB	114	25	µg/kg wet	125		91.6	40-140	5.47	30	
2,4-DB [2C]	123	25	µg/kg wet	125		98.3	40-140	4.10	30	
2,4,5-TP (Silvex)	11.3	2.5	µg/kg wet	12.5		90.5	40-140	3.93	30	
2,4,5-TP (Silvex) [2C]	12.0	2.5	µg/kg wet	12.5		96.3	40-140	5.42	30	
2,4,5-T	10.9	2.5	µg/kg wet	12.5		87.2	40-140	3.10	30	
2,4,5-T [2C]	11.3	2.5	µg/kg wet	12.5		90.0	40-140	3.34	30	
Dalapon	203	62	µg/kg wet	312		64.9	40-140	3.10	30	
Dalapon [2C]	205	62	µg/kg wet	312		65.6	40-140	3.74	30	
Dicamba	11.4	2.5	µg/kg wet	12.5		91.0	40-140	3.96	30	
Dicamba [2C]	11.6	2.5	µg/kg wet	12.5		93.1	40-140	5.08	30	
Dichloroprop	129	25	µg/kg wet	125		103	40-140	9.04	30	
Dichloroprop [2C]	120	25	µg/kg wet	125		96.0	40-140	3.21	30	
Dinoseb	22.7	12	µg/kg wet	62.5		36.4	0-42.4	16.8	30	
Dinoseb [2C]	25.4	12	µg/kg wet	62.5		40.7	0-41.1	15.6	30	
MCPA	10900	2500	µg/kg wet	12500		87.2	40-140	5.40	30	
MCPA [2C]	10200	2500	µg/kg wet	12500		81.3	40-140	4.52	30	
MCPP	14400	2500	µg/kg wet	12500		115	40-140	6.47	30	
MCPP [2C]	10700	2500	µg/kg wet	12500		85.4	40-140	2.37	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*85.2*		µg/kg wet	100		85.2	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*87.8*		µg/kg wet	100		87.8	30-150			
Matrix Spike (B216140-MS1)		**Source: 18J1553-06**		Prepared: 11/01/18 Analyzed: 11/03/18						
2,4-D	112	27	µg/kg dry	137	ND	81.9	30-150			
2,4-D [2C]	121	27	µg/kg dry	137	ND	88.3	30-150			
2,4-DB	118	27	µg/kg dry	137	ND	86.2	30-150			
2,4-DB [2C]	137	27	µg/kg dry	137	ND	100	30-150			
2,4,5-TP (Silvex)	11.5	2.7	µg/kg dry	13.7	ND	84.3	30-150			
2,4,5-TP (Silvex) [2C]	12.2	2.7	µg/kg dry	13.7	ND	89.5	30-150			
2,4,5-T	10.9	2.7	µg/kg dry	13.7	ND	79.8	30-150			
2,4,5-T [2C]	12.0	2.7	µg/kg dry	13.7	ND	87.7	30-150			
Dalapon	223	68	µg/kg dry	342	ND	65.1	30-150			
Dalapon [2C]	227	68	µg/kg dry	342	ND	66.4	30-150			
Dicamba	11.5	2.7	µg/kg dry	13.7	ND	84.0	30-150			
Dicamba [2C]	12.0	2.7	µg/kg dry	13.7	ND	87.9	30-150			
Dichloroprop	134	27	µg/kg dry	137	ND	97.6	30-150			
Dichloroprop [2C]	124	27	µg/kg dry	137	ND	90.5	30-150			
Dinoseb	23.4	14	µg/kg dry	68.4	ND	34.2	10-150			
Dinoseb [2C]	26.4	14	µg/kg dry	68.4	ND	38.6	10-150			
MCPA	11200	2700	µg/kg dry	13700	ND	81.7	30-150			
MCPA [2C]	10200	2700	µg/kg dry	13700	ND	74.2	30-150			
MCPP	15300	2700	µg/kg dry	13700	ND	112	30-150			
MCPP [2C]	10900	2700	µg/kg dry	13700	ND	79.7	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid	*87.9*		µg/kg dry	109		80.3	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*94.5*		µg/kg dry	109		86.3	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216140 - SW-846 8151										
Matrix Spike Dup (B216140-MSD1)	**Source: 18J1553-06**			Prepared: 11/01/18 Analyzed: 11/03/18						
2,4-D	104	27	µg/kg dry	137	ND	75.8	30-150	7.75	30	
2,4-D [2C]	110	27	µg/kg dry	137	ND	80.5	30-150	9.17	30	
2,4-DB	111	27	µg/kg dry	137	ND	80.8	30-150	6.49	30	
2,4-DB [2C]	130	27	µg/kg dry	137	ND	95.0	30-150	5.46	30	
2,4,5-TP (Silvex)	10.5	2.7	µg/kg dry	13.7	ND	76.4	30-150	9.81	30	
2,4,5-TP (Silvex) [2C]	11.1	2.7	µg/kg dry	13.7	ND	81.2	30-150	9.72	30	
2,4,5-T	10.0	2.7	µg/kg dry	13.7	ND	73.1	30-150	8.82	30	
2,4,5-T [2C]	11.3	2.7	µg/kg dry	13.7	ND	82.3	30-150	6.33	30	
Dalapon	195	68	µg/kg dry	342	ND	56.9	30-150	13.5	30	
Dalapon [2C]	197	68	µg/kg dry	342	ND	57.7	30-150	14.0	30	
Dicamba	10.7	2.7	µg/kg dry	13.7	ND	78.4	30-150	7.01	30	
Dicamba [2C]	10.8	2.7	µg/kg dry	13.7	ND	79.1	30-150	10.5	30	
Dichloroprop	115	27	µg/kg dry	137	ND	84.1	30-150	14.8	30	
Dichloroprop [2C]	114	27	µg/kg dry	137	ND	83.1	30-150	8.50	30	
Dinoseb	24.8	14	µg/kg dry	68.4	ND	36.2	10-150	5.82	30	
Dinoseb [2C]	28.0	14	µg/kg dry	68.4	ND	40.9	10-150	5.90	30	
MCPA	10400	2700	µg/kg dry	13700	ND	75.9	30-150	7.36	30	
MCPA [2C]	9530	2700	µg/kg dry	13700	ND	69.7	30-150	6.32	30	
MCPP	13600	2700	µg/kg dry	13700	ND	99.4	30-150	11.7	30	
MCPP [2C]	10100	2700	µg/kg dry	13700	ND	73.5	30-150	8.17	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*84.0*		µg/kg dry	109		76.8	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*89.1*		µg/kg dry	109		81.4	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216247 - SW-846 3546										
Blank (B216247-BLK1)				Prepared: 11/02/18 Analyzed: 11/04/18						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*2.86*		mg/Kg wet	3.33		85.7	40-140			
LCS (B216247-BS1)				Prepared: 11/02/18 Analyzed: 11/04/18						
TPH (C9-C36)	29.5	8.3	mg/Kg wet	33.3		88.5	40-140			
Surrogate: 2-Fluorobiphenyl	*2.51*		mg/Kg wet	3.33		75.3	40-140			
LCS Dup (B216247-BSD1)				Prepared: 11/02/18 Analyzed: 11/04/18						
TPH (C9-C36)	29.9	8.3	mg/Kg wet	33.3		89.6	40-140	1.21	30	
Surrogate: 2-Fluorobiphenyl	*2.50*		mg/Kg wet	3.33		75.0	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216433 - SW-846 3050B										
Blank (B216433-BLK1)				Prepared: 11/05/18 Analyzed: 11/06/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B216433-BS1)				Prepared: 11/05/18 Analyzed: 11/06/18						
Antimony	63.6	4.9	mg/Kg wet	75.5		84.2	3.8-196			
Arsenic	148	4.9	mg/Kg wet	161		91.7	83.2-116.8			
Barium	253	4.9	mg/Kg wet	260		97.3	82.7-117.3			
Beryllium	94.3	0.49	mg/Kg wet	97.6		96.6	83.4-116.8			
Cadmium	192	0.49	mg/Kg wet	211		91.1	83.4-116.6			
Chromium	127	0.97	mg/Kg wet	136		93.3	82.4-117.6			
Lead	100	1.5	mg/Kg wet	111		90.1	83-117.1			
Nickel	88.7	0.97	mg/Kg wet	91.9		96.5	82.9-117.5			
Selenium	169	9.7	mg/Kg wet	191		88.4	79.6-120.9			
Silver	44.4	0.97	mg/Kg wet	43.3		103	79.9-119.9			
Thallium	154	4.9	mg/Kg wet	156		98.4	81.4-119.2			
Vanadium	47.1	1.9	mg/Kg wet	56.7		83.0	79-121.2			
Zinc	183	1.9	mg/Kg wet	199		91.8	81.4-119.1			
LCS Dup (B216433-BSD1)				Prepared: 11/05/18 Analyzed: 11/06/18						
Antimony	64.7	4.9	mg/Kg wet	75.5		85.6	3.8-196	1.70	30	
Arsenic	149	4.9	mg/Kg wet	161		92.7	83.2-116.8	1.12	30	
Barium	252	4.9	mg/Kg wet	260		97.1	82.7-117.3	0.200	30	
Beryllium	92.7	0.49	mg/Kg wet	97.6		95.0	83.4-116.8	1.62	30	
Cadmium	191	0.49	mg/Kg wet	211		90.4	83.4-116.6	0.868	30	
Chromium	127	0.98	mg/Kg wet	136		93.2	82.4-117.6	0.134	30	
Lead	102	1.5	mg/Kg wet	111		91.5	83-117.1	1.51	30	
Nickel	88.8	0.98	mg/Kg wet	91.9		96.7	82.9-117.5	0.121	30	
Selenium	171	9.8	mg/Kg wet	191		89.3	79.6-120.9	1.03	30	
Silver	43.8	0.98	mg/Kg wet	43.3		101	79.9-119.9	1.45	30	
Thallium	151	4.9	mg/Kg wet	156		96.5	81.4-119.2	1.97	30	
Vanadium	48.0	2.0	mg/Kg wet	56.7		84.7	79-121.2	2.06	30	
Zinc	184	2.0	mg/Kg wet	199		92.5	81.4-119.1	0.783	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B216433 - SW-846 3050B											
Duplicate (B216433-DUP1)	**Source: 18J1553-04**			Prepared: 11/05/18 Analyzed: 11/06/18							
Antimony	ND	1.9	mg/Kg dry		ND				NC	35	
Arsenic	4.14	1.9	mg/Kg dry		3.90				6.09	35	
Barium	23.2	1.9	mg/Kg dry		25.8				10.8	35	
Beryllium	0.418	0.19	mg/Kg dry		0.427				2.08	35	
Cadmium	ND	0.19	mg/Kg dry		ND				NC	35	
Chromium	11.3	0.39	mg/Kg dry		12.3				8.31	35	
Lead	15.3	0.58	mg/Kg dry		13.3				13.6	35	
Nickel	7.24	0.39	mg/Kg dry		8.07				11.0	35	
Selenium	ND	3.9	mg/Kg dry		ND				NC	35	
Silver	ND	0.39	mg/Kg dry		ND				NC	35	
Thallium	ND	1.9	mg/Kg dry		ND				NC	35	
Vanadium	14.1	0.78	mg/Kg dry		15.0				5.91	35	
Zinc	14.2	0.78	mg/Kg dry		16.0				12.3	35	
MRL Check (B216433-MRL1)				Prepared: 11/05/18 Analyzed: 11/06/18							
Lead	0.526	0.50	mg/Kg wet	0.499		105		80-120			
Matrix Spike (B216433-MS1)	**Source: 18J1553-04**			Prepared: 11/05/18 Analyzed: 11/06/18							
Antimony	10.3	2.0	mg/Kg dry	19.5	ND	**52.7**	*	75-125			MS-07
Arsenic	22.7	2.0	mg/Kg dry	19.5	3.90	96.4		75-125			
Barium	45.2	2.0	mg/Kg dry	19.5	25.8	98.8		75-125			
Beryllium	20.7	0.20	mg/Kg dry	19.5	0.427	104		75-125			
Cadmium	19.7	0.20	mg/Kg dry	19.5	0.153	100		75-125			
Chromium	31.5	0.39	mg/Kg dry	19.5	12.3	98.0		75-125			
Lead	33.4	0.59	mg/Kg dry	19.5	13.3	103		75-125			
Nickel	27.4	0.39	mg/Kg dry	19.5	8.07	98.7		75-125			
Selenium	18.1	3.9	mg/Kg dry	19.5	ND	92.8		75-125			
Silver	21.4	0.39	mg/Kg dry	19.5	ND	109		75-125			
Thallium	24.8	2.0	mg/Kg dry	19.5	ND	**127**	*	75-125			MS-14
Vanadium	34.3	0.78	mg/Kg dry	19.5	15.0	98.7		75-125			
Zinc	54.4	0.78	mg/Kg dry	39.1	16.0	98.2		75-125			
Batch B216478 - SW-846 7471											
Blank (B216478-BLK1)				Prepared & Analyzed: 11/06/18							
Mercury	ND	0.025	mg/Kg wet								
LCS (B216478-BS1)				Prepared & Analyzed: 11/06/18							
Mercury	11.0	1.9	mg/Kg wet	11.5		95.4		71.6-127.8			
LCS Dup (B216478-BSD1)				Prepared & Analyzed: 11/06/18							
Mercury	11.1	1.9	mg/Kg wet	11.5		96.9		71.6-127.8	1.59	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216478 - SW-846 7471										
Duplicate (B216478-DUP1)	**Source: 18J1553-06**			Prepared & Analyzed: 11/06/18						
Mercury	ND	0.026	mg/Kg dry		ND			NC	35	
Matrix Spike (B216478-MS1)	**Source: 18J1553-06**			Prepared & Analyzed: 11/06/18						
Mercury	0.176	0.027	mg/Kg dry	0.179	0.0136	90.5	75-125			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216167 - SM21-22 2510B Modified										
Blank (B216167-BLK1)				Prepared & Analyzed: 11/01/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B216167-BS1)				Prepared & Analyzed: 11/01/18						
Specific conductance	200		µmhos/cm	192		103	90-110			
Batch B216215 - SW-846 9014										
Blank (B216215-BLK1)				Prepared: 11/01/18 Analyzed: 11/05/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B216215-BS1)				Prepared: 11/01/18 Analyzed: 11/05/18						
Reactive Cyanide	9.3	0.40	mg/Kg	10.0		92.9	83.6-111			
Batch B216238 - SW-846 9045C										
LCS (B216238-BS1)				Prepared & Analyzed: 11/01/18						
pH	5.97		pH Units	6.00		99.5	90-110			
LCS (B216238-BS2)				Prepared & Analyzed: 11/01/18						
pH	6.00		pH Units	6.00		100	90-110			
Duplicate (B216238-DUP1)	**Source: 18J1553-08**			Prepared & Analyzed: 11/01/18						
pH	5.8		pH Units		5.7			1.52	5	
Batch B216441 - SW-846 9030A										
Blank (B216441-BLK1)				Prepared: 11/01/18 Analyzed: 11/05/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B216441-BS1)				Prepared: 11/01/18 Analyzed: 11/05/18						
Reactive Sulfide	13	2.0	mg/Kg	14.8		89.2	54.9-121			
Batch B216456 - % Solids										
Duplicate (B216456-DUP2)	**Source: 18J1553-01**			Prepared: 11/05/18 Analyzed: 11/06/18						
% Solids	87.3		% Wt		84.6			3.11	20	

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BREAKDOWN REPORT

Lab Sample ID: S029015-PEM1 **Analyzed:** 11/03/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.93
Endrin [1]	2.65

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.12
Endrin [2]	3.55

BREAKDOWN REPORT

Lab Sample ID: S029015-PEM2 **Analyzed:** 11/03/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.40
Endrin [1]	2.21

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	0.96
Endrin [2]	2.37

BREAKDOWN REPORT

Lab Sample ID: S029037-PEM1 **Analyzed:** 11/02/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.31
Endrin [1]	4.21

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BREAKDOWN REPORT

Lab Sample ID:	S029037-PEM1	Analyzed:	11/02/2018

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	0.84
Endrin [2]	4.36

BREAKDOWN REPORT

Lab Sample ID:	S029037-PEM2	Analyzed:	11/03/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	1.23
Endrin [1]	3.40

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.20
Endrin [2]	3.46

BREAKDOWN REPORT

Lab Sample ID:	S029037-PEM3	Analyzed:	11/03/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.94
Endrin [1]	3.13

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.35
Endrin [2]	3.21

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

SB-51

Lab Sample ID: 18J1553-01 Date(s) Analyzed: 11/03/2018 11/03/2018

Instrument ID (1): ECD6 Instrument ID (2): ECD6

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDT	1	7.978	7.952	8.012	0.0088	
	2	7.991	7.962	8.022	0.0077	13.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

SB-37

Lab Sample ID: 18J1553-03 Date(s) Analyzed: 11/03/2018 11/03/2018

Instrument ID (1): ECD6 Instrument ID (2): ECD6

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDT	1	7.978	7.952	8.012	0.0098	
	2	7.990	7.962	8.022	0.0077	24.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

SB-39

Lab Sample ID: 18J1553-05 Date(s) Analyzed: 11/03/2018 11/03/2018

Instrument ID (1): ECD6 Instrument ID (2): ECD6

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDT	1	7.979	7.952	8.012	0.0089	
	2	7.990	7.962	8.022	0.0058	42.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B216139-BS1 Date(s) Analyzed: 11/02/2018 11/02/2018

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.15	
	2	0.000	0.000	0.000	0.16	6.5
Aroclor-1260	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.17	6.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B216139-BSD1 Date(s) Analyzed: 11/02/2018 11/02/2018

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.18	11.8
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.19	5.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS

Lab Sample ID: B216140-BS1 Date(s) Analyzed: 11/02/2018 11/02/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.205	0.000	0.000	10.6	
	2	15.804	0.000	0.000	11.6	5.3
2,4,5-TP (Silvex)	1	15.578	0.000	0.000	10.9	
	2	14.959	0.000	0.000	11.4	3.6
2,4-D	1	13.726	0.000	0.000	105	
	2	13.227	0.000	0.000	109	0.9
2,4-DB	1	17.000	0.000	0.000	108	
	2	16.784	0.000	0.000	118	7.0
Dalapon	1	4.594	0.000	0.000	196	
	2	4.086	0.000	0.000	197	1.5
Dicamba	1	11.589	0.000	0.000	10.9	
	2	11.037	0.000	0.000	11.1	0.9
Dichloroprop	1	13.209	0.000	0.000	118	
	2	12.551	0.000	0.000	116	3.4
Dinoseb	1	17.645	0.000	0.000	19.2	
	2	17.042	0.000	0.000	21.8	13.7
MCPA	1	12.416	0.000	0.000	10300	
	2	11.866	0.000	0.000	9710	2.9
MCPP	1	12.082	0.000	0.000	13500	
	2	11.379	0.000	0.000	10400	29.5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS Dup

Lab Sample ID: B216140-BSD1 Date(s) Analyzed: 11/02/2018 11/02/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.201	0.000	0.000	10.9	
	2	15.800	0.000	0.000	11.3	2.7
2,4,5-TP (Silvex)	1	15.577	0.000	0.000	11.3	
	2	14.957	0.000	0.000	12.0	8.7
2,4-D	1	13.723	0.000	0.000	110	
	2	13.225	0.000	0.000	120	8.7
2,4-DB	1	16.999	0.000	0.000	114	
	2	16.782	0.000	0.000	123	11.2
Dalapon	1	4.594	0.000	0.000	203	
	2	4.087	0.000	0.000	205	2.5
Dicamba	1	11.588	0.000	0.000	11.4	
	2	11.036	0.000	0.000	11.6	5.3
Dichloroprop	1	13.207	0.000	0.000	129	
	2	12.550	0.000	0.000	120	8.0
Dinoseb	1	17.645	0.000	0.000	22.7	
	2	17.041	0.000	0.000	25.4	9.9
MCPA	1	12.415	0.000	0.000	10900	
	2	11.866	0.000	0.000	10200	7.6
MCPP	1	12.082	0.000	0.000	14400	
	2	11.379	0.000	0.000	10700	26.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

Matrix Spike

Lab Sample ID: B216140-MS1 Date(s) Analyzed: 11/03/2018 11/03/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.187	0.000	0.000	10.9	
	2	15.782	0.000	0.000	12.0	8.7
2,4,5-TP (Silvex)	1	15.566	0.000	0.000	11.5	
	2	14.942	0.000	0.000	12.2	1.7
2,4-D	1	13.713	0.000	0.000	112	
	2	13.210	0.000	0.000	121	9.5
2,4-DB	1	16.995	0.000	0.000	118	
	2	16.774	0.000	0.000	137	13.2
Dalapon	1	4.592	0.000	0.000	223	
	2	4.084	0.000	0.000	227	3.1
Dicamba	1	11.584	0.000	0.000	11.5	
	2	11.029	0.000	0.000	12.0	0.0
Dichloroprop	1	13.202	0.000	0.000	134	
	2	12.540	0.000	0.000	124	4.7
Dinoseb	1	17.646	0.000	0.000	23.4	
	2	17.038	0.000	0.000	26.4	13.8
MCPA	1	12.411	0.000	0.000	11200	
	2	11.858	0.000	0.000	10200	7.6
MCPP	1	12.078	0.000	0.000	15300	
	2	11.371	0.000	0.000	10900	31.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

Matrix Spike Dup

Lab Sample ID: B216140-MSD1 Date(s) Analyzed: 11/03/2018 11/03/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.188	0.000	0.000	10.0	
	2	15.782	0.000	0.000	11.3	12.2
2,4,5-TP (Silvex)	1	15.569	0.000	0.000	10.5	
	2	14.942	0.000	0.000	11.1	0.9
2,4-D	1	13.711	0.000	0.000	104	
	2	13.210	0.000	0.000	110	9.5
2,4-DB	1	16.994	0.000	0.000	111	
	2	16.774	0.000	0.000	130	16.7
Dalapon	1	4.591	0.000	0.000	195	
	2	4.082	0.000	0.000	197	1.5
Dicamba	1	11.583	0.000	0.000	10.7	
	2	11.029	0.000	0.000	10.8	1.8
Dichloroprop	1	13.200	0.000	0.000	115	
	2	12.540	0.000	0.000	114	5.1
Dinoseb	1	17.644	0.000	0.000	24.8	
	2	17.036	0.000	0.000	28.0	11.3
MCPA	1	12.408	0.000	0.000	10400	
	2	11.856	0.000	0.000	9530	4.8
MCPP	1	12.075	0.000	0.000	13600	
	2	11.369	0.000	0.000	10100	32.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B216154-BS1 Date(s) Analyzed: 11/02/2018 11/03/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	6.731	6.701	6.761	0.093	
	2	6.559	6.529	6.589	0.087	6.7
4,4'-DDE	1	6.318	6.288	6.348	0.093	
	2	6.165	6.136	6.196	0.085	9.0
4,4'-DDT	1	6.932	6.902	6.962	0.098	
	2	6.778	6.747	6.807	0.088	10.8
Alachlor	1	5.804	5.775	5.835	0.073	
	2	5.460	5.430	5.490	0.070	4.2
Aldrin	1	5.701	5.672	5.732	0.072	
	2	5.486	5.456	5.516	0.069	4.3
alpha-BHC	1	5.079	5.049	5.109	0.046	
	2	4.917	4.888	4.948	0.041	13.6
alpha-Chlordane	1	6.254	6.224	6.284	0.081	
	2	6.035	6.006	6.066	0.078	5.0
beta-BHC	1	5.304	5.274	5.334	0.055	
	2	5.143	5.111	5.171	0.054	1.8
delta-BHC	1	5.402	5.372	5.432	0.052	
	2	5.291	5.260	5.320	0.047	10.1
Dieldrin	1	6.505	6.475	6.535	0.085	
	2	6.242	6.212	6.272	0.076	12.3
Endosulfan I	1	6.341	6.311	6.371	0.078	
	2	6.063	6.034	6.094	0.075	3.9
Endosulfan II	1	6.821	6.792	6.852	0.084	
	2	6.592	6.561	6.621	0.081	3.6
Endosulfan Sulfate	1	7.453	7.423	7.483	0.068	
	2	7.041	7.011	7.071	0.066	3.0
Endrin	1	6.663	6.633	6.693	0.087	
	2	6.440	6.410	6.470	0.081	7.1
Endrin Aldehyde	1	7.128	7.098	7.158	0.082	
	2	6.837	6.807	6.867	0.088	7.1
Endrin Ketone	1	7.659	7.629	7.689	0.086	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B216154-BS1 Date(s) Analyzed: 11/02/2018 11/03/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	7.422	7.392	7.452	0.082	4.8
gamma-BHC (Lindane)	1	5.253	5.223	5.283	0.052	
	2	5.091	5.062	5.122	0.049	5.9
gamma-Chlordane	1	6.165	6.136	6.196	0.079	
	2	5.942	5.913	5.973	0.076	5.1
Heptachlor	1	5.523	5.493	5.553	0.064	
	2	5.314	5.284	5.344	0.063	1.6
Heptachlor Epoxide	1	6.084	6.054	6.114	0.078	
	2	5.825	5.796	5.856	0.068	13.7
Hexachlorobenzene	1	4.986	4.956	5.016	0.059	
	2	4.843	4.814	4.874	0.054	8.9
Methoxychlor	1	7.310	7.280	7.340	0.10	
	2	7.313	7.282	7.342	0.10	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B216154-BSD1 Date(s) Analyzed: 11/02/2018 11/03/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	6.731	6.701	6.761	0.099	
	2	6.559	6.529	6.589	0.093	6.3
4,4'-DDE	1	6.318	6.288	6.348	0.10	
	2	6.166	6.136	6.196	0.091	9.4
4,4'-DDT	1	6.932	6.902	6.962	0.10	
	2	6.777	6.747	6.807	0.094	15.7
Alachlor	1	5.803	5.775	5.835	0.079	
	2	5.459	5.430	5.490	0.076	3.9
Aldrin	1	5.701	5.672	5.732	0.079	
	2	5.486	5.456	5.516	0.075	5.2
alpha-BHC	1	5.078	5.049	5.109	0.054	
	2	4.917	4.888	4.948	0.047	13.9
alpha-Chlordane	1	6.253	6.224	6.284	0.088	
	2	6.034	6.006	6.066	0.084	4.7
beta-BHC	1	5.304	5.274	5.334	0.063	
	2	5.143	5.111	5.171	0.062	1.6
delta-BHC	1	5.402	5.372	5.432	0.063	
	2	5.291	5.260	5.320	0.059	6.6
Dieldrin	1	6.504	6.475	6.535	0.092	
	2	6.241	6.212	6.272	0.081	12.7
Endosulfan I	1	6.340	6.311	6.371	0.083	
	2	6.063	6.034	6.094	0.080	3.7
Endosulfan II	1	6.821	6.792	6.852	0.090	
	2	6.592	6.561	6.621	0.087	3.4
Endosulfan Sulfate	1	7.453	7.423	7.483	0.077	
	2	7.041	7.011	7.071	0.073	5.3
Endrin	1	6.662	6.633	6.693	0.093	
	2	6.440	6.410	6.470	0.087	6.7
Endrin Aldehyde	1	7.127	7.098	7.158	0.078	
	2	6.836	6.807	6.867	0.083	6.2
Endrin Ketone	1	7.660	7.629	7.689	0.090	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B216154-BSD1 Date(s) Analyzed: 11/02/2018 11/03/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	7.422	7.392	7.452	0.086	4.6
gamma-BHC (Lindane)	1	5.252	5.223	5.283	0.060	
	2	5.092	5.062	5.122	0.057	5.1
gamma-Chlordane	1	6.165	6.136	6.196	0.087	
	2	5.942	5.913	5.973	0.083	4.7
Heptachlor	1	5.522	5.493	5.553	0.071	
	2	5.314	5.284	5.344	0.069	2.9
Heptachlor Epoxide	1	6.084	6.054	6.114	0.084	
	2	5.825	5.796	5.856	0.075	11.3
Hexachlorobenzene	1	4.986	4.956	5.016	0.067	
	2	4.843	4.814	4.874	0.062	7.8
Methoxychlor	1	7.310	7.280	7.340	0.10	
	2	7.312	7.282	7.342	0.10	0.0

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-03	Sample received after recommended holding time was exceeded.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
MS-07	Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.
MS-14	Matrix spike recovery is outside of control limits. Data validation is not affected since sample result is "not detected" and recovery bias is on the high side for this compound.
O-32	A dilution was performed as part of the standard analytical procedure.
P-01	Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. In accordance with the method, the higher result was reported.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
RL-07	Elevated reporting limit based on lowest point in calibration. MA CAM reporting limit not met.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8081B in Water	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA
Endrin	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Water	
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Water	
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8151A in Water	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
Dinoseb	ME,NC,NH,CT,NY,VA
Dinoseb [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Water	
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromo-3-chloropropane (DBCP)	NY

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Analyte	Certifications
SW-846 8260C in Soil	
Dibromomethane	NH,NY,ME
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NY
Methylene Chloride	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME

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CERTIFICATIONS

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Analyte	Certifications
SW-846 8260C in Soil	
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH

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Analyte	Certifications
SW-846 8270D in Soil	
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH

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CERTIFICATIONS

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Analyte	Certifications
SW-846 8270D in Soil	
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH
SW-846 8270D in Water	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

18J 1553

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KKM

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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: PTB

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other: Limit Checl
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals
								3	3	3		9	
								I	I	I	I	M/O	I
								A	A	A	A	V	A
01	SB-51	10/21/18	1057	x	x	S	U	x	x	x	x	x	x
02	SB-50	10/25/18	0914					x	x	x	x	x	x
03	SB-37		1020					x	x	x	x	x	x
04	SB-38		1105					x	x	x	x	x	x
05	SB-39		1310					x	x	x	x	x	x
06	MP37	10/26/18	0830					x	x	x	x	x	x
07	MP38		1005					x	x	x	x	x	x
08	MP39		1235					x	x	x	x	x	x

ANALYSIS REQUESTED

# of Containers
[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Vials frozen on day of generation by 16:00

TCLP 20x Rule

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
	10/31/18 0730
Received by: (signature)	Date/Time:
	10/31/18 1430
Relinquished by: (signature)	Date/Time: 2030
	10/31/18
Received by: (signature)	Date/Time: 2.4
10/31/18 2030	
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By LR Date 10-31-18 Time 2030

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 557 Actual Temp - 2.4

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? * F

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Luke

Is there enough Volume? T

Is there Headspace where applicable? T MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	24
Meoh-	8	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-	16	Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Recieved out of time for pH analysis

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18J1553
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18J1553-01 thru 18J1553-08

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 11/09/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 27, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K0275

Enclosed are results of analyses for samples received by the laboratory on November 6, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/27/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0275

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B42	18K0275-01	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
MP27	18K0275-02	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
MP28	18K0275-03	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
MP29	18K0275-04	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/27/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0275

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP30	18K0275-05	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
MP31	18K0275-06	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
MP35	18K0275-07	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: B42 | Sampled: 11/2/2018 13:00

Sample ID: 18K0275-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/15/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: B42 | Sampled: 11/2/2018 13:00

Sample ID: 18K0275-01

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/19/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0275-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/14/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0275-02

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/20/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0275-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/15/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0275-03

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/14/18 0:00	GTE

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0275-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/19/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0275-04

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/20/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0275-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/14/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0275-05

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/16/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0275-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/15/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0275-06

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/16/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP35

Sample ID: 18K0275-07 | Start Date/Time: 11/6/2018 10:05:00AM

Sample Matrix: Soil | Stop Date/Time: 11/6/2018 12:00:00PM

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached	Attached	Attached	1		ASTM D6913		11/19/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0275

Date Received: 11/6/2018

Field Sample #: MP35

Sample ID: 18K0275-07 | Start Date/Time: 11/6/2018 10:05:00AM

Sample Matrix: Soil | Stop Date/Time: 11/6/2018 12:00:00PM

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D2216		11/19/18 0:00	GTE
See Attached Report Pages	Attached	Attached	Attached	1		ASTM D1557		11/19/18 0:00	GTE

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

18K0275

con-test® ANALYTICAL LABORATORY

KKM

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By:

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

ANALYSIS REQUESTED

								Grain Size	Proctor	Moisture
# of Containers								1		
² Preservation Code								NA	NA	NA
³ Container Code								O	O	O
Con-Test Work Order#	**Client Sample ID / Description**	**Date**	**Time**	**Composite**	**Grab**	**¹Matrix Code**	**Conc Code**			
01	34P [illegible]	[illegible]	13:00		x	S	U	X	X	X
02	MP27	11/5/18	11:00		|	|	|	X	X	X
03	MP28	|	12:05		|	|	|	X	X	X
04	MP29	|	13:15		|	|	|	X	X	X
05	MP30	11/6/18	08:30		|	|	|	X	X	X
06	MP31	|	10:05		|	|	|	X	X	X
07	MP35	|	12:30		|	|	|	X	X	X
					—	—	—	X	X	X

Comments:

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

¹ Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

² Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

³ Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define) 5-gallon bucket

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

	Date/Time:
Relinquished by: (signature) [signature]	11/6/18 14:30
Received by: (signature) Paul Chastenay	11-6-18 13:36
Relinquished by: (signature) Paul Chastenay	11-6-18 16:31
Received by: (signature) [signature]	11/6/18 4:30
Relinquished by: (signature)	
Received by: (signature)	

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

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www.contestlabs.com
NELAC and AIHA-LAP, LLC Accredited

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/19/18	Checked By:	emm
Depth :	---	Test Id:	480764		

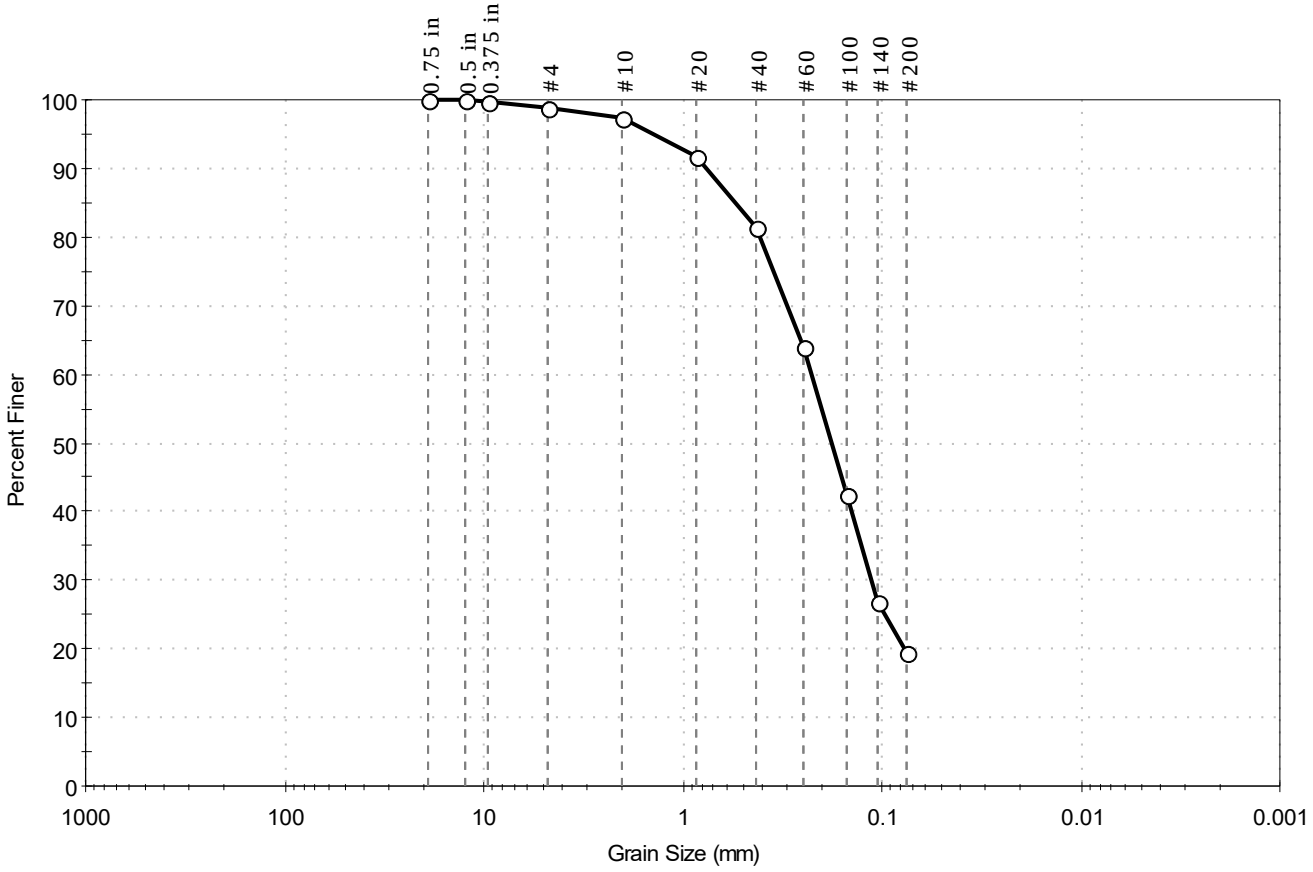
Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	B42	---	Moist, olive brown silty sand	17.6
---	MP27	---	Moist, light olive brown sand with silt	15.6
---	MP28	---	Moist, olive yellow sand with silt	10.3
---	MP29	---	Moist, light olive brown silty sand	13.6
---	MP30	---	Moist, light olive brown silty sand	16.3
---	MP31	---	Moist, light olive brown silty sand	24.7
---	MP35	---	Moist, olive brown silty sand	18.9

Notes: Temperature of Drying : 110° Celsius

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B42	Test Date:	11/15/18	Checked By:	emm
Depth :	---	Test Id:	480744		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	1.2	79.2	19.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	100		
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	97		
#20	0.85	92		
#40	0.42	81		
#60	0.25	64		
#100	0.15	42		
#140	0.11	27		
#200	0.075	20		

Coefficients

D_{85} = 0.5428 mm D_{30} = 0.1135 mm

D_{60} = 0.2278 mm D_{15} = N/A

D_{50} = 0.1794 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

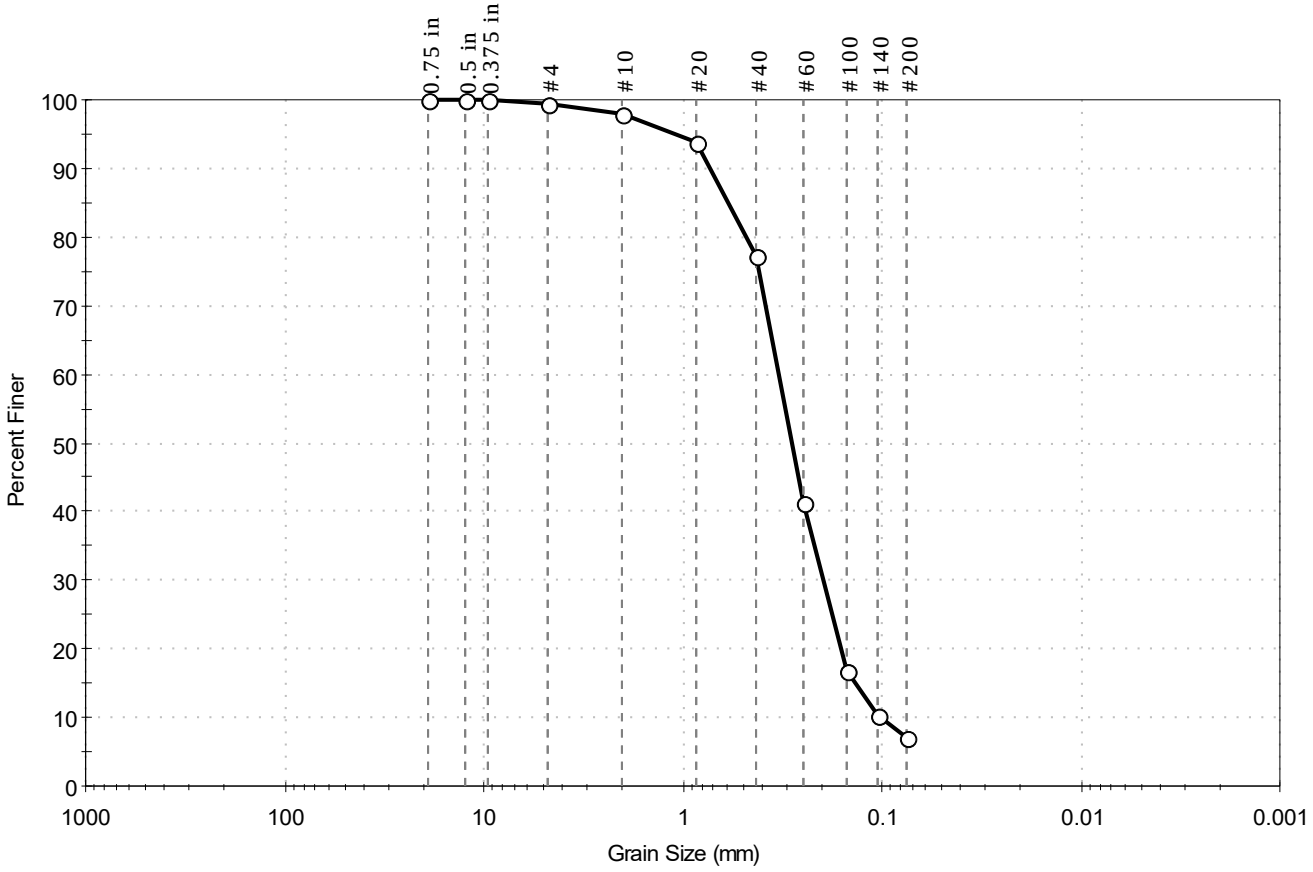
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP27	Test Date:	11/14/18	Checked By:	emm
Depth :	---	Test Id:	480745		
Test Comment:	---				
Visual Description:	Moist, light olive brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.7	92.2	7.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	100		
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	98		
#20	0.85	94		
#40	0.42	77		
#60	0.25	41		
#100	0.15	17		
#140	0.11	10		
#200	0.075	7.1		

Coefficients

D_{85} = 0.5889 mm D_{30} = 0.1974 mm

D_{60} = 0.3295 mm D_{15} = 0.1356 mm

D_{50} = 0.2843 mm D_{10} = 0.1019 mm

C_u = 3.234 C_c = 1.161

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

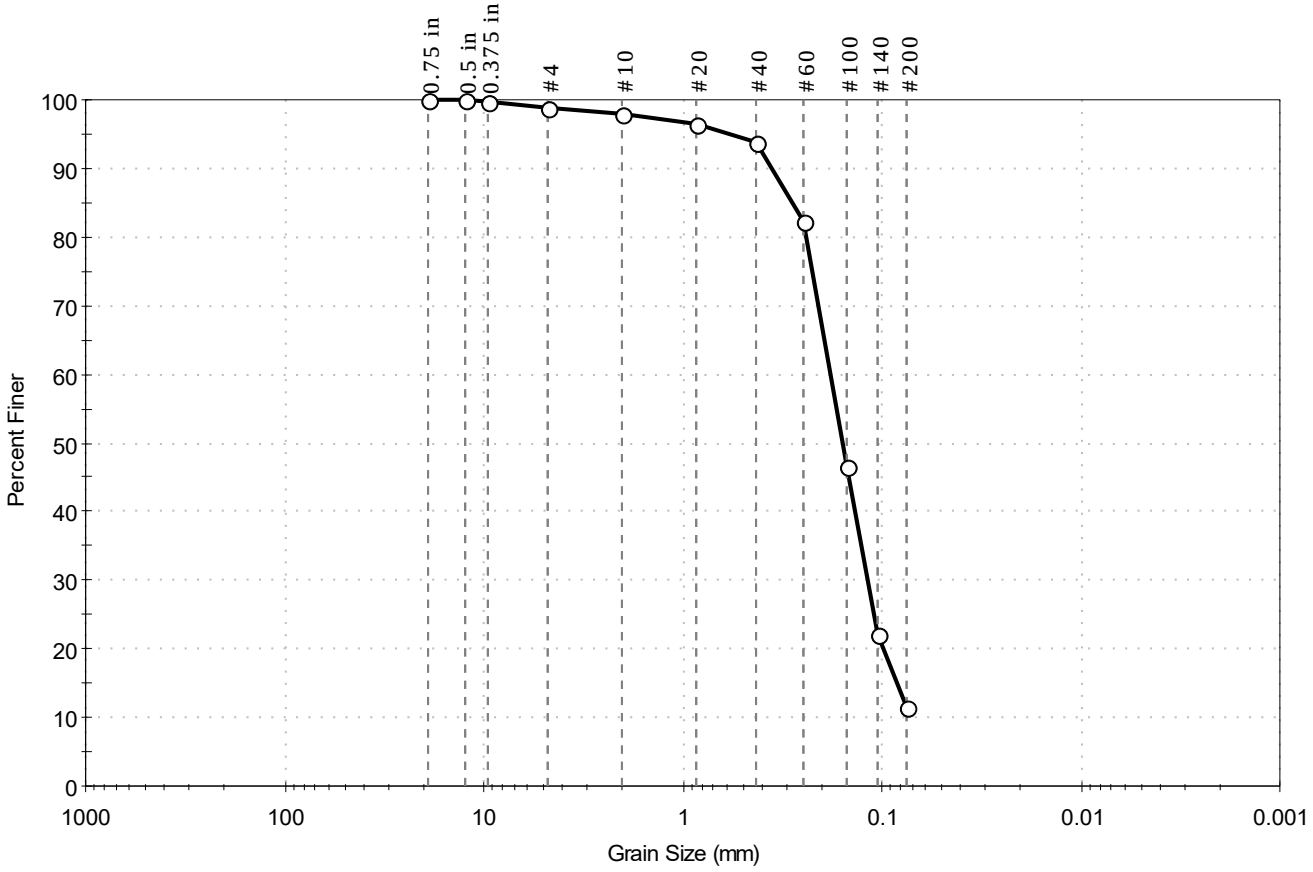
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP28	Test Date:	11/15/18	Checked By:	emm
Depth :	---	Test Id:	480746		

Test Comment: ---
Visual Description: Moist, olive yellow sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	1.3	87.2	11.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	100		
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	98		
#20	0.85	97		
#40	0.42	94		
#60	0.25	82		
#100	0.15	47		
#140	0.11	22		
#200	0.075	11		

Coefficients

D_{85} = 0.2839 mm D_{30} = 0.1185 mm
D_{60} = 0.1818 mm D_{15} = 0.0841 mm
D_{50} = 0.1575 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

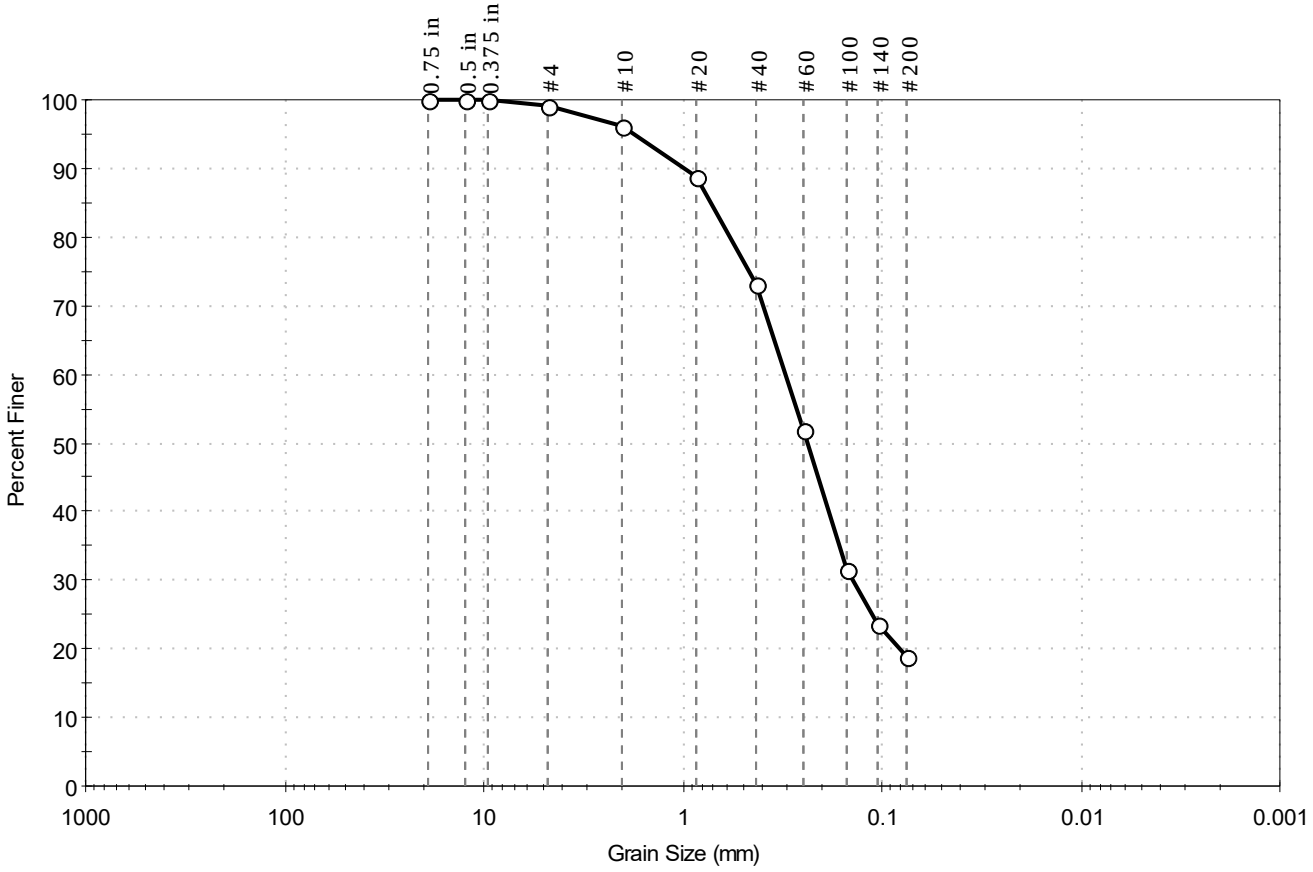
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP29	Test Date:	11/19/18	Checked By:	emm
Depth :	---	Test Id:	480747		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.8	80.3	18.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	100		
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	96		
#20	0.85	89		
#40	0.42	73		
#60	0.25	52		
#100	0.15	32		
#140	0.11	24		
#200	0.075	19		

Coefficients

D_{85} = 0.7191 mm D_{30} = 0.1402 mm

D_{60} = 0.3055 mm D_{15} = N/A

D_{50} = 0.2379 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

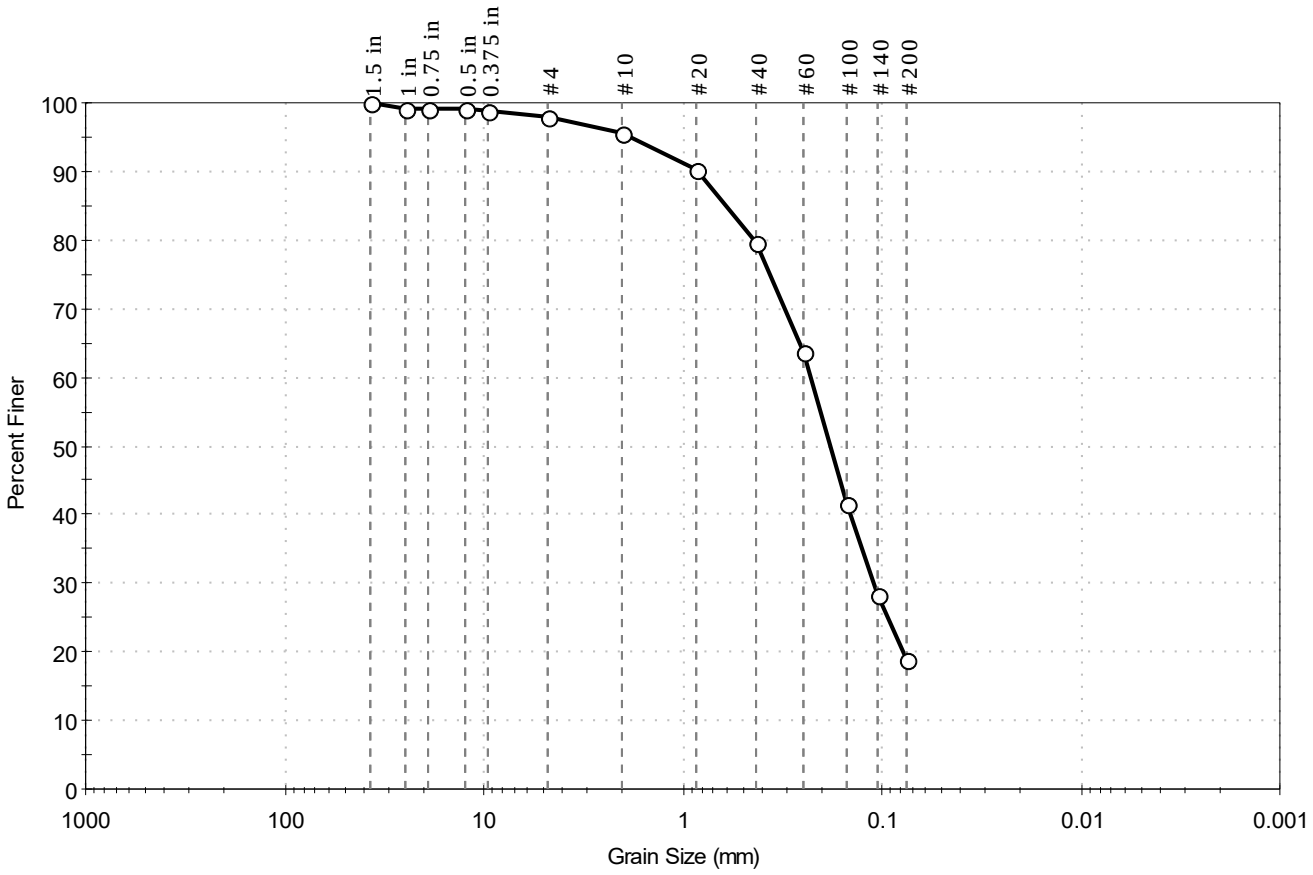
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP30	Test Date:	11/14/18	Checked By:	emm
Depth :	---	Test Id:	480748		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	2.1	79.1	18.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	99		
0.75 in	19.00	99		
0.5 in	12.50	99		
0.375 in	9.50	99		
#4	4.75	98		
#10	2.00	95		
#20	0.85	90		
#40	0.42	80		
#60	0.25	64		
#100	0.15	41		
#140	0.11	28		
#200	0.075	19		

Coefficients

D_{85} = 0.6041 mm D_{30} = 0.1111 mm

D_{60} = 0.2289 mm D_{15} = N/A

D_{50} = 0.1822 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

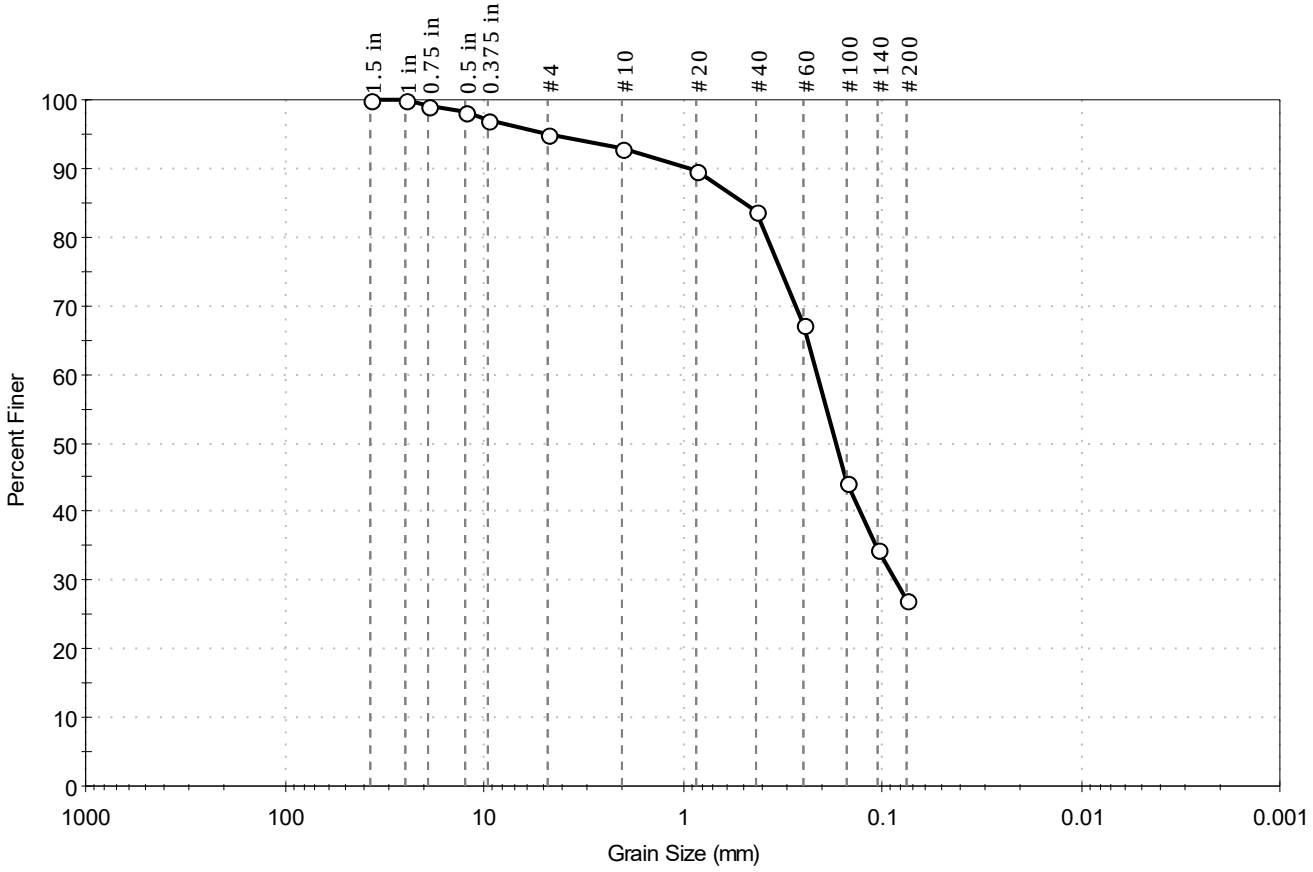
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP31	Test Date:	11/15/18	Checked By:	emm
Depth :	---	Test Id:	480749		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.0	67.9	27.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	100		
0.75 in	19.00	99		
0.5 in	12.50	98		
0.375 in	9.50	97		
#4	4.75	95		
#10	2.00	93		
#20	0.85	90		
#40	0.42	84		
#60	0.25	67		
#100	0.15	44		
#140	0.11	34		
#200	0.075	27		

Coefficients

D_{85} = 0.4910 mm D_{30} = 0.0861 mm

D_{60} = 0.2124 mm D_{15} = N/A

D_{50} = 0.1699 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

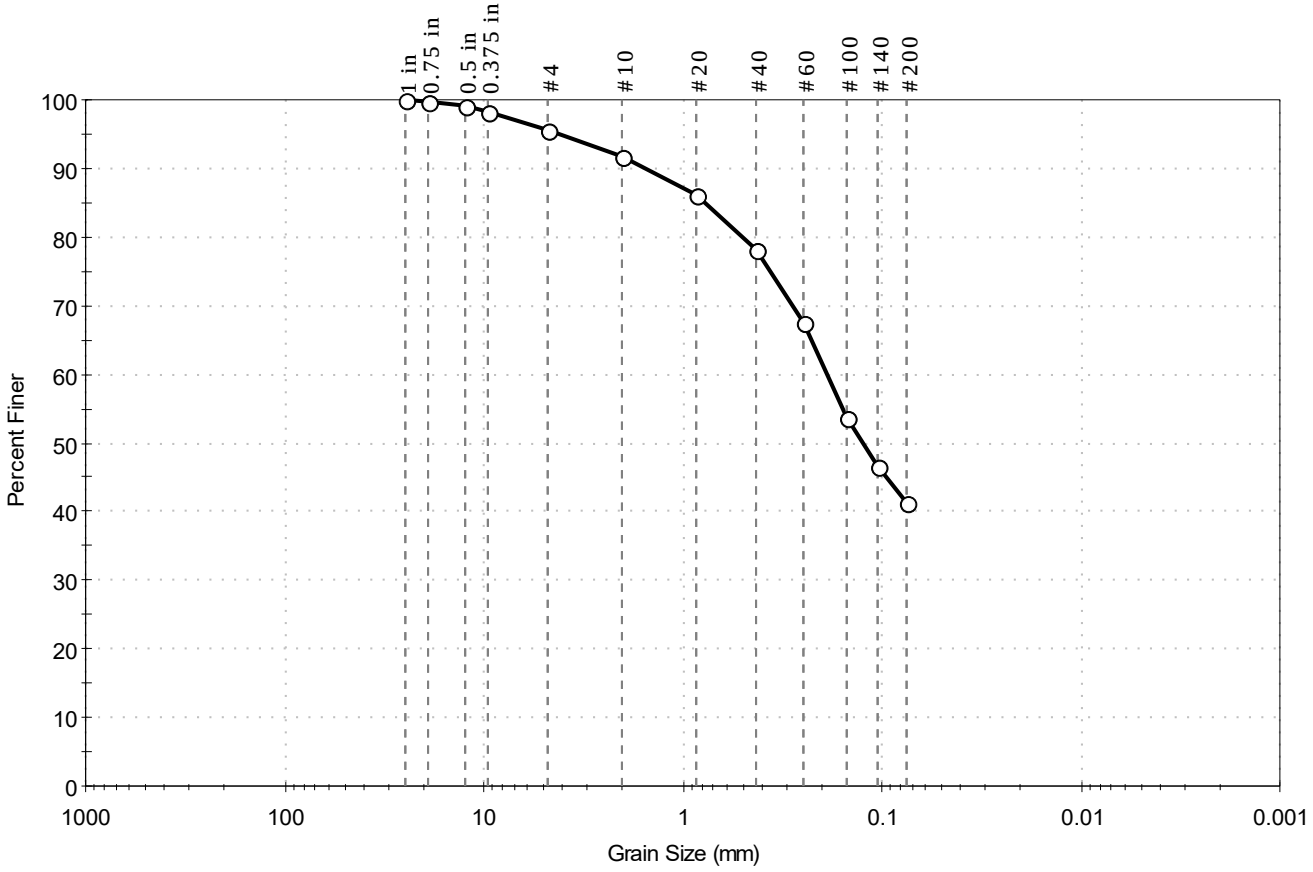
Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	MP35	Test Date:	11/19/18	Checked By:	emm
Depth :	---	Test Id:	480750		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.5	54.1	41.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	100		
0.5 in	12.50	99		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	92		
#20	0.85	86		
#40	0.42	78		
#60	0.25	67		
#100	0.15	54		
#140	0.11	47		
#200	0.075	41		

Coefficients

D_{85} = 0.7674 mm D_{30} = N/A

D_{60} = 0.1893 mm D_{15} = N/A

D_{50} = 0.1252 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

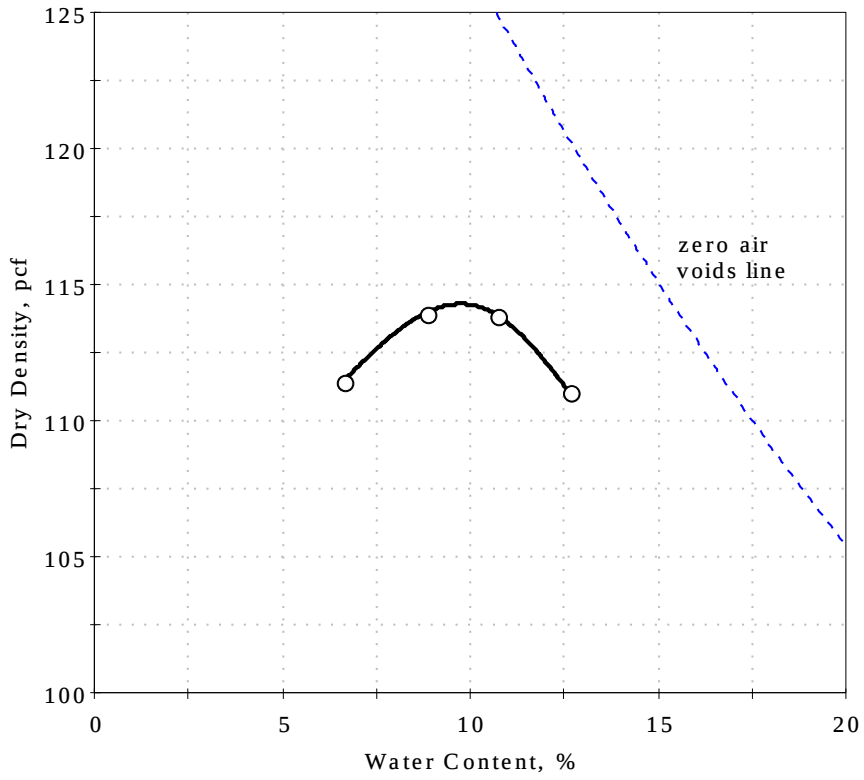
Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B42	Test Date:	11/19/18	Checked By:	emm
Depth :	---	Test Id:	480751		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	111.5	114.0	113.9	111.1
Moisture Content, %	6.6	8.8	10.7	12.6

Method : A

Preparation : DRY

As received Moisture :18 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.55

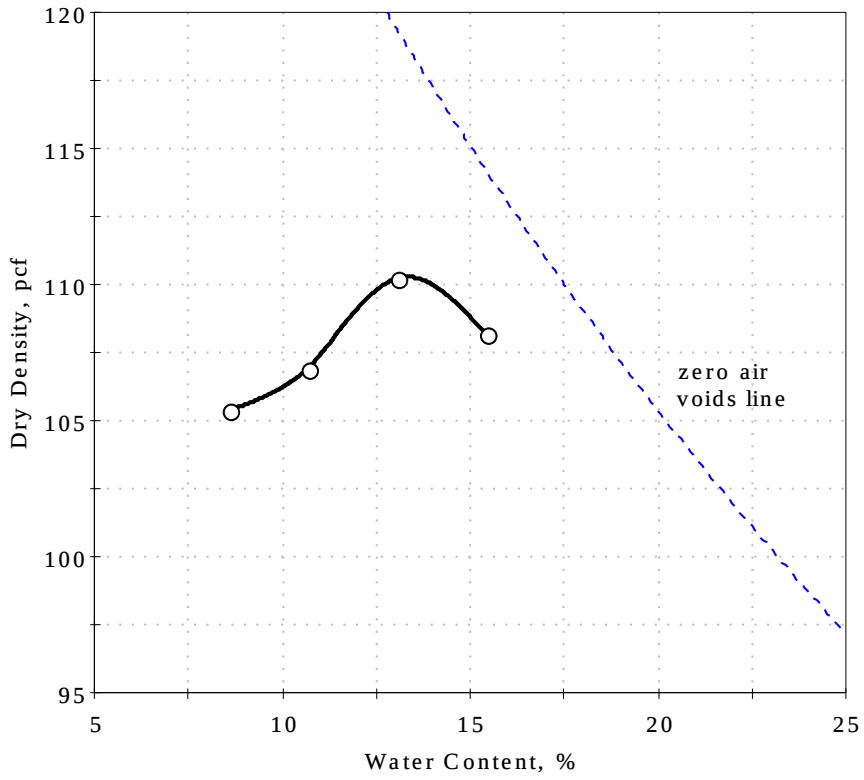
Maximum Dry Density= 114.3 pcf

Optimum Moisture= 9.8 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP27	Test Date:	11/20/18	Checked By:	emm
Depth :	---	Test Id:	480752		
Test Comment:	---				
Visual Description:	Moist, light olive brown sand with silt				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	105.4	106.9	110.2	108.2
Moisture Content, %	8.6	10.7	13.1	15.4

Method : A

Preparation : DRY

As received Moisture :16 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.55

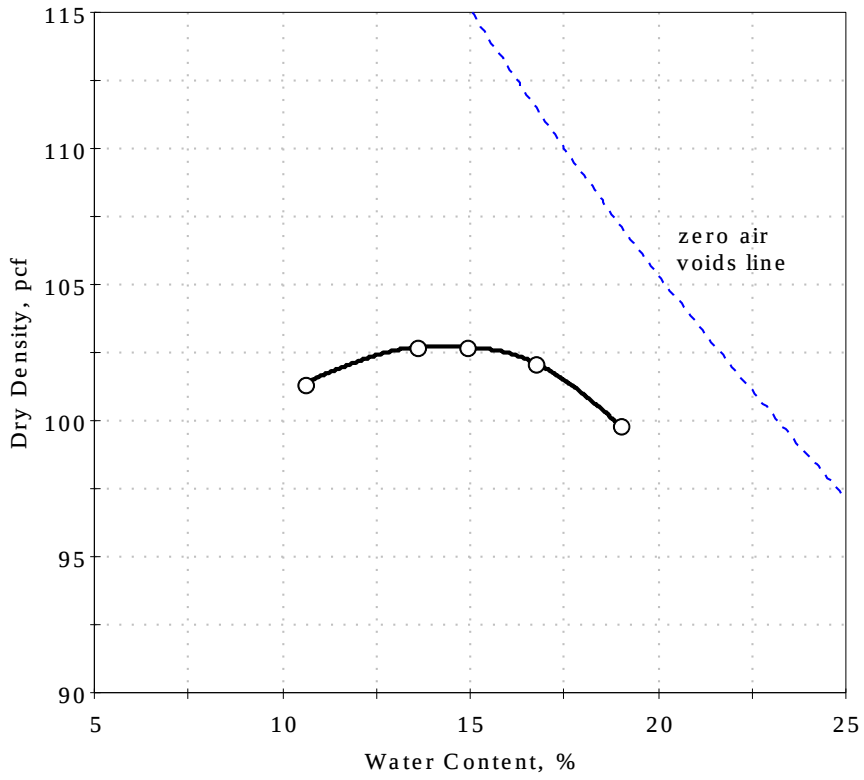
Maximum Dry Density= 110.3 pcf

Optimum Moisture= 13.3 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP28	Test Date:	11/14/18	Checked By:	emm
Depth :	---	Test Id:	480753		
Test Comment:	---				
Visual Description:	Moist, olive yellow sand with silt				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	101.4	102.7	102.7	102.2	99.9
Moisture Content, %	10.6	13.5	14.9	16.7	19.0

Method : A

Preparation : DRY

As received Moisture :10 %

Rammer : Mechanical

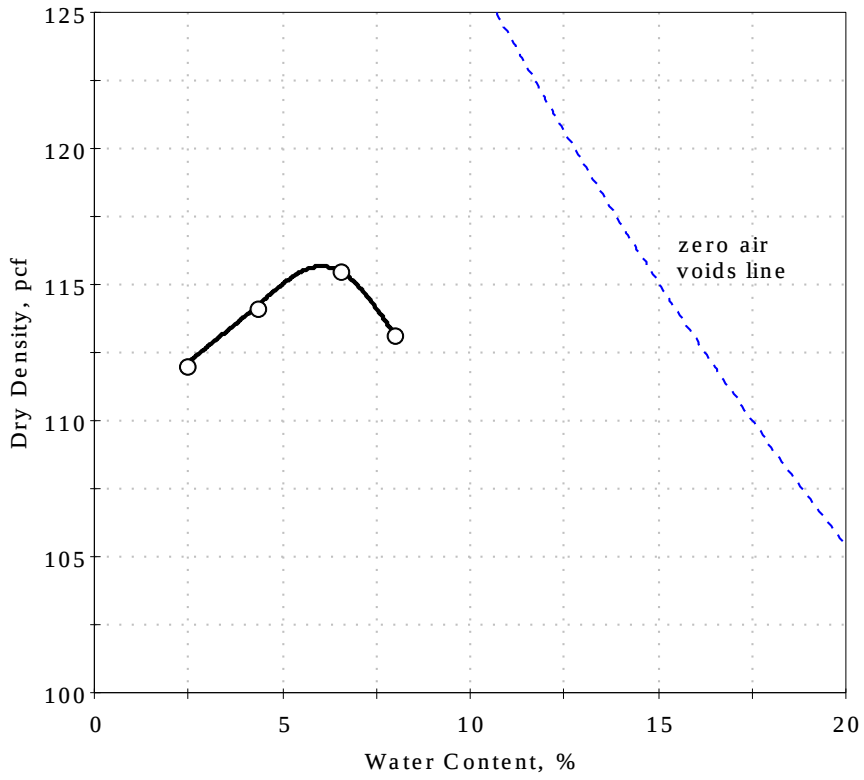
Zero voids line based on assumed specific gravity of 2.55

Maximum Dry Density= 102.8 pcf

Optimum Moisture= 14.2 %

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP29	Test Date:	11/20/18	Checked By:	emm
Depth :	---	Test Id:	480754		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	112.0	114.1	115.5	113.2
Moisture Content, %	2.4	4.3	6.5	8.0

Method : A

Preparation : DRY

As received Moisture :14 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.55

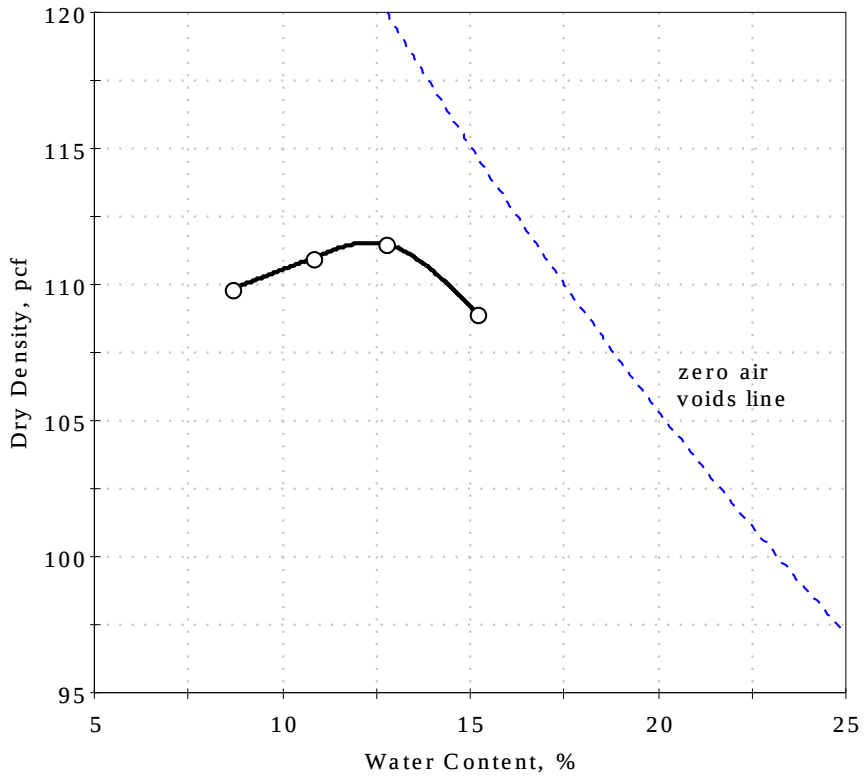
Maximum Dry Density= 115.7 pcf

Optimum Moisture= 6.1 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP30	Test Date:	11/16/18	Checked By:	emm
Depth :	---	Test Id:	480755		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	Sample contains organics				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	109.8	111.0	111.5	108.9
Moisture Content, %	8.7	10.8	12.7	15.2

Method : A

Preparation : DRY

As received Moisture :16 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.55

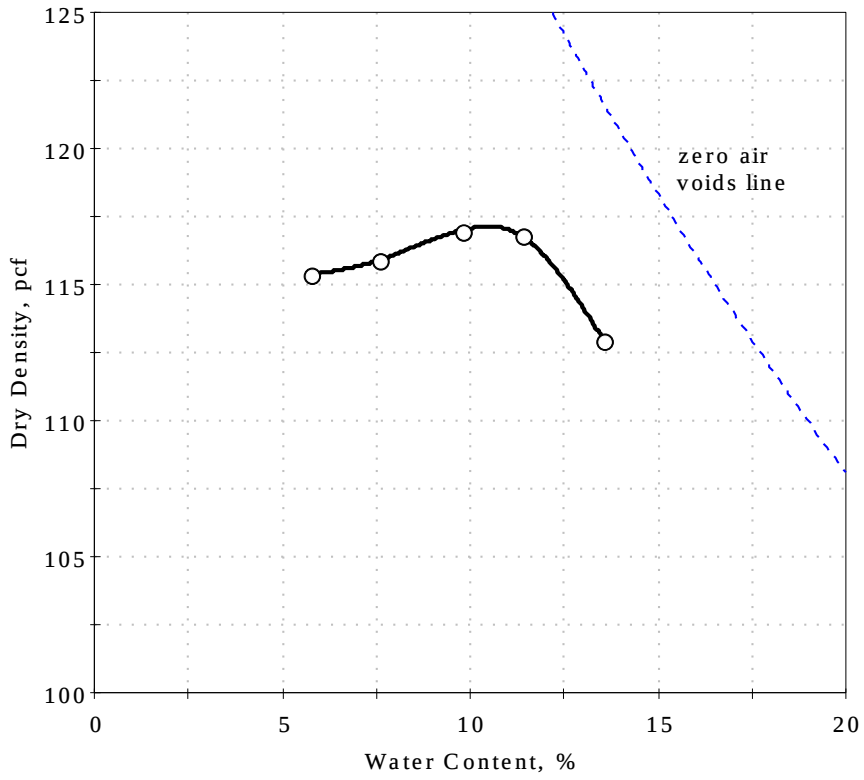
Maximum Dry Density= 111.6 pcf

Optimum Moisture= 12.3 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP31	Test Date:	11/16/18	Checked By:	emm
Depth :	---	Test Id:	480756		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	115.4	115.9	117.0	116.8	113.0
Moisture Content, %	5.7	7.6	9.8	11.4	13.6

Method : B

Preparation : DRY

As received Moisture :25 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.65

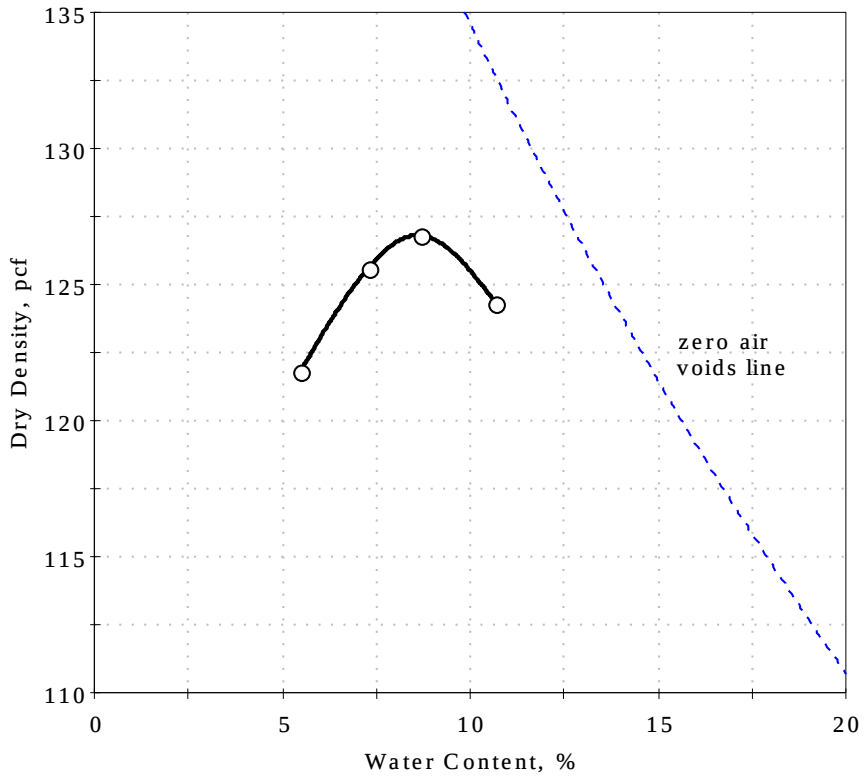
Maximum Dry Density= 117.1 pcf

Optimum Moisture= 10.5 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	MP35	Test Date:	11/19/18	Checked By:	emm
Depth :	---	Test Id:	480757		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	121.8	125.6	126.8	124.3
Moisture Content, %	5.5	7.3	8.7	10.7

Method : A

Preparation : DRY

As received Moisture :19 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.75

Maximum Dry Density= 126.8 pcf

Optimum Moisture= 8.6 %

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 14, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K0278

Enclosed are results of analyses for samples received by the laboratory on November 6, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

Table of Contents (continued)

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/14/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0278

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP33	18K0278-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP27	18K0278-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/14/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0278

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP28	18K0278-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP29	18K0278-04	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
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Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/14/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0278

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP30	18K0278-05	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
MP31	18K0278-06	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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ATTN: Paige Cornell

REPORT DATE: 11/14/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0278

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MP35	18K0278-07	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 11/09/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 8081B

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18K0278-01[MP33]

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35]

SW-846 8100 Modified

Qualifications:

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

TPH (C9-C36)
B216634-MS1

SW-846 8151A

Qualifications:

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

2,4,5-T [2C]
B216689-MS1, B216689-MSD1

2,4,5-TP (Silvex) [2C]
B216689-MS1, B216689-MSD1

2,4-D [2C]
B216689-MS1, B216689-MSD1

2,4-DB [2C]
B216689-MS1, B216689-MSD1

Dinoseb
B216689-MS1, B216689-MSD1

Dinoseb [2C]
B216689-BS1, B216689-BSD1, B216689-MS1, B216689-MSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Dinoseb
18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35]

SW-846 8260C

Qualifications:

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216709-BLK1, B216709-BS1, B216709-BSD1

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V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216709-BLK1, B216709-BS1, B216709-BSD1, S029248-CCV1

SW-846 8270D

Qualifications:

E

Reported result is estimated. Value reported over verified calibration range.

Analyte & Samples(s) Qualified:

Fluoranthene

18K0278-01[MP33]

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:

Aniline

B216591-MS1, B216591-MSD1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Aniline

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216591-BLK1, B216591-BS1, B216591-BSD1

Pyridine

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216591-BLK1, B216591-BS1, B216591-BSD1

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

4-Nitrophenol

B216591-BS1, B216591-BSD1

V-19

Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216591-BLK1, B216591-BS1, B216591-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

4-Nitrophenol

B216591-BLK1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Bromophenylphenylether

B216591-BSD1

4-Chloroaniline

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216591-BLK1, B216591-BS1, B216591-BSD1, B216591-MS1, B216591-MSD1

Aniline

18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29], 18K0278-05[MP30], 18K0278-06[MP31], 18K0278-07[MP35], B216591-BLK1, B216591-BS1, B216591-BSD1

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SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18K0278-01[MP33], 18K0278-02[MP27], 18K0278-03[MP28], 18K0278-04[MP29]

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Benzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Bromobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Bromochloromethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Bromodichloromethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Bromoform	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Bromomethane	ND	0.0049	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 13:17	MFF
2-Butanone (MEK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
n-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
sec-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
tert-Butylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Carbon Disulfide	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Carbon Tetrachloride	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Chlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Chlorodibromomethane	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Chloroethane	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Chloroform	ND	0.0020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Chloromethane	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
2-Chlorotoluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
4-Chlorotoluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2-Dibromoethane (EDB)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Dibromomethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,3-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,4-Dichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1-Dichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2-Dichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
cis-1,2-Dichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
trans-1,2-Dichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2-Dichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,3-Dichloropropane	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
2,2-Dichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1-Dichloropropene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
cis-1,3-Dichloropropene	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
trans-1,3-Dichloropropene	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Diethyl Ether	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Diisopropyl Ether (DIPE)	ND	0.00049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,4-Dioxane	ND	0.049	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Ethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
2-Hexanone (MBK)	ND	0.0098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Isopropylbenzene (Cumene)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Methylene Chloride	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.0098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Naphthalene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
n-Propylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Styrene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1,1,2-Tetrachloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1,2,2-Tetrachloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Tetrachloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Tetrahydrofuran	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Toluene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2,3-Trichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2,4-Trichlorobenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1,1-Trichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,1,2-Trichloroethane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Trichloroethylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2,3-Trichloropropane	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,2,4-Trimethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
1,3,5-Trimethylbenzene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
Vinyl Chloride	ND	0.0049	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
m+p Xylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF
o-Xylene	ND	0.00098	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:17	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	96.4	70-130		11/8/18 13:17
Toluene-d8	99.3	70-130		11/8/18 13:17
4-Bromofluorobenzene	98.4	70-130		11/8/18 13:17

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Acenaphthylene	0.49	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Acetophenone	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Aniline	ND	0.43	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Anthracene	0.56	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Benzo(a)anthracene	3.2	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Benzo(a)pyrene	2.0	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Benzo(b)fluoranthene	2.9	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Benzo(g,h,i)perylene	0.77	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Benzo(k)fluoranthene	1.2	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Bis(2-chloroethoxy)methane	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Bis(2-chloroethyl)ether	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Bis(2-chloroisopropyl)ether	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
4-Bromophenylphenylether	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Butylbenzylphthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
4-Chloroaniline	ND	0.84	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2-Chloronaphthalene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2-Chlorophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Chrysene	2.6	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Dibenz(a,h)anthracene	0.34	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Dibenzofuran	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Di-n-butylphthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
1,2-Dichlorobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
1,3-Dichlorobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
1,4-Dichlorobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
3,3-Dichlorobenzidine	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4-Dichlorophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Diethylphthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4-Dimethylphenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Dimethylphthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4-Dinitrophenol	ND	0.84	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4-Dinitrotoluene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,6-Dinitrotoluene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Di-n-octylphthalate	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Fluoranthene	8.0	0.22	mg/Kg dry	1	E	SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Fluoranthene	8.3	0.43	mg/Kg dry	2		SW-846 8270D	11/7/18	11/12/18 20:39	BGL
Fluorene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Hexachlorobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Hexachlorobutadiene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Hexachloroethane	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Indeno(1,2,3-cd)pyrene	1.1	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Isophorone	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylnaphthalene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2-Methylphenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
3/4-Methylphenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Naphthalene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Nitrobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2-Nitrophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
4-Nitrophenol	ND	0.84	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Pentachlorophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Phenanthrene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Phenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
Pyrene	6.4	0.43	mg/Kg dry	2		SW-846 8270D	11/7/18	11/12/18 20:39	BGL
Pyridine	ND	0.43	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 18:12	BGL
1,2,4-Trichlorobenzene	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4,5-Trichlorophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL
2,4,6-Trichlorophenol	ND	0.43	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:12	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	67.6	30-130		11/9/18 18:12
2-Fluorophenol	70.2	30-130		11/12/18 20:39
Phenol-d6	74.5	30-130		11/9/18 18:12
Phenol-d6	80.8	30-130		11/12/18 20:39
Nitrobenzene-d5	67.2	30-130		11/9/18 18:12
Nitrobenzene-d5	81.7	30-130		11/12/18 20:39
2-Fluorobiphenyl	58.8	30-130		11/9/18 18:12
2-Fluorobiphenyl	62.8	30-130		11/12/18 20:39
2,4,6-Tribromophenol	92.4	30-130		11/9/18 18:12
2,4,6-Tribromophenol	89.3	30-130		11/12/18 20:39
p-Terphenyl-d14	65.6	30-130		11/9/18 18:12
p-Terphenyl-d14	67.6	30-130		11/12/18 20:39

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Sample Flags: DL-03

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.24	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Aldrin [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
alpha-BHC [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
beta-BHC [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
delta-BHC [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
gamma-BHC (Lindane) [1]	ND	0.024	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Chlordane [1]	ND	0.24	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
4,4'-DDD [1]	ND	0.048	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
4,4'-DDE [1]	ND	0.048	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
4,4'-DDT [1]	ND	0.048	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Dieldrin [1]	ND	0.048	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endosulfan I [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endosulfan II [1]	ND	0.097	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endosulfan sulfate [1]	ND	0.097	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endrin [1]	ND	0.097	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endrin aldehyde [1]	ND	0.097	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Endrin ketone [1]	ND	0.097	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Heptachlor [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Heptachlor epoxide [1]	ND	0.061	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Hexachlorobenzene [1]	ND	0.073	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Methoxychlor [1]	ND	0.61	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG
Toxaphene [1]	ND	1.2	mg/Kg dry	10		SW-846 8081B	11/7/18	11/10/18 0:46	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	131	30-150		11/10/18 0:46
Decachlorobiphenyl [2]	111	30-150		11/10/18 0:46
Tetrachloro-m-xylene [1]	88.7	30-150		11/10/18 0:46
Tetrachloro-m-xylene [2]	81.2	30-150		11/10/18 0:46

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1221 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1232 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1242 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1248 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1254 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1260 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1262 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH
Aroclor-1268 [1]	ND	0.097	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:01	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.5	30-150		11/8/18 16:01
Decachlorobiphenyl [2]	103	30-150		11/8/18 16:01
Tetrachloro-m-xylene [1]	98.2	30-150		11/8/18 16:01
Tetrachloro-m-xylene [2]	87.0	30-150		11/8/18 16:01

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
2,4-DB [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
2,4,5-TP (Silvex) [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
2,4,5-T [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
Dalalpon [1]	ND	78	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
Dicamba [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
Dichloroprop [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
Dinoseb [1]	ND	16	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 9:23	TG
MCPA [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG
MCPP [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 9:23	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	80.3	30-150		11/10/18	9:23
2,4-Dichlorophenylacetic acid [2]	86.0	30-150		11/10/18	9:23

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	360	100	mg/Kg dry	10		SW-846 8100 Modified	11/7/18	11/8/18 15:16	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	64.5	40-140		11/8/18 15:16

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Arsenic	5.0	2.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Barium	16	2.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Beryllium	ND	0.21	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Cadmium	ND	0.21	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Chromium	8.2	0.42	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Lead	7.3	0.63	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:02	EJB
Nickel	4.7	0.42	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Selenium	ND	4.2	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Silver	ND	0.42	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Thallium	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Vanadium	9.4	0.84	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW
Zinc	9.1	0.84	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:09	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP33 | Sampled: 11/1/2018 13:30

Sample ID: 18K0278-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.4°C	5.9		pH Units	1	H-03	SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	3.4	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	78.6		% Wt	1		SM 2540G	11/12/18	11/13/18 10:28	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Bromomethane	ND	0.0080	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 13:42	MFF
2-Butanone (MEK)	ND	0.032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Carbon Disulfide	ND	0.0048	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Chlorodibromomethane	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Chloroethane	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Chloroform	ND	0.0032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Chloromethane	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2-Dibromoethane (EDB)	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1-Dichloroethylene	ND	0.0032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,3-Dichloropropane	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
cis-1,3-Dichloropropene	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
trans-1,3-Dichloropropene	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Diethyl Ether	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Diisopropyl Ether (DIPE)	ND	0.00080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,4-Dioxane	ND	0.080	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Methylene Chloride	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Naphthalene	ND	0.0032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1,2,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Tetrahydrofuran	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2,3-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
Vinyl Chloride	ND	0.0080	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
m+p Xylene	ND	0.0032	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 13:42	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	98.3	70-130		11/8/18 13:42
Toluene-d8	99.5	70-130		11/8/18 13:42
4-Bromofluorobenzene	97.5	70-130		11/8/18 13:42

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Acetophenone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Aniline	ND	0.37	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Benzo(b)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Bis(2-chloroethoxy)methane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Bis(2-chloroethyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Bis(2-chloroisopropyl)ether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
4-Bromophenylphenylether	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Butylbenzylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
4-Chloroaniline	ND	0.73	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2-Chloronaphthalene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2-Chlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Chrysene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Dibenzofuran	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Di-n-butylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
1,2-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
1,3-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
1,4-Dichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4-Dichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Diethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4-Dimethylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Dimethylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4-Dinitrophenol	ND	0.73	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4-Dinitrotoluene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,6-Dinitrotoluene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Di-n-octylphthalate	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Hexachlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Hexachlorobutadiene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Hexachloroethane	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Isophorone	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
3/4-Methylphenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Nitrobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2-Nitrophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
4-Nitrophenol	ND	0.73	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Pentachlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Phenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
Pyridine	ND	0.37	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 18:39	BGL
1,2,4-Trichlorobenzene	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4,5-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL
2,4,6-Trichlorophenol	ND	0.37	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 18:39	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	64.0	30-130		11/9/18 18:39
Phenol-d6	72.5	30-130		11/9/18 18:39
Nitrobenzene-d5	71.6	30-130		11/9/18 18:39
2-Fluorobiphenyl	68.1	30-130		11/9/18 18:39
2,4,6-Tribromophenol	105	30-130		11/9/18 18:39
p-Terphenyl-d14	86.4	30-130		11/9/18 18:39

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Aldrin [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
alpha-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
beta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
delta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
4,4'-DDD [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
4,4'-DDE [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
4,4'-DDT [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Dieldrin [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endosulfan I [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endosulfan II [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endosulfan sulfate [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endrin [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endrin aldehyde [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Endrin ketone [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Heptachlor [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Heptachlor epoxide [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Hexachlorobenzene [1]	ND	0.0065	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Methoxychlor [1]	ND	0.054	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:13	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	104	30-150		11/10/18 1:13
Decachlorobiphenyl [2]	103	30-150		11/10/18 1:13
Tetrachloro-m-xylene [1]	113	30-150		11/10/18 1:13
Tetrachloro-m-xylene [2]	106	30-150		11/10/18 1:13

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 16:19	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	103	30-150		11/8/18 16:19
Decachlorobiphenyl [2]	99.4	30-150		11/8/18 16:19
Tetrachloro-m-xylene [1]	100	30-150		11/8/18 16:19
Tetrachloro-m-xylene [2]	92.5	30-150		11/8/18 16:19

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
2,4-DB [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
2,4,5-TP (Silvex) [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
2,4,5-T [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
Dalalpon [1]	ND	70	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
Dicamba [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
Dichloroprop [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
Dinoseb [1]	ND	14	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 10:03	TG
MCPA [1]	ND	2800	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG
MCPP [1]	ND	2800	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:03	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	85.6	30-150		11/10/18 10:03	
2,4-Dichlorophenylacetic acid [2]	84.1	30-150		11/10/18 10:03	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	20	9.1	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 13:16	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	64.9	40-140		11/8/18 13:16

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Arsenic	7.3	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Barium	16	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Beryllium	ND	0.19	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Cadmium	0.26	0.19	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Chromium	7.4	0.37	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Lead	5.2	0.56	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:04	EJB
Nickel	4.4	0.37	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Vanadium	8.9	0.75	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW
Zinc	9.5	0.75	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:14	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP27 | Sampled: 11/5/2018 11:00

Sample ID: 18K0278-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.2°C	5.2		pH Units	1	H-03	SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	2.2	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	89.1		% Wt	1		SM 2540G	11/12/18	11/13/18 10:29	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Bromomethane	ND	0.0074	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 14:06	MFF
2-Butanone (MEK)	ND	0.029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Carbon Disulfide	ND	0.0044	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Chlorodibromomethane	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Chloroethane	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Chloroform	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Chloromethane	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2-Dibromoethane (EDB)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1-Dichloroethylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,3-Dichloropropane	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
cis-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
trans-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Diethyl Ether	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Diisopropyl Ether (DIPE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,4-Dioxane	ND	0.074	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Methylene Chloride	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Naphthalene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1,2,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Tetrahydrofuran	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2,3-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
Vinyl Chloride	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
m+p Xylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:06	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	97.1	70-130		11/8/18 14:06
Toluene-d8	98.6	70-130		11/8/18 14:06
4-Bromofluorobenzene	96.7	70-130		11/8/18 14:06

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Aniline	ND	0.39	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
4-Chloroaniline	ND	0.76	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4-Dinitrophenol	ND	0.76	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
4-Nitrophenol	ND	0.76	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
Pyridine	ND	0.39	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 19:06	BGL
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:06	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	67.0	30-130		11/9/18 19:06
Phenol-d6	73.7	30-130		11/9/18 19:06
Nitrobenzene-d5	67.6	30-130		11/9/18 19:06
2-Fluorobiphenyl	70.8	30-130		11/9/18 19:06
2,4,6-Tribromophenol	107	30-130		11/9/18 19:06
p-Terphenyl-d14	83.9	30-130		11/9/18 19:06

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Aldrin [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
alpha-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
beta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
delta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
4,4'-DDD [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
4,4'-DDE [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
4,4'-DDT [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Dieldrin [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endosulfan I [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endosulfan II [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endosulfan sulfate [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endrin [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endrin aldehyde [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Endrin ketone [1]	ND	0.0087	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Heptachlor [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Heptachlor epoxide [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Hexachlorobenzene [1]	ND	0.0066	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Methoxychlor [1]	ND	0.055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 1:40	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.0	30-150		11/10/18 1:40
Decachlorobiphenyl [2]	91.6	30-150		11/10/18 1:40
Tetrachloro-m-xylene [1]	94.6	30-150		11/10/18 1:40
Tetrachloro-m-xylene [2]	84.7	30-150		11/10/18 1:40

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1260 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:23	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	105	30-150		11/8/18 17:23
Decachlorobiphenyl [2]	103	30-150		11/8/18 17:23
Tetrachloro-m-xylene [1]	101	30-150		11/8/18 17:23
Tetrachloro-m-xylene [2]	93.2	30-150		11/8/18 17:23

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
2,4-DB [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
2,4,5-TP (Silvex) [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
2,4,5-T [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
Dalalpon [1]	ND	72	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
Dicamba [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
Dichloroprop [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
Dinoseb [1]	ND	14	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 10:43	TG
MCPA [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG
MCPP [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 10:43	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	85.3	30-150		11/10/18 10:43
2,4-Dichlorophenylacetic acid [2]	83.7	30-150		11/10/18 10:43

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	32	9.6	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 13:36	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	64.0	40-140		11/8/18 13:36

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Arsenic	3.6	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Barium	21	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Beryllium	ND	0.19	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Cadmium	ND	0.19	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Chromium	7.0	0.38	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Lead	6.0	0.58	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:05	EJB
Nickel	4.0	0.38	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Selenium	ND	3.8	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Silver	ND	0.38	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Vanadium	9.9	0.77	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW
Zinc	7.8	0.77	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:19	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP28 | Sampled: 11/5/2018 12:05

Sample ID: 18K0278-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.1°C	5.5		pH Units	1	H-03	SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	2.7	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	86.3		% Wt	1		SM 2540G	11/12/18	11/13/18 10:29	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Benzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Bromobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Bromochloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Bromodichloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Bromoform	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Bromomethane	ND	0.0072	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 14:31	MFF
2-Butanone (MEK)	ND	0.029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
n-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
sec-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
tert-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Carbon Disulfide	ND	0.0043	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Carbon Tetrachloride	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Chlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Chlorodibromomethane	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Chloroethane	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Chloroform	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Chloromethane	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
2-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
4-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2-Dibromoethane (EDB)	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Dibromomethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,3-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,4-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1-Dichloroethylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
cis-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
trans-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,3-Dichloropropane	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
2,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1-Dichloropropene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
cis-1,3-Dichloropropene	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
trans-1,3-Dichloropropene	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Diethyl Ether	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Diisopropyl Ether (DIPE)	ND	0.00072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,4-Dioxane	ND	0.072	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Ethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
2-Hexanone (MBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Isopropylbenzene (Cumene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Methylene Chloride	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Naphthalene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
n-Propylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Styrene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1,1,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1,2,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Tetrachloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Tetrahydrofuran	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Toluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2,3-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2,4-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1,1-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,1,2-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Trichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2,3-Trichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,2,4-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
1,3,5-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
Vinyl Chloride	ND	0.0072	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
m+p Xylene	ND	0.0029	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF
o-Xylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:31	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	97.6	70-130		11/8/18 14:31
Toluene-d8	100	70-130		11/8/18 14:31
4-Bromofluorobenzene	97.8	70-130		11/8/18 14:31

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Acetophenone	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Aniline	ND	0.36	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Benzo(b)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Bis(2-chloroethoxy)methane	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Bis(2-chloroisopropyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
4-Bromophenylphenylether	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Butylbenzylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
4-Chloroaniline	ND	0.69	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2-Chloronaphthalene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2-Chlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Chrysene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Dibenzofuran	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Di-n-butylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
1,2-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
1,3-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
1,4-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4-Dichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Diethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4-Dimethylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Dimethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4-Dinitrophenol	ND	0.69	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,6-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Di-n-octylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Hexachlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Hexachlorobutadiene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Hexachloroethane	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Isophorone	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
3/4-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Nitrobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2-Nitrophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
4-Nitrophenol	ND	0.69	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Pentachlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Phenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
Pyridine	ND	0.36	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 19:33	BGL
1,2,4-Trichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4,5-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL
2,4,6-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 19:33	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	73.0	30-130		11/9/18 19:33
Phenol-d6	84.6	30-130		11/9/18 19:33
Nitrobenzene-d5	87.3	30-130		11/9/18 19:33
2-Fluorobiphenyl	76.7	30-130		11/9/18 19:33
2,4,6-Tribromophenol	116	30-130		11/9/18 19:33
p-Terphenyl-d14	92.8	30-130		11/9/18 19:33

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Aldrin [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
alpha-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
beta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
delta-BHC [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
gamma-BHC (Lindane) [1]	ND	0.0021	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Chlordane [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
4,4'-DDD [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
4,4'-DDE [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
4,4'-DDT [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Dieldrin [1]	ND	0.0042	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endosulfan I [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endosulfan II [1]	ND	0.0084	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endosulfan sulfate [1]	ND	0.0084	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endrin [1]	ND	0.0084	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endrin aldehyde [1]	ND	0.0084	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Endrin ketone [1]	ND	0.0084	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Heptachlor [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Heptachlor epoxide [1]	ND	0.0052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Hexachlorobenzene [1]	ND	0.0063	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Methoxychlor [1]	ND	0.052	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG
Toxaphene [1]	ND	0.10	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:07	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	106	30-150		11/10/18 2:07
Decachlorobiphenyl [2]	104	30-150		11/10/18 2:07
Tetrachloro-m-xylene [1]	113	30-150		11/10/18 2:07
Tetrachloro-m-xylene [2]	110	30-150		11/10/18 2:07

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:40	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	103	30-150		11/8/18 17:40
Decachlorobiphenyl [2]	101	30-150		11/8/18 17:40
Tetrachloro-m-xylene [1]	103	30-150		11/8/18 17:40
Tetrachloro-m-xylene [2]	95.6	30-150		11/8/18 17:40

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
2,4-DB [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
2,4,5-TP (Silvex) [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
2,4,5-T [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
Dalalpon [1]	ND	67	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
Dicamba [1]	ND	2.7	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
Dichloroprop [1]	ND	27	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
Dinoseb [1]	ND	13	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 11:24	TG
MCPA [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG
MCPP [1]	ND	2700	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 11:24	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	79.6	30-150		11/10/18 11:24
2,4-Dichlorophenylacetic acid [2]	79.5	30-150		11/10/18 11:24

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	12	9.0	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 13:56	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	62.1	40-140					11/8/18 13:56

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Arsenic	5.0	1.8	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Barium	19	1.8	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Beryllium	ND	0.18	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Cadmium	0.20	0.18	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Chromium	11	0.36	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Lead	3.6	0.54	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Mercury	ND	0.026	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:11	EJB
Nickel	6.1	0.36	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Selenium	ND	3.6	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Silver	ND	0.36	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Vanadium	13	0.72	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW
Zinc	12	0.72	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:24	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP29 | Sampled: 11/5/2018 13:15

Sample ID: 18K0278-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.3°C	5.1		pH Units	1	H-03	SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	2.6	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	92.6		% Wt	1		SM 2540G	11/12/18	11/13/18 10:29	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Bromomethane	ND	0.0088	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 14:55	MFF
2-Butanone (MEK)	ND	0.035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Carbon Disulfide	ND	0.0053	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Chlorodibromomethane	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Chloroethane	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Chloroform	ND	0.0035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Chloromethane	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2-Dibromoethane (EDB)	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1-Dichloroethylene	ND	0.0035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,3-Dichloropropane	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
cis-1,3-Dichloropropene	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
trans-1,3-Dichloropropene	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Diethyl Ether	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Diisopropyl Ether (DIPE)	ND	0.00088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,4-Dioxane	ND	0.088	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Methylene Chloride	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Naphthalene	ND	0.0035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1,2,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Tetrahydrofuran	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2,3-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
Vinyl Chloride	ND	0.0088	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
m+p Xylene	ND	0.0035	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 14:55	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	97.0	70-130		11/8/18 14:55
Toluene-d8	98.1	70-130		11/8/18 14:55
4-Bromofluorobenzene	99.8	70-130		11/8/18 14:55

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Acetophenone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Aniline	ND	0.41	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Bis(2-chloroethoxy)methane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Bis(2-chloroethyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Bis(2-chloroisopropyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
4-Bromophenylphenylether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Butylbenzylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
4-Chloroaniline	ND	0.79	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2-Chloronaphthalene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2-Chlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Dibenzofuran	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Di-n-butylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
1,2-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
1,3-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
1,4-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4-Dichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Diethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4-Dimethylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Dimethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4-Dinitrophenol	ND	0.79	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,6-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Di-n-octylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Hexachlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Hexachlorobutadiene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Hexachloroethane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Isophorone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
3/4-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Nitrobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2-Nitrophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
4-Nitrophenol	ND	0.79	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Pentachlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Phenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
Pyridine	ND	0.41	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 20:00	BGL
1,2,4-Trichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4,5-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL
2,4,6-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:00	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	73.4	30-130		11/9/18 20:00
Phenol-d6	87.7	30-130		11/9/18 20:00
Nitrobenzene-d5	89.7	30-130		11/9/18 20:00
2-Fluorobiphenyl	73.7	30-130		11/9/18 20:00
2,4,6-Tribromophenol	111	30-130		11/9/18 20:00
p-Terphenyl-d14	86.2	30-130		11/9/18 20:00

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.024	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Aldrin [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
alpha-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
beta-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
delta-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
gamma-BHC (Lindane) [1]	ND	0.0024	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Chlordane [1]	ND	0.024	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
4,4'-DDD [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
4,4'-DDE [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
4,4'-DDT [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Dieldrin [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endosulfan I [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endosulfan II [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endosulfan sulfate [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endrin [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endrin aldehyde [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Endrin ketone [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Heptachlor [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Heptachlor epoxide [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Hexachlorobenzene [1]	ND	0.0071	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Methoxychlor [1]	ND	0.059	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 2:34	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.6	30-150		11/10/18 2:34
Decachlorobiphenyl [2]	88.6	30-150		11/10/18 2:34
Tetrachloro-m-xylene [1]	98.3	30-150		11/10/18 2:34
Tetrachloro-m-xylene [2]	95.4	30-150		11/10/18 2:34

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1221 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1232 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1242 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1248 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1254 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1260 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1262 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH
Aroclor-1268 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 17:57	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	98.3	30-150		11/8/18 17:57
Decachlorobiphenyl [2]	95.4	30-150		11/8/18 17:57
Tetrachloro-m-xylene [1]	91.9	30-150		11/8/18 17:57
Tetrachloro-m-xylene [2]	83.9	30-150		11/8/18 17:57

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
Dalalpon [1]	ND	75	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
Dinoseb [1]	ND	15	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 12:04	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:04	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	82.1	30-150		11/10/18 12:04
2,4-Dichlorophenylacetic acid [2]	87.7	30-150		11/10/18 12:04

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	26	10	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 14:16	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	64.9	40-140					11/8/18 14:16

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Arsenic	9.3	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Barium	19	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Beryllium	0.27	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Cadmium	0.34	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Chromium	11	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Lead	7.4	0.61	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:13	EJB
Nickel	5.8	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Selenium	ND	4.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Silver	ND	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Vanadium	15	0.81	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW
Zinc	14	0.81	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:29	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP30 | Sampled: 11/6/2018 08:50

Sample ID: 18K0278-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.4°C	4.6		pH Units	1		SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	3.8	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	82.0		% Wt	1		SM 2540G	11/12/18	11/13/18 10:29	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Benzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Bromobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Bromochloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Bromodichloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Bromoform	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Bromomethane	ND	0.0095	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 15:20	MFF
2-Butanone (MEK)	ND	0.038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
n-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
sec-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
tert-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Carbon Disulfide	ND	0.0057	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Carbon Tetrachloride	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Chlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Chlorodibromomethane	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Chloroethane	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Chloroform	ND	0.0038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Chloromethane	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
2-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
4-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2-Dibromoethane (EDB)	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Dibromomethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,3-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,4-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1-Dichloroethylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
cis-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
trans-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,3-Dichloropropane	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
2,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1-Dichloropropene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
cis-1,3-Dichloropropene	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
trans-1,3-Dichloropropene	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Diethyl Ether	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Diisopropyl Ether (DIPE)	ND	0.00095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,4-Dioxane	ND	0.095	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Ethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
2-Hexanone (MBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Isopropylbenzene (Cumene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Methylene Chloride	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Naphthalene	ND	0.0038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
n-Propylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Styrene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1,1,2-Tetrachloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1,2,2-Tetrachloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Tetrachloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Tetrahydrofuran	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Toluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2,3-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2,4-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1,1-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,1,2-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Trichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2,3-Trichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,2,4-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
1,3,5-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
Vinyl Chloride	ND	0.0095	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
m+p Xylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF
o-Xylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:20	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	101	70-130		11/8/18 15:20
Toluene-d8	96.5	70-130		11/8/18 15:20
4-Bromofluorobenzene	96.2	70-130		11/8/18 15:20

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Acenaphthylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Acetophenone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Aniline	ND	0.41	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Benzo(a)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Benzo(a)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Benzo(b)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Benzo(g,h,i)perylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Benzo(k)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Bis(2-chloroethoxy)methane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Bis(2-chloroethyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Bis(2-chloroisopropyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
4-Bromophenylphenylether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Butylbenzylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
4-Chloroaniline	ND	0.80	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2-Chloronaphthalene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2-Chlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Chrysene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Dibenzofuran	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Di-n-butylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
1,2-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
1,3-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
1,4-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4-Dichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Diethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4-Dimethylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Dimethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4-Dinitrophenol	ND	0.80	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,6-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Di-n-octylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Hexachlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Hexachlorobutadiene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Hexachloroethane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Indeno(1,2,3-cd)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Isophorone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
3/4-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Nitrobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2-Nitrophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
4-Nitrophenol	ND	0.80	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Pentachlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Phenanthrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Phenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
Pyridine	ND	0.41	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 20:27	BGL
1,2,4-Trichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4,5-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL
2,4,6-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:27	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	74.7	30-130		11/9/18 20:27
Phenol-d6	83.0	30-130		11/9/18 20:27
Nitrobenzene-d5	78.4	30-130		11/9/18 20:27
2-Fluorobiphenyl	64.7	30-130		11/9/18 20:27
2,4,6-Tribromophenol	97.4	30-130		11/9/18 20:27
p-Terphenyl-d14	76.9	30-130		11/9/18 20:27

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Aldrin [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
alpha-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
beta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
delta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
4,4'-DDD [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
4,4'-DDE [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
4,4'-DDT [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Dieldrin [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Endosulfan I [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Endosulfan II [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Endosulfan sulfate [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Endrin [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Endrin aldehyde [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:01	TG
Endrin ketone [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Heptachlor [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Heptachlor epoxide [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Hexachlorobenzene [1]	ND	0.0067	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Methoxychlor [1]	ND	0.056	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 9:56	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	82.0	30-150		11/10/18 9:56
Decachlorobiphenyl [2]	79.5	30-150		11/10/18 9:56
Tetrachloro-m-xylene [1]	80.4	30-150		11/10/18 9:56
Tetrachloro-m-xylene [2]	70.8	30-150		11/10/18 9:56

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:14	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	96.5	30-150		11/8/18 18:14
Decachlorobiphenyl [2]	95.3	30-150		11/8/18 18:14
Tetrachloro-m-xylene [1]	86.2	30-150		11/8/18 18:14
Tetrachloro-m-xylene [2]	79.8	30-150		11/8/18 18:14

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
Dalalpon [1]	ND	76	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
Dinoseb [1]	ND	15	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 12:44	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 12:44	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	83.6	30-150		11/10/18 12:44
2,4-Dichlorophenylacetic acid [2]	99.2	30-150		11/10/18 12:44

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	18	10	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 14:36	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	63.2	40-140		11/8/18 14:36

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Arsenic	3.2	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Barium	17	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Beryllium	ND	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Cadmium	ND	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Chromium	6.9	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Lead	13	0.61	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Mercury	ND	0.031	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:14	EJB
Nickel	5.4	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Selenium	ND	4.1	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Silver	ND	0.41	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Vanadium	7.8	0.81	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW
Zinc	57	0.81	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:34	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP31 | Sampled: 11/6/2018 10:05

Sample ID: 18K0278-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20°C	5.3		pH Units	1		SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	3.3	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	81.6		% Wt	1		SM 2540G	11/12/18	11/13/18 10:29	MJR

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Benzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Bromobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Bromochloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Bromodichloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Bromoform	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Bromomethane	ND	0.0071	mg/Kg dry	1	V-34	SW-846 8260C	11/8/18	11/8/18 15:45	MFF
2-Butanone (MEK)	ND	0.028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
n-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
sec-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
tert-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Carbon Disulfide	ND	0.0043	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Carbon Tetrachloride	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Chlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Chlorodibromomethane	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Chloroethane	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Chloroform	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Chloromethane	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
2-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
4-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2-Dibromoethane (EDB)	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Dibromomethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,3-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,4-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1-Dichloroethylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
cis-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
trans-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,3-Dichloropropane	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
2,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1-Dichloropropene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
cis-1,3-Dichloropropene	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
trans-1,3-Dichloropropene	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Diethyl Ether	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Diisopropyl Ether (DIPE)	ND	0.00071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,4-Dioxane	ND	0.071	mg/Kg dry	1	V-16	SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Ethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
2-Hexanone (MBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Isopropylbenzene (Cumene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Methylene Chloride	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Naphthalene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
n-Propylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Styrene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1,1,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1,2,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Tetrachloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Tetrahydrofuran	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Toluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2,3-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2,4-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1,1-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,1,2-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Trichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2,3-Trichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,2,4-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
1,3,5-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
Vinyl Chloride	ND	0.0071	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
m+p Xylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF
o-Xylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/8/18	11/8/18 15:45	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	96.0	70-130		11/8/18 15:45
Toluene-d8	98.9	70-130		11/8/18 15:45
4-Bromofluorobenzene	98.8	70-130		11/8/18 15:45

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Acetophenone	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Aniline	ND	0.40	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Bis(2-chloroethoxy)methane	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Bis(2-chloroethyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Bis(2-chloroisopropyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
4-Bromophenylphenylether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Butylbenzylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
4-Chloroaniline	ND	0.77	mg/Kg dry	1	V-34	SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2-Chloronaphthalene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2-Chlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Dibenzofuran	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Di-n-butylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
1,2-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
1,3-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
1,4-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4-Dichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Diethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4-Dimethylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Dimethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4-Dinitrophenol	ND	0.77	mg/Kg dry	1	V-19	SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,6-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Di-n-octylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Hexachlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Hexachlorobutadiene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Hexachloroethane	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Isophorone	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
3/4-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Nitrobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2-Nitrophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
4-Nitrophenol	ND	0.77	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Pentachlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Phenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
Pyridine	ND	0.40	mg/Kg dry	1	V-05	SW-846 8270D	11/7/18	11/9/18 20:54	BGL
1,2,4-Trichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4,5-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL
2,4,6-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/7/18	11/9/18 20:54	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	73.2	30-130		11/9/18 20:54
Phenol-d6	83.2	30-130		11/9/18 20:54
Nitrobenzene-d5	84.1	30-130		11/9/18 20:54
2-Fluorobiphenyl	69.7	30-130		11/9/18 20:54
2,4,6-Tribromophenol	103	30-130		11/9/18 20:54
p-Terphenyl-d14	79.8	30-130		11/9/18 20:54

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Aldrin [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
alpha-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
beta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
delta-BHC [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
4,4'-DDD [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
4,4'-DDE [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
4,4'-DDT [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Dieldrin [1]	ND	0.0044	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endosulfan I [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endosulfan II [1]	ND	0.0089	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endosulfan sulfate [1]	ND	0.0089	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endrin [1]	ND	0.0089	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endrin aldehyde [1]	ND	0.0089	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Endrin ketone [1]	ND	0.0089	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Heptachlor [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Heptachlor epoxide [1]	ND	0.0055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Hexachlorobenzene [1]	ND	0.0067	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Methoxychlor [1]	ND	0.055	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/7/18	11/10/18 3:28	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	96.5	30-150		11/10/18 3:28
Decachlorobiphenyl [2]	95.4	30-150		11/10/18 3:28
Tetrachloro-m-xylene [1]	97.0	30-150		11/10/18 3:28
Tetrachloro-m-xylene [2]	85.0	30-150		11/10/18 3:28

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/7/18	11/8/18 18:32	AYH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	112	30-150		11/8/18 18:32
Decachlorobiphenyl [2]	111	30-150		11/8/18 18:32
Tetrachloro-m-xylene [1]	102	30-150		11/8/18 18:32
Tetrachloro-m-xylene [2]	94.7	30-150		11/8/18 18:32

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
2,4-DB [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
2,4,5-TP (Silvex) [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
2,4,5-T [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
Dalalpon [1]	ND	75	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
Dicamba [1]	ND	3.0	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
Dichloroprop [1]	ND	30	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
Dinoseb [1]	ND	15	µg/kg dry	1	V-20	SW-846 8151A	11/8/18	11/10/18 14:29	TG
MCPA [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG
MCPP [1]	ND	3000	µg/kg dry	1		SW-846 8151A	11/8/18	11/10/18 14:29	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	71.5	30-150		11/10/18 14:29
2,4-Dichlorophenylacetic acid [2]	70.2	30-150		11/10/18 14:29

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	21	9.7	mg/Kg dry	1		SW-846 8100 Modified	11/7/18	11/8/18 14:56	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	62.0	40-140					11/8/18 14:56

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Arsenic	5.9	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Barium	36	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Beryllium	0.41	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Cadmium	0.26	0.20	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Chromium	16	0.39	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Lead	10	0.59	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	11/8/18	11/8/18 16:16	EJB
Nickel	12	0.39	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Selenium	ND	3.9	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Silver	ND	0.39	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Vanadium	21	0.78	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW
Zinc	22	0.78	mg/Kg dry	1		SW-846 6010D	11/8/18	11/9/18 14:43	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0278

Date Received: 11/6/2018

Field Sample #: MP35 | Sampled: 11/6/2018 12:00

Sample ID: 18K0278-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/7/18	11/7/18 14:47	LED
pH @20.4°C	5.5		pH Units	1		SW-846 9045C	11/6/18	11/6/18 22:41	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/8/18	11/12/18 13:00	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/8/18	11/12/18 12:15	DJM
Specific conductance	2.8	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/9/18	11/9/18 15:50	EC
% Solids	83.4		% Wt	1		SM 2540G	11/12/18	11/13/18 10:30	MJR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18K0278-01 [MP33]	B217033	11/12/18
18K0278-02 [MP27]	B217033	11/12/18
18K0278-03 [MP28]	B217033	11/12/18
18K0278-04 [MP29]	B217033	11/12/18
18K0278-05 [MP30]	B217033	11/12/18
18K0278-06 [MP31]	B217033	11/12/18
18K0278-07 [MP35]	B217033	11/12/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0278-01 [MP33]	B216817	1.00	11/09/18
18K0278-02 [MP27]	B216817	1.00	11/09/18
18K0278-03 [MP28]	B216817	1.00	11/09/18
18K0278-04 [MP29]	B216817	1.00	11/09/18
18K0278-05 [MP30]	B216817	1.00	11/09/18
18K0278-06 [MP31]	B216817	1.00	11/09/18
18K0278-07 [MP35]	B216817	1.00	11/09/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0278-01 [MP33]	B216677	50.0	11/07/18
18K0278-02 [MP27]	B216677	50.0	11/07/18
18K0278-03 [MP28]	B216677	50.0	11/07/18
18K0278-04 [MP29]	B216677	50.0	11/07/18
18K0278-05 [MP30]	B216677	50.0	11/07/18
18K0278-06 [MP31]	B216677	50.0	11/07/18
18K0278-07 [MP35]	B216677	50.0	11/07/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216743	1.51	50.0	11/08/18
18K0278-02 [MP27]	B216743	1.50	50.0	11/08/18
18K0278-03 [MP28]	B216743	1.51	50.0	11/08/18
18K0278-04 [MP29]	B216743	1.50	50.0	11/08/18
18K0278-05 [MP30]	B216743	1.50	50.0	11/08/18
18K0278-06 [MP31]	B216743	1.51	50.0	11/08/18
18K0278-07 [MP35]	B216743	1.54	50.0	11/08/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216703	0.638	50.0	11/08/18
18K0278-02 [MP27]	B216703	0.572	50.0	11/08/18
18K0278-03 [MP28]	B216703	0.606	50.0	11/08/18
18K0278-04 [MP29]	B216703	0.616	50.0	11/08/18
18K0278-05 [MP30]	B216703	0.616	50.0	11/08/18
18K0278-06 [MP31]	B216703	0.587	50.0	11/08/18

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Sample Extraction Data

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-07 [MP35]	B216703	0.602	50.0	11/08/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216575	10.5	10.0	11/07/18
18K0278-02 [MP27]	B216575	10.4	10.0	11/07/18
18K0278-03 [MP28]	B216575	10.6	10.0	11/07/18
18K0278-04 [MP29]	B216575	10.3	10.0	11/07/18
18K0278-05 [MP30]	B216575	10.3	10.0	11/07/18
18K0278-06 [MP31]	B216575	10.9	10.0	11/07/18
18K0278-07 [MP35]	B216575	10.8	10.0	11/07/18

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216574	10.5	10.0	11/07/18
18K0278-02 [MP27]	B216574	10.4	10.0	11/07/18
18K0278-03 [MP28]	B216574	10.6	10.0	11/07/18
18K0278-04 [MP29]	B216574	10.3	10.0	11/07/18
18K0278-05 [MP30]	B216574	10.3	10.0	11/07/18
18K0278-06 [MP31]	B216574	10.9	10.0	11/07/18
18K0278-07 [MP35]	B216574	10.8	10.0	11/07/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216634	30.7	1.00	11/07/18
18K0278-02 [MP27]	B216634	30.9	1.00	11/07/18
18K0278-03 [MP28]	B216634	30.3	1.00	11/07/18
18K0278-04 [MP29]	B216634	30.1	1.00	11/07/18
18K0278-05 [MP30]	B216634	30.1	1.00	11/07/18
18K0278-06 [MP31]	B216634	30.2	1.00	11/07/18
18K0278-07 [MP35]	B216634	30.9	1.00	11/07/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216689	20.3	5.00	11/08/18
18K0278-02 [MP27]	B216689	20.1	5.00	11/08/18
18K0278-03 [MP28]	B216689	20.0	5.00	11/08/18
18K0278-04 [MP29]	B216689	20.0	5.00	11/08/18
18K0278-05 [MP30]	B216689	20.3	5.00	11/08/18
18K0278-06 [MP31]	B216689	20.1	5.00	11/08/18
18K0278-07 [MP35]	B216689	20.1	5.00	11/08/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216709	13.0	10.0	11/08/18
18K0278-02 [MP27]	B216709	7.00	10.0	11/08/18
18K0278-03 [MP28]	B216709	7.88	10.0	11/08/18
18K0278-04 [MP29]	B216709	7.53	10.0	11/08/18
18K0278-05 [MP30]	B216709	6.90	10.0	11/08/18
18K0278-06 [MP31]	B216709	6.45	10.0	11/08/18
18K0278-07 [MP35]	B216709	8.41	10.0	11/08/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216591	30.1	1.00	11/07/18
18K0278-01RE1 [MP33]	B216591	30.1	1.00	11/07/18
18K0278-02 [MP27]	B216591	30.6	1.00	11/07/18
18K0278-03 [MP28]	B216591	30.1	1.00	11/07/18
18K0278-04 [MP29]	B216591	30.9	1.00	11/07/18
18K0278-05 [MP30]	B216591	30.5	1.00	11/07/18
18K0278-06 [MP31]	B216591	30.3	1.00	11/07/18
18K0278-07 [MP35]	B216591	30.8	1.00	11/07/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216769	25.6	250	11/08/18
18K0278-02 [MP27]	B216769	25.8	250	11/08/18
18K0278-03 [MP28]	B216769	25.7	250	11/08/18
18K0278-04 [MP29]	B216769	25.8	250	11/08/18
18K0278-05 [MP30]	B216769	25.9	250	11/08/18
18K0278-06 [MP31]	B216769	25.5	250	11/08/18
18K0278-07 [MP35]	B216769	25.3	250	11/08/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0278-01 [MP33]	B216984	25.6	250	11/08/18
18K0278-02 [MP27]	B216984	25.8	250	11/08/18
18K0278-03 [MP28]	B216984	25.7	250	11/08/18
18K0278-04 [MP29]	B216984	25.8	250	11/08/18
18K0278-05 [MP30]	B216984	25.9	250	11/08/18
18K0278-06 [MP31]	B216984	25.5	250	11/08/18
18K0278-07 [MP35]	B216984	25.3	250	11/08/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0278-01 [MP33]	B216565	20.0	11/06/18
18K0278-02 [MP27]	B216565	20.0	11/06/18
18K0278-03 [MP28]	B216565	20.0	11/06/18
18K0278-04 [MP29]	B216565	20.0	11/06/18
18K0278-05 [MP30]	B216565	20.0	11/06/18

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Sample Extraction Data

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0278-06 [MP31]	B216565	20.0	11/06/18
18K0278-07 [MP35]	B216565	20.0	11/06/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216709 - SW-846 5035										
Blank (B216709-BLK1)				Prepared & Analyzed: 11/08/18						
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216709 - SW-846 5035											
Blank (B216709-BLK1)				Prepared & Analyzed: 11/08/18							
n-Propylbenzene	ND	0.0020	mg/Kg wet								
Styrene	ND	0.0020	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet								
Tetrachloroethylene	ND	0.0020	mg/Kg wet								
Tetrahydrofuran	ND	0.010	mg/Kg wet								
Toluene	ND	0.0020	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet								
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0483*		mg/Kg wet	0.0500		96.6	70-130				
Surrogate: Toluene-d8	*0.0492*		mg/Kg wet	0.0500		98.4	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0491*		mg/Kg wet	0.0500		98.2	70-130				
LCS (B216709-BS1)				Prepared & Analyzed: 11/08/18							
Acetone	0.310	0.10	mg/Kg wet	0.200		155	40-160			L-14	†
tert-Amyl Methyl Ether (TAME)	0.0198	0.0010	mg/Kg wet	0.0200		99.0	70-130				
Benzene	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130				
Bromobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130				
Bromochloromethane	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130				
Bromodichloromethane	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130				
Bromoform	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130				
Bromomethane	0.0112	0.010	mg/Kg wet	0.0200		56.0	40-160			L-14, V-34	†
2-Butanone (MEK)	0.261	0.040	mg/Kg wet	0.200		130	40-160				†
n-Butylbenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
sec-Butylbenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
tert-Butylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0198	0.0010	mg/Kg wet	0.0200		99.0	70-130				
Carbon Disulfide	0.0208	0.0060	mg/Kg wet	0.0200		104	70-130				
Carbon Tetrachloride	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130				
Chlorobenzene	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130				
Chlorodibromomethane	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130				
Chloroethane	0.0195	0.010	mg/Kg wet	0.0200		97.6	70-130				
Chloroform	0.0196	0.0040	mg/Kg wet	0.0200		98.2	70-130				
Chloromethane	0.0205	0.010	mg/Kg wet	0.0200		102	40-160				†
2-Chlorotoluene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130				
4-Chlorotoluene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130				
1,2-Dibromoethane (EDB)	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130				
Dibromomethane	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
1,2-Dichlorobenzene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
1,3-Dichlorobenzene	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
1,4-Dichlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216709 - SW-846 5035											
LCS (B216709-BS1)				Prepared & Analyzed: 11/08/18							
Dichlorodifluoromethane (Freon 12)	0.0192	0.010	mg/Kg wet	0.0200		95.8	40-160				†
1,1-Dichloroethane	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
1,2-Dichloroethane	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
1,1-Dichloroethylene	0.0200	0.0040	mg/Kg wet	0.0200		100	70-130				
cis-1,2-Dichloroethylene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
trans-1,2-Dichloroethylene	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130				
1,2-Dichloropropane	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130				
1,3-Dichloropropane	0.0191	0.0010	mg/Kg wet	0.0200		95.3	70-130				
2,2-Dichloropropane	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130				
1,1-Dichloropropene	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
cis-1,3-Dichloropropene	0.0203	0.0010	mg/Kg wet	0.0200		101	70-130				
trans-1,3-Dichloropropene	0.0212	0.0010	mg/Kg wet	0.0200		106	70-130				
Diethyl Ether	0.0193	0.010	mg/Kg wet	0.0200		96.7	70-130				
Diisopropyl Ether (DIPE)	0.0200	0.0010	mg/Kg wet	0.0200		100	70-130				
1,4-Dioxane	0.200	0.10	mg/Kg wet	0.200		100	40-160			V-16	†
Ethylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130				
Hexachlorobutadiene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
2-Hexanone (MBK)	0.231	0.020	mg/Kg wet	0.200		116	40-160				†
Isopropylbenzene (Cumene)	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
p-Isopropyltoluene (p-Cymene)	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0223	0.0040	mg/Kg wet	0.0200		111	70-130				
Methylene Chloride	0.0173	0.010	mg/Kg wet	0.0200		86.4	70-130				
4-Methyl-2-pentanone (MIBK)	0.208	0.020	mg/Kg wet	0.200		104	40-160				†
Naphthalene	0.0179	0.0040	mg/Kg wet	0.0200		89.6	70-130				
n-Propylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
Styrene	0.0192	0.0020	mg/Kg wet	0.0200		96.1	70-130				
1,1,1,2-Tetrachloroethane	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130				
1,1,2,2-Tetrachloroethane	0.0191	0.0010	mg/Kg wet	0.0200		95.7	70-130				
Tetrachloroethylene	0.0198	0.0020	mg/Kg wet	0.0200		98.9	70-130				
Tetrahydrofuran	0.0193	0.010	mg/Kg wet	0.0200		96.5	70-130				
Toluene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130				
1,2,3-Trichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130				
1,2,4-Trichlorobenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.2	70-130				
1,1,1-Trichloroethane	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
1,1,2-Trichloroethane	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Trichloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.3	70-130				
Trichlorofluoromethane (Freon 11)	0.0184	0.010	mg/Kg wet	0.0200		92.0	70-130				
1,2,3-Trichloropropane	0.0175	0.0020	mg/Kg wet	0.0200		87.6	70-130				
1,2,4-Trimethylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130				
1,3,5-Trimethylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130				
Vinyl Chloride	0.0188	0.010	mg/Kg wet	0.0200		94.0	70-130				
m+p Xylene	0.0399	0.0040	mg/Kg wet	0.0400		99.8	70-130				
o-Xylene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0520*		mg/Kg wet	0.0500		104	70-130				
Surrogate: Toluene-d8	*0.0501*		mg/Kg wet	0.0500		100	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0503*		mg/Kg wet	0.0500		101	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216709 - SW-846 5035											
LCS Dup (B216709-BSD1)				Prepared & Analyzed: 11/08/18							
Acetone	0.269	0.10	mg/Kg wet	0.200		134	40-160	14.1	20	L-14	†
tert-Amyl Methyl Ether (TAME)	0.0211	0.0010	mg/Kg wet	0.0200		106	70-130	6.36	20		
Benzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	5.42	20		
Bromobenzene	0.0217	0.0020	mg/Kg wet	0.0200		109	70-130	11.1	20		
Bromochloromethane	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130	2.37	20		
Bromodichloromethane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	6.45	20		
Bromoform	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	7.44	20		
Bromomethane	0.0128	0.010	mg/Kg wet	0.0200		63.8	40-160	13.1	20	L-14, V-34	†
2-Butanone (MEK)	0.253	0.040	mg/Kg wet	0.200		127	40-160	2.78	20		†
n-Butylbenzene	0.0231	0.0020	mg/Kg wet	0.0200		115	70-130	13.1	20		
sec-Butylbenzene	0.0237	0.0020	mg/Kg wet	0.0200		118	70-130	14.9	20		
tert-Butylbenzene	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	14.5	20		
tert-Butyl Ethyl Ether (TBEE)	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130	5.69	20		
Carbon Disulfide	0.0208	0.0060	mg/Kg wet	0.0200		104	70-130	0.0770	20		
Carbon Tetrachloride	0.0219	0.0020	mg/Kg wet	0.0200		109	70-130	6.00	20		
Chlorobenzene	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	11.6	20		
Chlorodibromomethane	0.0229	0.0010	mg/Kg wet	0.0200		114	70-130	9.15	20		
Chloroethane	0.0211	0.010	mg/Kg wet	0.0200		106	70-130	7.97	20		
Chloroform	0.0209	0.0040	mg/Kg wet	0.0200		105	70-130	6.23	20		
Chloromethane	0.0198	0.010	mg/Kg wet	0.0200		99.1	40-160	3.30	20		†
2-Chlorotoluene	0.0225	0.0020	mg/Kg wet	0.0200		112	70-130	11.4	20		
4-Chlorotoluene	0.0230	0.0020	mg/Kg wet	0.0200		115	70-130	9.68	20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	10.2	20		
1,2-Dibromoethane (EDB)	0.0230	0.0010	mg/Kg wet	0.0200		115	70-130	9.89	20		
Dibromomethane	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130	2.89	20		
1,2-Dichlorobenzene	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	14.6	20		
1,3-Dichlorobenzene	0.0233	0.0020	mg/Kg wet	0.0200		116	70-130	13.8	20		
1,4-Dichlorobenzene	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130	11.4	20		
Dichlorodifluoromethane (Freon 12)	0.0201	0.010	mg/Kg wet	0.0200		101	40-160	4.96	20		†
1,1-Dichloroethane	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	7.26	20		
1,2-Dichloroethane	0.0215	0.0020	mg/Kg wet	0.0200		107	70-130	5.70	20		
1,1-Dichloroethylene	0.0211	0.0040	mg/Kg wet	0.0200		105	70-130	5.09	20		
cis-1,2-Dichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	4.70	20		
trans-1,2-Dichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	4.91	20		
1,2-Dichloropropane	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130	8.14	20		
1,3-Dichloropropane	0.0201	0.0010	mg/Kg wet	0.0200		100	70-130	5.26	20		
2,2-Dichloropropane	0.0227	0.0020	mg/Kg wet	0.0200		114	70-130	8.32	20		
1,1-Dichloropropene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	4.53	20		
cis-1,3-Dichloropropene	0.0218	0.0010	mg/Kg wet	0.0200		109	70-130	7.04	20		
trans-1,3-Dichloropropene	0.0232	0.0010	mg/Kg wet	0.0200		116	70-130	8.91	20		
Diethyl Ether	0.0198	0.010	mg/Kg wet	0.0200		99.2	70-130	2.59	20		
Diisopropyl Ether (DIPE)	0.0212	0.0010	mg/Kg wet	0.0200		106	70-130	5.82	20		
1,4-Dioxane	0.187	0.10	mg/Kg wet	0.200		93.4	40-160	6.84	20	V-16	†
Ethylbenzene	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130	9.76	20		
Hexachlorobutadiene	0.0241	0.0020	mg/Kg wet	0.0200		121	70-130	17.5	20		
2-Hexanone (MBK)	0.241	0.020	mg/Kg wet	0.200		121	40-160	4.08	20		†
Isopropylbenzene (Cumene)	0.0227	0.0020	mg/Kg wet	0.0200		113	70-130	10.7	20		
p-Isopropyltoluene (p-Cymene)	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130	12.0	20		
Methyl tert-Butyl Ether (MTBE)	0.0232	0.0040	mg/Kg wet	0.0200		116	70-130	4.23	20		
Methylene Chloride	0.0187	0.010	mg/Kg wet	0.0200		93.6	70-130	8.00	20		
4-Methyl-2-pentanone (MIBK)	0.224	0.020	mg/Kg wet	0.200		112	40-160	7.33	20		†
Naphthalene	0.0212	0.0040	mg/Kg wet	0.0200		106	70-130	17.0	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216709 - SW-846 5035										
LCS Dup (B216709-BSD1)				Prepared & Analyzed: 11/08/18						
n-Propylbenzene	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130	10.9	20	
Styrene	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	12.7	20	
1,1,1,2-Tetrachloroethane	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130	7.88	20	
1,1,2,2-Tetrachloroethane	0.0224	0.0010	mg/Kg wet	0.0200		112	70-130	15.5	20	
Tetrachloroethylene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	6.86	20	
Tetrahydrofuran	0.0190	0.010	mg/Kg wet	0.0200		95.0	70-130	1.57	20	
Toluene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	7.08	20	
1,2,3-Trichlorobenzene	0.0225	0.0020	mg/Kg wet	0.0200		113	70-130	14.3	20	
1,2,4-Trichlorobenzene	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	18.9	20	
1,1,1-Trichloroethane	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	7.28	20	
1,1,2-Trichloroethane	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	6.31	20	
Trichloroethylene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	6.35	20	
Trichlorofluoromethane (Freon 11)	0.0186	0.010	mg/Kg wet	0.0200		92.9	70-130	0.995	20	
1,2,3-Trichloropropane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	14.2	20	
1,2,4-Trimethylbenzene	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130	14.4	20	
1,3,5-Trimethylbenzene	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130	11.7	20	
Vinyl Chloride	0.0197	0.010	mg/Kg wet	0.0200		98.5	70-130	4.76	20	
m+p Xylene	0.0439	0.0040	mg/Kg wet	0.0400		110	70-130	9.46	20	
o-Xylene	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	10.4	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0495*		mg/Kg wet	0.0500		98.9	70-130			
Surrogate: Toluene-d8	*0.0498*		mg/Kg wet	0.0500		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0504*		mg/Kg wet	0.0500		101	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216591 - SW-846 3546										
Blank (B216591-BLK1)				Prepared: 11/07/18 Analyzed: 11/08/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-05, V-34
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							V-19
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							V-20
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216591 - SW-846 3546											
Blank (B216591-BLK1)				Prepared: 11/07/18 Analyzed: 11/08/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet							V-05	
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*5.23*		mg/Kg wet	6.67		78.4	30-130				
Surrogate: Phenol-d6	*5.95*		mg/Kg wet	6.67		89.2	30-130				
Surrogate: Nitrobenzene-d5	*2.83*		mg/Kg wet	3.33		84.9	30-130				
Surrogate: 2-Fluorobiphenyl	*2.51*		mg/Kg wet	3.33		75.4	30-130				
Surrogate: 2,4,6-Tribromophenol	*7.41*		mg/Kg wet	6.67		111	30-130				
Surrogate: p-Terphenyl-d14	*3.00*		mg/Kg wet	3.33		90.0	30-130				
LCS (B216591-BS1)				Prepared: 11/07/18 Analyzed: 11/08/18							
Acenaphthene	1.30	0.17	mg/Kg wet	1.67		77.9	40-140				
Acenaphthylene	1.40	0.17	mg/Kg wet	1.67		83.8	40-140				
Acetophenone	1.31	0.34	mg/Kg wet	1.67		78.9	40-140				
Aniline	1.14	0.34	mg/Kg wet	1.67		68.4	40-140			V-34, V-05	
Anthracene	1.31	0.17	mg/Kg wet	1.67		78.7	40-140				
Benzo(a)anthracene	1.32	0.17	mg/Kg wet	1.67		79.0	40-140				
Benzo(a)pyrene	1.35	0.17	mg/Kg wet	1.67		81.2	40-140				
Benzo(b)fluoranthene	1.27	0.17	mg/Kg wet	1.67		76.1	40-140				
Benzo(g,h,i)perylene	1.38	0.17	mg/Kg wet	1.67		82.7	40-140				
Benzo(k)fluoranthene	1.28	0.17	mg/Kg wet	1.67		76.7	40-140				
Bis(2-chloroethoxy)methane	1.42	0.34	mg/Kg wet	1.67		85.4	40-140				
Bis(2-chloroethyl)ether	1.34	0.34	mg/Kg wet	1.67		80.4	40-140				
Bis(2-chloroisopropyl)ether	1.56	0.34	mg/Kg wet	1.67		93.8	40-140				
Bis(2-Ethylhexyl)phthalate	1.42	0.34	mg/Kg wet	1.67		85.0	40-140				
4-Bromophenylphenylether	1.32	0.34	mg/Kg wet	1.67		79.2	40-140				
Butylbenzylphthalate	1.38	0.34	mg/Kg wet	1.67		83.0	40-140				
4-Chloroaniline	1.17	0.66	mg/Kg wet	1.67		70.1	15-140			V-34	†
2-Chloronaphthalene	1.31	0.34	mg/Kg wet	1.67		78.6	40-140				
2-Chlorophenol	1.21	0.34	mg/Kg wet	1.67		72.6	30-130				
Chrysene	1.21	0.17	mg/Kg wet	1.67		72.6	40-140				
Dibenz(a,h)anthracene	1.38	0.17	mg/Kg wet	1.67		83.0	40-140				
Dibenzofuran	1.44	0.34	mg/Kg wet	1.67		86.3	40-140				
Di-n-butylphthalate	1.33	0.34	mg/Kg wet	1.67		79.9	40-140				
1,2-Dichlorobenzene	1.01	0.34	mg/Kg wet	1.67		60.6	40-140				
1,3-Dichlorobenzene	0.940	0.34	mg/Kg wet	1.67		56.4	40-140				
1,4-Dichlorobenzene	0.956	0.34	mg/Kg wet	1.67		57.4	40-140				
3,3-Dichlorobenzidine	1.57	0.17	mg/Kg wet	1.67		94.0	40-140				
2,4-Dichlorophenol	1.32	0.34	mg/Kg wet	1.67		79.5	30-130				
Diethylphthalate	1.45	0.34	mg/Kg wet	1.67		87.2	40-140				
2,4-Dimethylphenol	1.21	0.34	mg/Kg wet	1.67		72.5	30-130				
Dimethylphthalate	1.50	0.34	mg/Kg wet	1.67		89.8	40-140				
2,4-Dinitrophenol	1.28	0.66	mg/Kg wet	1.67		76.9	15-140			V-19	†
2,4-Dinitrotoluene	1.55	0.34	mg/Kg wet	1.67		92.8	40-140				
2,6-Dinitrotoluene	1.61	0.34	mg/Kg wet	1.67		96.9	40-140				
Di-n-octylphthalate	1.33	0.34	mg/Kg wet	1.67		79.5	40-140				
1,2-Diphenylhydrazine/Azobenzene	1.40	0.34	mg/Kg wet	1.67		84.2	40-140				
Fluoranthene	1.34	0.17	mg/Kg wet	1.67		80.3	40-140				
Fluorene	1.42	0.17	mg/Kg wet	1.67		85.1	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216591 - SW-846 3546											
LCS (B216591-BS1)				Prepared: 11/07/18 Analyzed: 11/08/18							
Hexachlorobenzene	1.32	0.34	mg/Kg wet	1.67		79.2	40-140				
Hexachlorobutadiene	1.18	0.34	mg/Kg wet	1.67		70.6	40-140				
Hexachloroethane	1.04	0.34	mg/Kg wet	1.67		62.4	40-140				
Indeno(1,2,3-cd)pyrene	1.44	0.17	mg/Kg wet	1.67		86.3	40-140				
Isophorone	1.38	0.34	mg/Kg wet	1.67		82.7	40-140				
2-Methylnaphthalene	1.32	0.17	mg/Kg wet	1.67		79.3	40-140				
2-Methylphenol	1.26	0.34	mg/Kg wet	1.67		75.5	30-130				
3/4-Methylphenol	1.39	0.34	mg/Kg wet	1.67		83.4	30-130				
Naphthalene	1.20	0.17	mg/Kg wet	1.67		72.3	40-140				
Nitrobenzene	1.31	0.34	mg/Kg wet	1.67		78.6	40-140				
2-Nitrophenol	1.37	0.34	mg/Kg wet	1.67		82.1	30-130				
4-Nitrophenol	1.81	0.66	mg/Kg wet	1.67		108	15-140			V-06	†
Pentachlorophenol	0.965	0.34	mg/Kg wet	1.67		57.9	30-130				
Phenanthrene	1.30	0.17	mg/Kg wet	1.67		78.3	40-140				
Phenol	1.31	0.34	mg/Kg wet	1.67		78.4	15-140				†
Pyrene	1.27	0.17	mg/Kg wet	1.67		76.0	40-140				
Pyridine	0.586	0.34	mg/Kg wet	1.67		35.2	30-140			V-05	†
1,2,4-Trichlorobenzene	1.14	0.34	mg/Kg wet	1.67		68.7	40-140				
2,4,5-Trichlorophenol	1.46	0.34	mg/Kg wet	1.67		87.5	30-130				
2,4,6-Trichlorophenol	1.44	0.34	mg/Kg wet	1.67		86.2	30-130				
Surrogate: 2-Fluorophenol	*4.83*		mg/Kg wet	6.67		72.4	30-130				
Surrogate: Phenol-d6	*5.74*		mg/Kg wet	6.67		86.0	30-130				
Surrogate: Nitrobenzene-d5	*2.78*		mg/Kg wet	3.33		83.5	30-130				
Surrogate: 2-Fluorobiphenyl	*2.52*		mg/Kg wet	3.33		75.7	30-130				
Surrogate: 2,4,6-Tribromophenol	*7.12*		mg/Kg wet	6.67		107	30-130				
Surrogate: p-Terphenyl-d14	*2.69*		mg/Kg wet	3.33		80.8	30-130				
LCS Dup (B216591-BSD1)				Prepared: 11/07/18 Analyzed: 11/08/18							
Acenaphthene	1.30	0.17	mg/Kg wet	1.67		78.0	40-140	0.0770	30		
Acenaphthylene	1.39	0.17	mg/Kg wet	1.67		83.5	40-140	0.383	30		
Acetophenone	1.31	0.34	mg/Kg wet	1.67		78.9	40-140	0.00	30		
Aniline	1.06	0.34	mg/Kg wet	1.67		63.3	40-140	7.74	30	V-05, V-34	
Anthracene	1.29	0.17	mg/Kg wet	1.67		77.6	40-140	1.41	30		
Benzo(a)anthracene	1.31	0.17	mg/Kg wet	1.67		78.4	40-140	0.839	30		
Benzo(a)pyrene	1.34	0.17	mg/Kg wet	1.67		80.1	40-140	1.29	30		
Benzo(b)fluoranthene	1.23	0.17	mg/Kg wet	1.67		74.1	40-140	2.66	30		
Benzo(g,h,i)perylene	1.38	0.17	mg/Kg wet	1.67		82.9	40-140	0.217	30		
Benzo(k)fluoranthene	1.26	0.17	mg/Kg wet	1.67		75.7	40-140	1.39	30		
Bis(2-chloroethoxy)methane	1.45	0.34	mg/Kg wet	1.67		87.2	40-140	2.11	30		
Bis(2-chloroethyl)ether	1.40	0.34	mg/Kg wet	1.67		83.7	40-140	4.02	30		
Bis(2-chloroisopropyl)ether	1.64	0.34	mg/Kg wet	1.67		98.7	40-140	5.07	30		
Bis(2-Ethylhexyl)phthalate	1.35	0.34	mg/Kg wet	1.67		80.9	40-140	4.94	30		
4-Bromophenylphenylether	1.36	0.34	mg/Kg wet	1.67		81.4	40-140	2.77	30	V-34	
Butylbenzylphthalate	1.38	0.34	mg/Kg wet	1.67		82.8	40-140	0.265	30		
4-Chloroaniline	0.872	0.66	mg/Kg wet	1.67		52.3	15-140	29.0	30	V-34	†
2-Chloronaphthalene	1.32	0.34	mg/Kg wet	1.67		79.0	40-140	0.609	30		
2-Chlorophenol	1.22	0.34	mg/Kg wet	1.67		73.3	30-130	0.932	30		
Chrysene	1.22	0.17	mg/Kg wet	1.67		73.2	40-140	0.933	30		
Dibenz(a,h)anthracene	1.37	0.17	mg/Kg wet	1.67		82.1	40-140	1.07	30		
Dibenzofuran	1.44	0.34	mg/Kg wet	1.67		86.6	40-140	0.347	30		
Di-n-butylphthalate	1.37	0.34	mg/Kg wet	1.67		82.0	40-140	2.54	30		
1,2-Dichlorobenzene	1.09	0.34	mg/Kg wet	1.67		65.2	40-140	7.41	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B216591 - SW-846 3546											
LCS Dup (B216591-BSD1)				Prepared: 11/07/18 Analyzed: 11/08/18							
1,3-Dichlorobenzene	1.04	0.34	mg/Kg wet	1.67		62.2	40-140	9.72	30		
1,4-Dichlorobenzene	1.05	0.34	mg/Kg wet	1.67		63.0	40-140	9.37	30		
3,3-Dichlorobenzidine	1.28	0.17	mg/Kg wet	1.67		76.5	40-140	20.5	30		
2,4-Dichlorophenol	1.33	0.34	mg/Kg wet	1.67		79.7	30-130	0.301	30		
Diethylphthalate	1.48	0.34	mg/Kg wet	1.67		88.5	40-140	1.43	30		
2,4-Dimethylphenol	1.22	0.34	mg/Kg wet	1.67		73.1	30-130	0.824	30		
Dimethylphthalate	1.49	0.34	mg/Kg wet	1.67		89.4	40-140	0.513	30		
2,4-Dinitrophenol	1.21	0.66	mg/Kg wet	1.67		72.6	15-140	5.70	30	V-19	†
2,4-Dinitrotoluene	1.54	0.34	mg/Kg wet	1.67		92.2	40-140	0.670	30		
2,6-Dinitrotoluene	1.64	0.34	mg/Kg wet	1.67		98.6	40-140	1.76	30		
Di-n-octylphthalate	1.32	0.34	mg/Kg wet	1.67		79.3	40-140	0.302	30		
1,2-Diphenylhydrazine/Azobenzene	1.34	0.34	mg/Kg wet	1.67		80.4	40-140	4.62	30		
Fluoranthene	1.30	0.17	mg/Kg wet	1.67		78.2	40-140	2.57	30		
Fluorene	1.41	0.17	mg/Kg wet	1.67		84.8	40-140	0.330	30		
Hexachlorobenzene	1.33	0.34	mg/Kg wet	1.67		79.7	40-140	0.604	30		
Hexachlorobutadiene	1.25	0.34	mg/Kg wet	1.67		75.1	40-140	6.29	30		
Hexachloroethane	1.13	0.34	mg/Kg wet	1.67		67.9	40-140	8.41	30		
Indeno(1,2,3-cd)pyrene	1.41	0.17	mg/Kg wet	1.67		84.5	40-140	2.20	30		
Isophorone	1.40	0.34	mg/Kg wet	1.67		83.7	40-140	1.23	30		
2-Methylnaphthalene	1.33	0.17	mg/Kg wet	1.67		80.0	40-140	0.854	30		
2-Methylphenol	1.25	0.34	mg/Kg wet	1.67		75.0	30-130	0.691	30		
3/4-Methylphenol	1.37	0.34	mg/Kg wet	1.67		82.4	30-130	1.23	30		
Naphthalene	1.22	0.17	mg/Kg wet	1.67		73.1	40-140	1.10	30		
Nitrobenzene	1.34	0.34	mg/Kg wet	1.67		80.7	40-140	2.64	30		
2-Nitrophenol	1.37	0.34	mg/Kg wet	1.67		82.2	30-130	0.0974	30		
4-Nitrophenol	1.70	0.66	mg/Kg wet	1.67		102	15-140	6.00	30	V-06	†
Pentachlorophenol	0.927	0.34	mg/Kg wet	1.67		55.6	30-130	4.05	30		
Phenanthrene	1.29	0.17	mg/Kg wet	1.67		77.6	40-140	0.924	30		
Phenol	1.29	0.34	mg/Kg wet	1.67		77.2	15-140	1.54	30		†
Pyrene	1.30	0.17	mg/Kg wet	1.67		77.8	40-140	2.34	30		
Pyridine	0.681	0.34	mg/Kg wet	1.67		40.8	30-140	14.9	30	V-05	†
1,2,4-Trichlorobenzene	1.19	0.34	mg/Kg wet	1.67		71.6	40-140	4.25	30		
2,4,5-Trichlorophenol	1.45	0.34	mg/Kg wet	1.67		87.2	30-130	0.275	30		
2,4,6-Trichlorophenol	1.42	0.34	mg/Kg wet	1.67		85.3	30-130	1.03	30		
Surrogate: 2-Fluorophenol	*5.14*		mg/Kg wet	6.67		77.2	30-130				
Surrogate: Phenol-d6	*5.60*		mg/Kg wet	6.67		84.0	30-130				
Surrogate: Nitrobenzene-d5	*2.86*		mg/Kg wet	3.33		85.9	30-130				
Surrogate: 2-Fluorobiphenyl	*2.51*		mg/Kg wet	3.33		75.2	30-130				
Surrogate: 2,4,6-Tribromophenol	*7.02*		mg/Kg wet	6.67		105	30-130				
Surrogate: p-Terphenyl-d14	*2.77*		mg/Kg wet	3.33		83.2	30-130				
Matrix Spike (B216591-MS1)		**Source: 18K0278-03**		Prepared: 11/07/18 Analyzed: 11/08/18							
Acenaphthene	1.27	0.20	mg/Kg dry	1.92	ND	66.1	40-140				
Acenaphthylene	1.32	0.20	mg/Kg dry	1.92	ND	68.8	40-140				
Acetophenone	1.38	0.39	mg/Kg dry	1.92	ND	71.8	40-140				
Aniline	0.945	0.39	mg/Kg dry	1.92	ND	49.2	40-140			V-04	
Anthracene	1.43	0.20	mg/Kg dry	1.92	ND	74.4	40-140				
Benzo(a)anthracene	1.51	0.20	mg/Kg dry	1.92	ND	78.4	40-140				
Benzo(a)pyrene	1.52	0.20	mg/Kg dry	1.92	ND	79.1	40-140				
Benzo(b)fluoranthene	1.37	0.20	mg/Kg dry	1.92	ND	71.3	40-140				
Benzo(g,h,i)perylene	1.53	0.20	mg/Kg dry	1.92	ND	79.9	40-140				
Benzo(k)fluoranthene	1.45	0.20	mg/Kg dry	1.92	ND	75.8	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216591 - SW-846 3546										
Matrix Spike (B216591-MS1)	**Source: 18K0278-03**		Prepared: 11/07/18 Analyzed: 11/08/18							
Bis(2-chloroethoxy)methane	1.66	0.39	mg/Kg dry	1.92	ND	86.5	40-140			
Bis(2-chloroethyl)ether	1.55	0.39	mg/Kg dry	1.92	ND	80.9	40-140			
Bis(2-chloroisopropyl)ether	1.76	0.39	mg/Kg dry	1.92	ND	91.5	40-140			
Bis(2-Ethylhexyl)phthalate	1.62	0.39	mg/Kg dry	1.92	ND	84.5	40-140			
4-Bromophenylphenylether	1.38	0.39	mg/Kg dry	1.92	ND	72.1	40-140			
Butylbenzylphthalate	1.63	0.39	mg/Kg dry	1.92	ND	85.2	40-140			
4-Chloroaniline	0.872	0.76	mg/Kg dry	1.92	ND	45.4	40-140			V-34
2-Chloronaphthalene	1.14	0.39	mg/Kg dry	1.92	ND	59.5	40-140			
2-Chlorophenol	1.37	0.39	mg/Kg dry	1.92	ND	71.4	30-130			
Chrysene	1.49	0.20	mg/Kg dry	1.92	ND	77.4	40-140			
Dibenz(a,h)anthracene	1.41	0.20	mg/Kg dry	1.92	ND	73.5	40-140			
Dibenzofuran	1.37	0.39	mg/Kg dry	1.92	ND	71.5	40-140			
Di-n-butylphthalate	1.56	0.39	mg/Kg dry	1.92	ND	81.1	40-140			
1,2-Dichlorobenzene	1.19	0.39	mg/Kg dry	1.92	ND	61.9	40-140			
1,3-Dichlorobenzene	1.12	0.39	mg/Kg dry	1.92	ND	58.2	40-140			
1,4-Dichlorobenzene	1.14	0.39	mg/Kg dry	1.92	ND	59.3	40-140			
3,3-Dichlorobenzidine	1.17	0.20	mg/Kg dry	1.92	ND	61.2	40-140			
2,4-Dichlorophenol	1.28	0.39	mg/Kg dry	1.92	ND	66.8	30-130			
Diethylphthalate	1.47	0.39	mg/Kg dry	1.92	ND	76.4	40-140			
2,4-Dimethylphenol	1.40	0.39	mg/Kg dry	1.92	ND	73.1	30-130			
Dimethylphthalate	1.46	0.39	mg/Kg dry	1.92	ND	76.0	40-140			
2,4-Dinitrophenol	1.28	0.76	mg/Kg dry	1.92	ND	66.7	30-130			
2,4-Dinitrotoluene	1.45	0.39	mg/Kg dry	1.92	ND	75.7	40-140			
2,6-Dinitrotoluene	1.49	0.39	mg/Kg dry	1.92	ND	77.6	40-140			
Di-n-octylphthalate	1.58	0.39	mg/Kg dry	1.92	ND	82.2	40-140			
1,2-Diphenylhydrazine/Azobenzene	1.64	0.39	mg/Kg dry	1.92	ND	85.7	40-140			
Fluoranthene	1.53	0.20	mg/Kg dry	1.92	ND	79.6	40-140			
Fluorene	1.34	0.20	mg/Kg dry	1.92	ND	69.9	40-140			
Hexachlorobenzene	1.37	0.39	mg/Kg dry	1.92	ND	71.3	40-140			
Hexachlorobutadiene	1.16	0.39	mg/Kg dry	1.92	ND	60.2	40-140			
Hexachloroethane	1.24	0.39	mg/Kg dry	1.92	ND	64.5	40-140			
Indeno(1,2,3-cd)pyrene	1.46	0.20	mg/Kg dry	1.92	ND	75.9	40-140			
Isophorone	1.56	0.39	mg/Kg dry	1.92	ND	81.3	40-140			
2-Methylnaphthalene	1.40	0.20	mg/Kg dry	1.92	ND	72.9	40-140			
2-Methylphenol	1.50	0.39	mg/Kg dry	1.92	ND	78.2	30-130			
3/4-Methylphenol	1.40	0.39	mg/Kg dry	1.92	ND	73.1	30-130			
Naphthalene	1.30	0.20	mg/Kg dry	1.92	ND	67.9	40-140			
Nitrobenzene	1.42	0.39	mg/Kg dry	1.92	ND	74.0	40-140			
2-Nitrophenol	1.32	0.39	mg/Kg dry	1.92	ND	68.5	30-130			
4-Nitrophenol	1.59	0.76	mg/Kg dry	1.92	ND	82.7	30-130			
Pentachlorophenol	1.11	0.39	mg/Kg dry	1.92	ND	58.1	30-130			
Phenanthrene	1.44	0.20	mg/Kg dry	1.92	ND	75.3	40-140			
Phenol	1.48	0.39	mg/Kg dry	1.92	ND	76.9	30-130			
Pyrene	1.37	0.20	mg/Kg dry	1.92	ND	71.4	40-140			
Pyridine	0.827	0.39	mg/Kg dry	1.92	ND	43.1	40-140			
1,2,4-Trichlorobenzene	1.22	0.39	mg/Kg dry	1.92	ND	63.7	40-140			
2,4,5-Trichlorophenol	1.35	0.39	mg/Kg dry	1.92	ND	70.4	30-130			
2,4,6-Trichlorophenol	1.36	0.39	mg/Kg dry	1.92	ND	70.7	30-130			
Surrogate: 2-Fluorophenol	*5.94*		mg/Kg dry	7.68		77.3	30-130			
Surrogate: Phenol-d6	*6.25*		mg/Kg dry	7.68		81.4	30-130			
Surrogate: Nitrobenzene-d5	*2.96*		mg/Kg dry	3.84		77.2	30-130			
Surrogate: 2-Fluorobiphenyl	*2.26*		mg/Kg dry	3.84		59.0	30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216591 - SW-846 3546										
Matrix Spike (B216591-MS1)	**Source: 18K0278-03**			Prepared: 11/07/18 Analyzed: 11/08/18						
Surrogate: 2,4,6-Tribromophenol	*6.06*		mg/Kg dry	7.68		78.9	30-130			
Surrogate: p-Terphenyl-d14	*2.89*		mg/Kg dry	3.84		75.3	30-130			
Matrix Spike Dup (B216591-MSD1)	**Source: 18K0278-03**			Prepared: 11/07/18 Analyzed: 11/08/18						
Acenaphthene	1.23	0.20	mg/Kg dry	1.91	ND	64.4	40-140	2.87	30	
Acenaphthylene	1.29	0.20	mg/Kg dry	1.91	ND	67.6	40-140	2.12	30	
Acetophenone	1.36	0.39	mg/Kg dry	1.91	ND	71.0	40-140	1.45	30	
Aniline	0.873	0.39	mg/Kg dry	1.91	ND	45.6	40-140	7.92	30	V-04
Anthracene	1.37	0.20	mg/Kg dry	1.91	ND	71.9	40-140	3.72	30	
Benzo(a)anthracene	1.45	0.20	mg/Kg dry	1.91	ND	76.0	40-140	3.52	30	
Benzo(a)pyrene	1.47	0.20	mg/Kg dry	1.91	ND	76.7	40-140	3.36	30	
Benzo(b)fluoranthene	1.31	0.20	mg/Kg dry	1.91	ND	68.6	40-140	4.13	30	
Benzo(g,h,i)perylene	1.43	0.20	mg/Kg dry	1.91	ND	74.7	40-140	7.13	30	
Benzo(k)fluoranthene	1.43	0.20	mg/Kg dry	1.91	ND	74.6	40-140	1.85	30	
Bis(2-chloroethoxy)methane	1.64	0.39	mg/Kg dry	1.91	ND	85.8	40-140	1.12	30	
Bis(2-chloroethyl)ether	1.52	0.39	mg/Kg dry	1.91	ND	79.6	40-140	1.98	30	
Bis(2-chloroisopropyl)ether	1.73	0.39	mg/Kg dry	1.91	ND	90.3	40-140	1.72	30	
Bis(2-Ethylhexyl)phthalate	1.59	0.39	mg/Kg dry	1.91	ND	82.9	40-140	2.27	30	
4-Bromophenylphenylether	1.36	0.39	mg/Kg dry	1.91	ND	70.9	40-140	1.95	30	
Butylbenzylphthalate	1.58	0.39	mg/Kg dry	1.91	ND	82.4	40-140	3.60	30	
4-Chloroaniline	0.855	0.76	mg/Kg dry	1.91	ND	44.7	40-140	1.97	30	V-34
2-Chloronaphthalene	1.14	0.39	mg/Kg dry	1.91	ND	59.7	40-140	0.0286	30	
2-Chlorophenol	1.36	0.39	mg/Kg dry	1.91	ND	71.3	30-130	0.415	30	
Chrysene	1.43	0.20	mg/Kg dry	1.91	ND	74.6	40-140	3.99	30	
Dibenz(a,h)anthracene	1.36	0.20	mg/Kg dry	1.91	ND	71.0	40-140	3.79	30	
Dibenzofuran	1.34	0.39	mg/Kg dry	1.91	ND	70.0	40-140	2.45	30	
Di-n-butylphthalate	1.52	0.39	mg/Kg dry	1.91	ND	79.4	40-140	2.35	30	
1,2-Dichlorobenzene	1.17	0.39	mg/Kg dry	1.91	ND	61.2	40-140	1.57	30	
1,3-Dichlorobenzene	1.09	0.39	mg/Kg dry	1.91	ND	57.2	40-140	1.99	30	
1,4-Dichlorobenzene	1.11	0.39	mg/Kg dry	1.91	ND	57.8	40-140	2.99	30	
3,3-Dichlorobenzidine	1.19	0.20	mg/Kg dry	1.91	ND	62.4	40-140	1.58	30	
2,4-Dichlorophenol	1.28	0.39	mg/Kg dry	1.91	ND	67.0	30-130	0.121	30	
Diethylphthalate	1.44	0.39	mg/Kg dry	1.91	ND	75.3	40-140	1.73	30	
2,4-Dimethylphenol	1.40	0.39	mg/Kg dry	1.91	ND	72.9	30-130	0.522	30	
Dimethylphthalate	1.42	0.39	mg/Kg dry	1.91	ND	74.5	40-140	2.43	30	
2,4-Dinitrophenol	1.26	0.76	mg/Kg dry	1.91	ND	65.6	30-130	1.87	30	
2,4-Dinitrotoluene	1.39	0.39	mg/Kg dry	1.91	ND	72.9	40-140	4.07	30	
2,6-Dinitrotoluene	1.45	0.39	mg/Kg dry	1.91	ND	75.8	40-140	2.76	30	
Di-n-octylphthalate	1.54	0.39	mg/Kg dry	1.91	ND	80.4	40-140	2.59	30	
1,2-Diphenylhydrazine/Azobenzene	1.59	0.39	mg/Kg dry	1.91	ND	83.3	40-140	3.22	30	
Fluoranthene	1.46	0.20	mg/Kg dry	1.91	ND	76.1	40-140	4.72	30	
Fluorene	1.33	0.20	mg/Kg dry	1.91	ND	69.3	40-140	1.13	30	
Hexachlorobenzene	1.36	0.39	mg/Kg dry	1.91	ND	70.9	40-140	0.865	30	
Hexachlorobutadiene	1.16	0.39	mg/Kg dry	1.91	ND	60.6	40-140	0.265	30	
Hexachloroethane	1.22	0.39	mg/Kg dry	1.91	ND	63.7	40-140	1.58	30	
Indeno(1,2,3-cd)pyrene	1.40	0.20	mg/Kg dry	1.91	ND	73.1	40-140	4.11	30	
Isophorone	1.53	0.39	mg/Kg dry	1.91	ND	80.2	40-140	1.74	30	
2-Methylnaphthalene	1.41	0.20	mg/Kg dry	1.91	ND	73.5	40-140	0.462	30	
2-Methylphenol	1.48	0.39	mg/Kg dry	1.91	ND	77.2	30-130	1.62	30	
3/4-Methylphenol	1.35	0.39	mg/Kg dry	1.91	ND	70.7	30-130	3.61	30	
Naphthalene	1.29	0.20	mg/Kg dry	1.91	ND	67.5	40-140	0.922	30	
Nitrobenzene	1.37	0.39	mg/Kg dry	1.91	ND	71.8	40-140	3.35	30	

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B216591 - SW-846 3546											
Matrix Spike Dup (B216591-MSD1)		**Source: 18K0278-03**		Prepared: 11/07/18 Analyzed: 11/08/18							
2-Nitrophenol	1.29	0.39	mg/Kg dry	1.91	ND	67.7		30-130	1.59	30	
4-Nitrophenol	1.49	0.76	mg/Kg dry	1.91	ND	77.7		30-130	6.61	30	
Pentachlorophenol	1.12	0.39	mg/Kg dry	1.91	ND	58.5		30-130	0.356	30	
Phenanthrene	1.42	0.20	mg/Kg dry	1.91	ND	74.2		40-140	1.75	30	
Phenol	1.45	0.39	mg/Kg dry	1.91	ND	76.1		30-130	1.45	30	
Pyrene	1.38	0.20	mg/Kg dry	1.91	ND	72.2		40-140	0.783	30	
Pyridine	0.740	0.39	mg/Kg dry	1.91	ND	**38.7**	*	40-140	11.1	30	
1,2,4-Trichlorobenzene	1.21	0.39	mg/Kg dry	1.91	ND	63.2		40-140	1.12	30	
2,4,5-Trichlorophenol	1.35	0.39	mg/Kg dry	1.91	ND	70.4		30-130	0.274	30	
2,4,6-Trichlorophenol	1.31	0.39	mg/Kg dry	1.91	ND	68.5		30-130	3.52	30	
Surrogate: 2-Fluorophenol	*5.78*		mg/Kg dry	7.65		75.5		30-130			
Surrogate: Phenol-d6	*6.10*		mg/Kg dry	7.65		79.8		30-130			
Surrogate: Nitrobenzene-d5	*2.91*		mg/Kg dry	3.83		76.1		30-130			
Surrogate: 2-Fluorobiphenyl	*2.25*		mg/Kg dry	3.83		58.9		30-130			
Surrogate: 2,4,6-Tribromophenol	*5.88*		mg/Kg dry	7.65		76.8		30-130			
Surrogate: p-Terphenyl-d14	*2.84*		mg/Kg dry	3.83		74.2		30-130			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216575 - SW-846 3546										
Blank (B216575-BLK1)				Prepared: 11/07/18 Analyzed: 11/10/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0020	mg/Kg wet							
Aldrin [2C]	ND	0.0020	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0010	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDE	ND	0.0010	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0010	mg/Kg wet							
4,4'-DDT	ND	0.0010	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0010	mg/Kg wet							
Dieldrin	ND	0.0010	mg/Kg wet							
Dieldrin [2C]	ND	0.0010	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.198*		mg/Kg wet	0.200		99.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.191*		mg/Kg wet	0.200		95.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.204*		mg/Kg wet	0.200		102	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.193*		mg/Kg wet	0.200		96.3	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216575 - SW-846 3546										
LCS (B216575-BS1)				Prepared: 11/07/18 Analyzed: 11/10/18						
alpha-Chlordane	0.11	0.0050	mg/Kg wet	0.100		109	40-140			
alpha-Chlordane [2C]	0.11	0.0050	mg/Kg wet	0.100		111	40-140			
gamma-Chlordane	0.11	0.0050	mg/Kg wet	0.100		110	40-140			
gamma-Chlordane [2C]	0.11	0.0050	mg/Kg wet	0.100		108	40-140			
Alachlor	0.10	0.020	mg/Kg wet	0.100		101	40-140			
Alachlor [2C]	0.094	0.020	mg/Kg wet	0.100		94.0	40-140			
Aldrin	0.11	0.0020	mg/Kg wet	0.100		113	40-140			
Aldrin [2C]	0.11	0.0020	mg/Kg wet	0.100		105	40-140			
alpha-BHC	0.11	0.0050	mg/Kg wet	0.100		106	40-140			
alpha-BHC [2C]	0.10	0.0050	mg/Kg wet	0.100		102	40-140			
beta-BHC	0.10	0.0050	mg/Kg wet	0.100		104	40-140			
beta-BHC [2C]	0.10	0.0050	mg/Kg wet	0.100		100	40-140			
delta-BHC	0.098	0.0050	mg/Kg wet	0.100		98.0	40-140			
delta-BHC [2C]	0.096	0.0050	mg/Kg wet	0.100		95.5	40-140			
gamma-BHC (Lindane)	0.11	0.0020	mg/Kg wet	0.100		110	40-140			
gamma-BHC (Lindane) [2C]	0.10	0.0020	mg/Kg wet	0.100		104	40-140			
4,4'-DDD	0.11	0.0010	mg/Kg wet	0.100		114	40-140			
4,4'-DDD [2C]	0.11	0.0010	mg/Kg wet	0.100		115	40-140			
4,4'-DDE	0.11	0.0010	mg/Kg wet	0.100		115	40-140			
4,4'-DDE [2C]	0.11	0.0010	mg/Kg wet	0.100		114	40-140			
4,4'-DDT	0.11	0.0010	mg/Kg wet	0.100		112	40-140			
4,4'-DDT [2C]	0.11	0.0010	mg/Kg wet	0.100		111	40-140			
Dieldrin	0.11	0.0010	mg/Kg wet	0.100		107	40-140			
Dieldrin [2C]	0.11	0.0010	mg/Kg wet	0.100		106	40-140			
Endosulfan I	0.10	0.0050	mg/Kg wet	0.100		100	40-140			
Endosulfan I [2C]	0.080	0.0050	mg/Kg wet	0.100		80.1	40-140			
Endosulfan II	0.10	0.0080	mg/Kg wet	0.100		101	40-140			
Endosulfan II [2C]	0.10	0.0080	mg/Kg wet	0.100		100	40-140			
Endosulfan Sulfate	0.11	0.0080	mg/Kg wet	0.100		109	40-140			
Endosulfan Sulfate [2C]	0.10	0.0080	mg/Kg wet	0.100		102	40-140			
Endrin	0.11	0.0080	mg/Kg wet	0.100		107	40-140			
Endrin [2C]	0.11	0.0080	mg/Kg wet	0.100		107	40-140			
Endrin Aldehyde	0.097	0.0080	mg/Kg wet	0.100		96.8	40-140			
Endrin Aldehyde [2C]	0.097	0.0080	mg/Kg wet	0.100		97.4	40-140			
Endrin Ketone	0.11	0.0080	mg/Kg wet	0.100		106	40-140			
Endrin Ketone [2C]	0.10	0.0080	mg/Kg wet	0.100		102	40-140			
Heptachlor	0.097	0.0050	mg/Kg wet	0.100		96.6	40-140			
Heptachlor [2C]	0.10	0.0050	mg/Kg wet	0.100		103	40-140			
Heptachlor Epoxide	0.11	0.0050	mg/Kg wet	0.100		108	40-140			
Heptachlor Epoxide [2C]	0.10	0.0050	mg/Kg wet	0.100		103	40-140			
Hexachlorobenzene	0.12	0.0060	mg/Kg wet	0.100		118	40-140			
Hexachlorobenzene [2C]	0.11	0.0060	mg/Kg wet	0.100		107	40-140			
Methoxychlor	0.12	0.050	mg/Kg wet	0.100		116	40-140			
Methoxychlor [2C]	0.12	0.050	mg/Kg wet	0.100		118	40-140			
Surrogate: Decachlorobiphenyl	*0.225*		mg/Kg wet	0.200		112	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.217*		mg/Kg wet	0.200		109	30-150			
Surrogate: Tetrachloro-m-xylene	*0.229*		mg/Kg wet	0.200		114	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.219*		mg/Kg wet	0.200		110	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216575 - SW-846 3546										
LCS Dup (B216575-BSD1)				Prepared: 11/07/18 Analyzed: 11/10/18						
alpha-Chlordane	0.10	0.0050	mg/Kg wet	0.100		102	40-140	6.24	30	
alpha-Chlordane [2C]	0.10	0.0050	mg/Kg wet	0.100		103	40-140	7.42	30	
gamma-Chlordane	0.10	0.0050	mg/Kg wet	0.100		103	40-140	6.09	30	
gamma-Chlordane [2C]	0.10	0.0050	mg/Kg wet	0.100		99.9	40-140	7.50	30	
Alachlor	0.095	0.020	mg/Kg wet	0.100		95.1	40-140	6.27	30	
Alachlor [2C]	0.087	0.020	mg/Kg wet	0.100		87.0	40-140	7.77	30	
Aldrin	0.11	0.0020	mg/Kg wet	0.100		106	40-140	5.55	30	
Aldrin [2C]	0.097	0.0020	mg/Kg wet	0.100		97.4	40-140	7.78	30	
alpha-BHC	0.10	0.0050	mg/Kg wet	0.100		101	40-140	4.45	30	
alpha-BHC [2C]	0.095	0.0050	mg/Kg wet	0.100		94.7	40-140	7.63	30	
beta-BHC	0.098	0.0050	mg/Kg wet	0.100		97.6	40-140	6.15	30	
beta-BHC [2C]	0.093	0.0050	mg/Kg wet	0.100		92.9	40-140	7.62	30	
delta-BHC	0.095	0.0050	mg/Kg wet	0.100		94.8	40-140	3.28	30	
delta-BHC [2C]	0.090	0.0050	mg/Kg wet	0.100		90.4	40-140	5.51	30	
gamma-BHC (Lindane)	0.10	0.0020	mg/Kg wet	0.100		104	40-140	5.21	30	
gamma-BHC (Lindane) [2C]	0.096	0.0020	mg/Kg wet	0.100		95.6	40-140	8.43	30	
4,4'-DDD	0.11	0.0010	mg/Kg wet	0.100		106	40-140	7.06	30	
4,4'-DDD [2C]	0.11	0.0010	mg/Kg wet	0.100		106	40-140	7.87	30	
4,4'-DDE	0.11	0.0010	mg/Kg wet	0.100		107	40-140	6.58	30	
4,4'-DDE [2C]	0.11	0.0010	mg/Kg wet	0.100		105	40-140	7.70	30	
4,4'-DDT	0.10	0.0010	mg/Kg wet	0.100		103	40-140	8.36	30	
4,4'-DDT [2C]	0.10	0.0010	mg/Kg wet	0.100		102	40-140	8.95	30	
Dieldrin	0.10	0.0010	mg/Kg wet	0.100		100	40-140	6.55	30	
Dieldrin [2C]	0.098	0.0010	mg/Kg wet	0.100		98.2	40-140	7.82	30	
Endosulfan I	0.092	0.0050	mg/Kg wet	0.100		91.7	40-140	9.04	30	
Endosulfan I [2C]	0.074	0.0050	mg/Kg wet	0.100		73.9	40-140	8.09	30	
Endosulfan II	0.093	0.0080	mg/Kg wet	0.100		93.5	40-140	8.18	30	
Endosulfan II [2C]	0.092	0.0080	mg/Kg wet	0.100		91.9	40-140	8.76	30	
Endosulfan Sulfate	0.11	0.0080	mg/Kg wet	0.100		105	40-140	3.34	30	
Endosulfan Sulfate [2C]	0.093	0.0080	mg/Kg wet	0.100		93.5	40-140	8.71	30	
Endrin	0.099	0.0080	mg/Kg wet	0.100		99.5	40-140	6.92	30	
Endrin [2C]	0.099	0.0080	mg/Kg wet	0.100		98.7	40-140	8.01	30	
Endrin Aldehyde	0.092	0.0080	mg/Kg wet	0.100		91.9	40-140	5.16	30	
Endrin Aldehyde [2C]	0.090	0.0080	mg/Kg wet	0.100		89.8	40-140	8.07	30	
Endrin Ketone	0.097	0.0080	mg/Kg wet	0.100		97.4	40-140	8.64	30	
Endrin Ketone [2C]	0.094	0.0080	mg/Kg wet	0.100		93.6	40-140	8.98	30	
Heptachlor	0.091	0.0050	mg/Kg wet	0.100		91.1	40-140	5.85	30	
Heptachlor [2C]	0.097	0.0050	mg/Kg wet	0.100		97.3	40-140	5.50	30	
Heptachlor Epoxide	0.10	0.0050	mg/Kg wet	0.100		101	40-140	5.81	30	
Heptachlor Epoxide [2C]	0.096	0.0050	mg/Kg wet	0.100		95.5	40-140	7.88	30	
Hexachlorobenzene	0.11	0.0060	mg/Kg wet	0.100		111	40-140	5.67	30	
Hexachlorobenzene [2C]	0.099	0.0060	mg/Kg wet	0.100		99.0	40-140	8.08	30	
Methoxychlor	0.11	0.050	mg/Kg wet	0.100		106	40-140	8.91	30	
Methoxychlor [2C]	0.11	0.050	mg/Kg wet	0.100		112	40-140	5.12	30	
Surrogate: Decachlorobiphenyl	*0.206*		mg/Kg wet	0.200		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.199*		mg/Kg wet	0.200		99.7	30-150			
Surrogate: Tetrachloro-m-xylene	*0.216*		mg/Kg wet	0.200		108	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.198*		mg/Kg wet	0.200		99.2	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216574 - SW-846 3546										
Blank (B216574-BLK1)				Prepared: 11/07/18 Analyzed: 11/08/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.211*		mg/Kg wet	0.200		106	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.204*		mg/Kg wet	0.200		102	30-150			
Surrogate: Tetrachloro-m-xylene	*0.192*		mg/Kg wet	0.200		96.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.170*		mg/Kg wet	0.200		85.0	30-150			
LCS (B216574-BS1)				Prepared: 11/07/18 Analyzed: 11/08/18						
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		102	40-140			
Aroclor-1016 [2C]	0.17	0.020	mg/Kg wet	0.200		87.3	40-140			
Aroclor-1260	0.20	0.020	mg/Kg wet	0.200		100	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		85.0	40-140			
Surrogate: Decachlorobiphenyl	*0.223*		mg/Kg wet	0.200		111	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.216*		mg/Kg wet	0.200		108	30-150			
Surrogate: Tetrachloro-m-xylene	*0.214*		mg/Kg wet	0.200		107	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.189*		mg/Kg wet	0.200		94.3	30-150			
LCS Dup (B216574-BSD1)				Prepared: 11/07/18 Analyzed: 11/08/18						
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		98.4	40-140	3.13	30	
Aroclor-1016 [2C]	0.17	0.020	mg/Kg wet	0.200		84.8	40-140	2.94	30	
Aroclor-1260	0.20	0.020	mg/Kg wet	0.200		98.2	40-140	1.73	30	
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		84.6	40-140	0.466	30	
Surrogate: Decachlorobiphenyl	*0.217*		mg/Kg wet	0.200		109	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.211*		mg/Kg wet	0.200		105	30-150			
Surrogate: Tetrachloro-m-xylene	*0.198*		mg/Kg wet	0.200		98.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.177*		mg/Kg wet	0.200		88.3	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216574 - SW-846 3546										
Matrix Spike (B216574-MS1)	**Source: 18K0278-01**			Prepared: 11/07/18 Analyzed: 11/08/18						
Aroclor-1016	0.29	0.10	mg/Kg dry	0.250	ND	115	40-140			
Aroclor-1016 [2C]	0.23	0.10	mg/Kg dry	0.250	ND	93.7	40-140			
Aroclor-1260	0.25	0.10	mg/Kg dry	0.250	ND	101	40-140			
Aroclor-1260 [2C]	0.22	0.10	mg/Kg dry	0.250	ND	87.7	40-140			
Surrogate: Decachlorobiphenyl	*0.246*		mg/Kg dry	0.250		98.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.257*		mg/Kg dry	0.250		103	30-150			
Surrogate: Tetrachloro-m-xylene	*0.242*		mg/Kg dry	0.250		96.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.221*		mg/Kg dry	0.250		88.6	30-150			
Matrix Spike Dup (B216574-MSD1)	**Source: 18K0278-01**			Prepared: 11/07/18 Analyzed: 11/08/18						
Aroclor-1016	0.28	0.10	mg/Kg dry	0.255	ND	109	40-140	5.75	30	
Aroclor-1016 [2C]	0.25	0.10	mg/Kg dry	0.255	ND	98.8	40-140	5.32	30	
Aroclor-1260	0.24	0.10	mg/Kg dry	0.255	ND	94.5	40-140	6.78	30	
Aroclor-1260 [2C]	0.21	0.10	mg/Kg dry	0.255	ND	84.3	40-140	3.90	30	
Surrogate: Decachlorobiphenyl	*0.247*		mg/Kg dry	0.255		97.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.268*		mg/Kg dry	0.255		105	30-150			
Surrogate: Tetrachloro-m-xylene	*0.241*		mg/Kg dry	0.255		94.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.221*		mg/Kg dry	0.255		86.9	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216689 - SW-846 8151										
Blank (B216689-BLK1)				Prepared: 11/08/18 Analyzed: 11/10/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*77.6*		µg/kg wet	95.2		81.4	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*77.6*		µg/kg wet	95.2		81.5	30-150			
LCS (B216689-BS1)				Prepared: 11/08/18 Analyzed: 11/10/18						
2,4-D	115	25	µg/kg wet	125		91.7	40-140			
2,4-D [2C]	120	25	µg/kg wet	125		96.0	40-140			
2,4-DB	118	25	µg/kg wet	125		94.1	40-140			
2,4-DB [2C]	128	25	µg/kg wet	125		102	40-140			
2,4,5-TP (Silvex)	11.3	2.5	µg/kg wet	12.5		90.3	40-140			
2,4,5-TP (Silvex) [2C]	12.1	2.5	µg/kg wet	12.5		97.0	40-140			
2,4,5-T	11.1	2.5	µg/kg wet	12.5		88.7	40-140			
2,4,5-T [2C]	12.2	2.5	µg/kg wet	12.5		98.0	40-140			
Dalapon	182	62	µg/kg wet	312		58.3	40-140			
Dalapon [2C]	187	62	µg/kg wet	312		59.7	40-140			
Dicamba	11.0	2.5	µg/kg wet	12.5		87.8	40-140			
Dicamba [2C]	11.6	2.5	µg/kg wet	12.5		92.6	40-140			
Dichloroprop	117	25	µg/kg wet	125		93.4	40-140			
Dichloroprop [2C]	120	25	µg/kg wet	125		96.3	40-140			
Dinoseb	19.9	12	µg/kg wet	62.5		31.8	0-42.4			
Dinoseb [2C]	24.0	12	µg/kg wet	62.5		38.4	0-41.1			V-06
MCPA	10800	2500	µg/kg wet	12500		86.3	40-140			
MCPA [2C]	9900	2500	µg/kg wet	12500		79.2	40-140			
MCPP	14300	2500	µg/kg wet	12500		114	40-140			
MCPP [2C]	10700	2500	µg/kg wet	12500		85.7	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*85.0*		µg/kg wet	100		85.0	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*88.4*		µg/kg wet	100		88.4	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B216689 - SW-846 8151											
LCS Dup (B216689-BSD1)				Prepared: 11/08/18 Analyzed: 11/10/18							
2,4-D	108	25	µg/kg wet	125		86.3		40-140	6.06	30	
2,4-D [2C]	113	25	µg/kg wet	125		90.4		40-140	6.03	30	
2,4-DB	110	25	µg/kg wet	125		88.2		40-140	6.40	30	
2,4-DB [2C]	120	25	µg/kg wet	125		95.9		40-140	6.60	30	
2,4,5-TP (Silvex)	10.6	2.5	µg/kg wet	12.5		85.1		40-140	5.99	30	
2,4,5-TP (Silvex) [2C]	11.4	2.5	µg/kg wet	12.5		91.2		40-140	6.15	30	
2,4,5-T	10.4	2.5	µg/kg wet	12.5		83.4		40-140	6.21	30	
2,4,5-T [2C]	11.4	2.5	µg/kg wet	12.5		91.5		40-140	6.88	30	
Dalapon	192	62	µg/kg wet	312		61.4		40-140	5.28	30	
Dalapon [2C]	195	62	µg/kg wet	312		62.4		40-140	4.50	30	
Dicamba	11.1	2.5	µg/kg wet	12.5		88.9		40-140	1.26	30	
Dicamba [2C]	11.0	2.5	µg/kg wet	12.5		88.4		40-140	4.73	30	
Dichloroprop	111	25	µg/kg wet	125		88.7		40-140	5.19	30	
Dichloroprop [2C]	115	25	µg/kg wet	125		91.7		40-140	4.91	30	
Dinoseb	22.1	12	µg/kg wet	62.5		35.3		0-42.4	10.5	30	
Dinoseb [2C]	26.5	12	µg/kg wet	62.5		**42.4**	*	0-41.1	10.0	30	V-06
MCPA	10400	2500	µg/kg wet	12500		83.5		40-140	3.34	30	
MCPA [2C]	9460	2500	µg/kg wet	12500		75.7		40-140	4.57	30	
MCPP	14400	2500	µg/kg wet	12500		116		40-140	1.26	30	
MCPP [2C]	10200	2500	µg/kg wet	12500		81.7		40-140	4.72	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*83.3*		µg/kg wet	100		83.3		30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*84.5*		µg/kg wet	100		84.5		30-150			
Matrix Spike (B216689-MS1)		**Source: 18K0278-03**		Prepared: 11/08/18 Analyzed: 11/10/18							
2,4-D	131	29	µg/kg dry	145	ND	90.6		30-150			
2,4-D [2C]	141	29	µg/kg dry	145	ND	97.4		30-150			V-06
2,4-DB	128	29	µg/kg dry	145	ND	88.5		30-150			
2,4-DB [2C]	152	29	µg/kg dry	145	ND	105		30-150			V-06
2,4,5-TP (Silvex)	13.0	2.9	µg/kg dry	14.5	ND	90.0		30-150			
2,4,5-TP (Silvex) [2C]	13.6	2.9	µg/kg dry	14.5	ND	93.7		30-150			V-06
2,4,5-T	12.6	2.9	µg/kg dry	14.5	ND	86.7		30-150			
2,4,5-T [2C]	14.2	2.9	µg/kg dry	14.5	ND	97.7		30-150			V-06
Dalapon	270	72	µg/kg dry	362	ND	74.7		30-150			
Dalapon [2C]	277	72	µg/kg dry	362	ND	76.4		30-150			
Dicamba	13.8	2.9	µg/kg dry	14.5	ND	95.2		30-150			
Dicamba [2C]	13.7	2.9	µg/kg dry	14.5	ND	94.7		30-150			
Dichloroprop	138	29	µg/kg dry	145	ND	95.0		30-150			
Dichloroprop [2C]	140	29	µg/kg dry	145	ND	96.3		30-150			
Dinoseb	25.4	14	µg/kg dry	72.4	ND	35.1		10-150			V-06
Dinoseb [2C]	29.3	14	µg/kg dry	72.4	ND	40.4		10-150			V-06
MCPA	13100	2900	µg/kg dry	14500	ND	90.3		30-150			
MCPA [2C]	11900	2900	µg/kg dry	14500	ND	82.0		30-150			
MCPP	17900	2900	µg/kg dry	14500	ND	123		30-150			
MCPP [2C]	12500	2900	µg/kg dry	14500	ND	86.0		30-150			
Surrogate: 2,4-Dichlorophenylacetic acid	*108*		µg/kg dry	116		93.4		30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*107*		µg/kg dry	116		92.1		30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216689 - SW-846 8151										
Matrix Spike Dup (B216689-MSD1)	**Source: 18K0278-03**		Prepared: 11/08/18 Analyzed: 11/10/18							
2,4-D	137	29	µg/kg dry	145	ND	94.4	30-150	4.13	30	
2,4-D [2C]	145	29	µg/kg dry	145	ND	100	30-150	2.76	30	V-06
2,4-DB	131	29	µg/kg dry	145	ND	90.5	30-150	2.25	30	
2,4-DB [2C]	154	29	µg/kg dry	145	ND	107	30-150	1.81	30	V-06
2,4,5-TP (Silvex)	14.4	2.9	µg/kg dry	14.5	ND	99.1	30-150	9.70	30	
2,4,5-TP (Silvex) [2C]	14.0	2.9	µg/kg dry	14.5	ND	96.5	30-150	2.91	30	V-06
2,4,5-T	14.1	2.9	µg/kg dry	14.5	ND	97.1	30-150	11.3	30	
2,4,5-T [2C]	14.7	2.9	µg/kg dry	14.5	ND	101	30-150	3.50	30	V-06
Dalapon	255	72	µg/kg dry	362	ND	70.3	30-150	6.02	30	
Dalapon [2C]	261	72	µg/kg dry	362	ND	72.1	30-150	5.69	30	
Dicamba	13.4	2.9	µg/kg dry	14.5	ND	92.1	30-150	3.21	30	
Dicamba [2C]	13.7	2.9	µg/kg dry	14.5	ND	94.7	30-150	0.0802	30	
Dichloroprop	139	29	µg/kg dry	145	ND	95.9	30-150	1.01	30	
Dichloroprop [2C]	143	29	µg/kg dry	145	ND	98.9	30-150	2.66	30	
Dinoseb	28.5	14	µg/kg dry	72.4	ND	39.4	10-150	11.4	30	V-06
Dinoseb [2C]	31.3	14	µg/kg dry	72.4	ND	43.2	10-150	6.68	30	V-06
MCPA	13200	2900	µg/kg dry	14500	ND	90.9	30-150	0.675	30	
MCPA [2C]	12000	2900	µg/kg dry	14500	ND	82.6	30-150	0.665	30	
MCPP	17900	2900	µg/kg dry	14500	ND	123	30-150	0.0862	30	
MCPP [2C]	12900	2900	µg/kg dry	14500	ND	88.9	30-150	3.29	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*112*		µg/kg dry	116		96.7	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*112*		µg/kg dry	116		96.5	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B216634 - SW-846 3546											
Blank (B216634-BLK1)				Prepared: 11/07/18 Analyzed: 11/08/18							
TPH (C9-C36)	ND	8.3	mg/Kg wet								
Surrogate: 2-Fluorobiphenyl	*2.21*		mg/Kg wet	3.33		66.2		40-140			
LCS (B216634-BS1)				Prepared: 11/07/18 Analyzed: 11/08/18							
TPH (C9-C36)	28.3	8.3	mg/Kg wet	33.3		85.0		40-140			
Surrogate: 2-Fluorobiphenyl	*2.48*		mg/Kg wet	3.33		74.3		40-140			
LCS Dup (B216634-BSD1)				Prepared: 11/07/18 Analyzed: 11/08/18							
TPH (C9-C36)	27.5	8.3	mg/Kg wet	33.3		82.6		40-140	2.92	30	
Surrogate: 2-Fluorobiphenyl	*2.33*		mg/Kg wet	3.33		70.0		40-140			
Matrix Spike (B216634-MS1)	**Source: 18K0278-01**			Prepared: 11/07/18 Analyzed: 11/08/18							
TPH (C9-C36)	351	100	mg/Kg dry	41.5	361	**-25.1**	*	40-140			MS-22
Surrogate: 2-Fluorobiphenyl	*2.62*		mg/Kg dry	4.15		63.3		40-140			
Matrix Spike Dup (B216634-MSD1)	**Source: 18K0278-01**			Prepared: 11/07/18 Analyzed: 11/08/18							
TPH (C9-C36)	385	110	mg/Kg dry	42.2	361	56.2		40-140	9.27	30	
Surrogate: 2-Fluorobiphenyl	*3.03*		mg/Kg dry	4.22		71.9		40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216703 - SW-846 7471										
Blank (B216703-BLK1)				Prepared & Analyzed: 11/08/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B216703-BS1)				Prepared & Analyzed: 11/08/18						
Mercury	12.1	1.9	mg/Kg wet	11.5		105	71.6-127.8			
LCS Dup (B216703-BSD1)				Prepared & Analyzed: 11/08/18						
Mercury	12.2	1.9	mg/Kg wet	11.5		106	71.6-127.8	0.246	30	
Batch B216743 - SW-846 3050B										
Blank (B216743-BLK1)				Prepared: 11/08/18 Analyzed: 11/09/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B216743-BS1)				Prepared: 11/08/18 Analyzed: 11/09/18						
Antimony	55.2	5.0	mg/Kg wet	75.5		73.1	3.8-196			
Arsenic	137	5.0	mg/Kg wet	161		85.3	83.2-116.8			
Barium	235	5.0	mg/Kg wet	260		90.3	82.7-117.3			
Beryllium	88.5	0.50	mg/Kg wet	97.6		90.7	83.4-116.8			
Cadmium	181	0.50	mg/Kg wet	211		85.8	83.4-116.6			
Chromium	117	1.0	mg/Kg wet	136		86.3	82.4-117.6			
Lead	95.1	1.5	mg/Kg wet	111		85.7	83-117.1			
Nickel	83.7	1.0	mg/Kg wet	91.9		91.1	82.9-117.5			
Selenium	158	10	mg/Kg wet	191		82.9	79.6-120.9			
Silver	39.1	1.0	mg/Kg wet	43.3		90.3	79.9-119.9			
Thallium	145	5.0	mg/Kg wet	156		92.8	81.4-119.2			
Vanadium	45.9	2.0	mg/Kg wet	56.7		80.9	79-121.2			
Zinc	194	2.0	mg/Kg wet	199		97.4	81.4-119.1			
LCS Dup (B216743-BSD1)				Prepared: 11/08/18 Analyzed: 11/09/18						
Antimony	52.3	5.0	mg/Kg wet	75.5		69.3	3.8-196	5.25	30	
Arsenic	138	5.0	mg/Kg wet	161		85.7	83.2-116.8	0.434	30	
Barium	237	5.0	mg/Kg wet	260		91.1	82.7-117.3	0.900	30	
Beryllium	89.5	0.50	mg/Kg wet	97.6		91.7	83.4-116.8	1.13	30	
Cadmium	188	0.50	mg/Kg wet	211		89.1	83.4-116.6	3.68	30	
Chromium	119	0.99	mg/Kg wet	136		87.3	82.4-117.6	1.11	30	
Lead	97.6	1.5	mg/Kg wet	111		88.0	83-117.1	2.65	30	
Nickel	84.8	0.99	mg/Kg wet	91.9		92.3	82.9-117.5	1.36	30	
Selenium	160	9.9	mg/Kg wet	191		83.5	79.6-120.9	0.786	30	
Silver	40.2	0.99	mg/Kg wet	43.3		92.9	79.9-119.9	2.76	30	
Thallium	146	5.0	mg/Kg wet	156		93.7	81.4-119.2	1.06	30	
Vanadium	45.7	2.0	mg/Kg wet	56.7		80.7	79-121.2	0.332	30	
Zinc	179	2.0	mg/Kg wet	199		89.9	81.4-119.1	8.07	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216743 - SW-846 3050B										
MRL Check (B216743-MRL1)				Prepared: 11/08/18 Analyzed: 11/09/18						
Lead	0.511	0.49	mg/Kg wet	0.488		105	80-120			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216565 - SW-846 9045C										
LCS (B216565-BS1)				Prepared & Analyzed: 11/06/18						
pH	6.02		pH Units	6.00		100	90-110			
LCS (B216565-BS2)				Prepared & Analyzed: 11/06/18						
pH	6.04		pH Units	6.00		101	90-110			
Duplicate (B216565-DUP1)	**Source: 18K0278-05**			Prepared & Analyzed: 11/06/18						
pH	4.7		pH Units		4.6			0.864	5	
Duplicate (B216565-DUP2)	**Source: 18K0278-07**			Prepared & Analyzed: 11/06/18						
pH	5.6		pH Units		5.5			1.69	5	
Batch B216769 - SW-846 9014										
Blank (B216769-BLK1)				Prepared: 11/08/18 Analyzed: 11/12/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B216769-BS1)				Prepared: 11/08/18 Analyzed: 11/12/18						
Reactive Cyanide	10	0.40	mg/Kg	10.0		103	83.6-111			
Batch B216817 - SM21-22 2510B Modified										
Blank (B216817-BLK1)				Prepared & Analyzed: 11/09/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B216817-BS1)				Prepared & Analyzed: 11/09/18						
Specific conductance	190		µmhos/cm	192		101	90-110			
Duplicate (B216817-DUP1)	**Source: 18K0278-01**			Prepared & Analyzed: 11/09/18						
Specific conductance	3.5	2.0	µmhos/cm		3.4			3.77	21	
Batch B216984 - SW-846 9030A										
Blank (B216984-BLK1)				Prepared: 11/08/18 Analyzed: 11/12/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B216984-BS1)				Prepared: 11/08/18 Analyzed: 11/12/18						
Reactive Sulfide	13	2.0	mg/Kg	14.8		86.5	54.9-121			

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BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM1	Analyzed:	11/08/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	2.34
Endrin [1]	2.69

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	2.53
Endrin [2]	2.90

BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM2	Analyzed:	11/09/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	2.07
Endrin [1]	2.77

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	2.32
Endrin [2]	3.06

BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM3	Analyzed:	11/09/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	4.41
Endrin [1]	3.20

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BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM3	Analyzed:	11/09/2018

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	4.72
Endrin [2]	3.40

BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM4	Analyzed:	11/09/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	3.67
Endrin [1]	3.46

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	4.05
Endrin [2]	3.64

BREAKDOWN REPORT

Lab Sample ID:	S029208-PEM5	Analyzed:	11/09/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	3.46
Endrin [1]	3.84

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	3.87
Endrin [2]	4.05

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B216574-BS1 Date(s) Analyzed: 11/08/2018 11/08/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.17	16.2
Aroclor-1260	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.17	16.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B216574-BSD1 Date(s) Analyzed: 11/08/2018 11/08/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.17	16.2
Aroclor-1260	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.17	16.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

Matrix Spike

Lab Sample ID: B216574-MS1 Date(s) Analyzed: 11/08/2018 11/08/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.29	
	2	0.000	0.000	0.000	0.23	23.1
Aroclor-1260	1	0.000	0.000	0.000	0.25	
	2	0.000	0.000	0.000	0.22	12.8

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

Matrix Spike Dup

Lab Sample ID: B216574-MSD1 Date(s) Analyzed: 11/08/2018 11/08/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.28	
	2	0.000	0.000	0.000	0.25	11.3
Aroclor-1260	1	0.000	0.000	0.000	0.24	
	2	0.000	0.000	0.000	0.21	13.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B216575-BS1 Date(s) Analyzed: 11/09/2018 11/10/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.733	7.705	7.765	0.11	
	2	7.730	7.702	7.762	0.11	0.0
4,4'-DDE	1	7.271	7.243	7.303	0.11	
	2	7.281	7.253	7.313	0.11	8.7
4,4'-DDT	1	7.950	7.923	7.983	0.11	
	2	7.973	7.945	8.005	0.11	0.0
Alachlor	1	6.669	6.641	6.701	0.10	
	2	6.411	6.383	6.443	0.094	6.2
Aldrin	1	6.584	6.556	6.616	0.11	
	2	6.493	6.464	6.524	0.11	0.0
alpha-BHC	1	5.806	5.779	5.839	0.11	
	2	5.720	5.691	5.751	0.10	9.5
alpha-Chlordane	1	7.224	7.197	7.257	0.11	
	2	7.157	7.129	7.189	0.11	0.0
beta-BHC	1	6.081	6.053	6.113	0.10	
	2	6.013	5.982	6.042	0.10	0.0
delta-BHC	1	6.210	6.182	6.242	0.098	
	2	6.216	6.187	6.247	0.096	2.1
Dieldrin	1	7.515	7.489	7.549	0.11	
	2	7.412	7.384	7.444	0.11	0.0
Endosulfan I	1	7.333	7.306	7.366	0.10	
	2	7.203	7.175	7.235	0.080	22.2
Endosulfan II	1	7.872	7.845	7.905	0.10	
	2	7.814	7.786	7.846	0.10	0.0
Endosulfan Sulfate	1	8.462	8.434	8.494	0.11	
	2	8.262	8.234	8.294	0.10	9.5
Endrin	1	7.699	7.672	7.732	0.11	
	2	7.649	7.621	7.681	0.11	0.0
Endrin Aldehyde	1	8.177	8.148	8.208	0.097	
	2	8.071	8.042	8.102	0.097	0.0
Endrin Ketone	1	8.638	8.610	8.670	0.11	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B216575-BS1 Date(s) Analyzed: 11/09/2018 11/10/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.601	8.573	8.633	0.10	9.5
gamma-BHC (Lindane)	1	6.025	5.998	6.058	0.11	
	2	5.958	5.930	5.990	0.10	9.5
gamma-Chlordane	1	7.123	7.096	7.156	0.11	
	2	7.047	7.019	7.079	0.11	0.0
Heptachlor	1	6.364	6.336	6.396	0.097	
	2	6.262	6.233	6.293	0.10	3.1
Heptachlor Epoxide	1	7.031	7.003	7.063	0.11	
	2	6.908	6.880	6.940	0.10	9.5
Hexachlorobenzene	1	5.692	5.664	5.724	0.12	
	2	5.626	5.597	5.657	0.11	8.7
Methoxychlor	1	8.282	8.254	8.314	0.12	
	2	8.443	8.414	8.474	0.12	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B216575-BSD1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.733	7.705	7.765	0.11	
	2	7.730	7.702	7.762	0.11	0.0
4,4'-DDE	1	7.270	7.243	7.303	0.11	
	2	7.281	7.253	7.313	0.11	0.0
4,4'-DDT	1	7.949	7.923	7.983	0.10	
	2	7.973	7.945	8.005	0.10	0.0
Alachlor	1	6.669	6.641	6.701	0.095	
	2	6.410	6.383	6.443	0.087	8.8
Aldrin	1	6.584	6.556	6.616	0.11	
	2	6.492	6.464	6.524	0.097	12.6
alpha-BHC	1	5.806	5.779	5.839	0.10	
	2	5.720	5.691	5.751	0.095	5.1
alpha-Chlordane	1	7.224	7.197	7.257	0.10	
	2	7.157	7.129	7.189	0.10	0.0
beta-BHC	1	6.081	6.053	6.113	0.098	
	2	6.013	5.982	6.042	0.093	5.2
delta-BHC	1	6.210	6.182	6.242	0.095	
	2	6.215	6.187	6.247	0.090	5.4
Dieldrin	1	7.516	7.489	7.549	0.10	
	2	7.412	7.384	7.444	0.098	2.0
Endosulfan I	1	7.332	7.306	7.366	0.092	
	2	7.203	7.175	7.235	0.074	21.7
Endosulfan II	1	7.872	7.845	7.905	0.093	
	2	7.814	7.786	7.846	0.092	2.2
Endosulfan Sulfate	1	8.462	8.434	8.494	0.11	
	2	8.262	8.234	8.294	0.093	16.7
Endrin	1	7.699	7.672	7.732	0.099	
	2	7.648	7.621	7.681	0.099	1.0
Endrin Aldehyde	1	8.177	8.148	8.208	0.092	
	2	8.070	8.042	8.102	0.090	2.2
Endrin Ketone	1	8.637	8.610	8.670	0.097	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B216575-BSD1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.601	8.573	8.633	0.094	3.1
gamma-BHC (Lindane)	1	6.026	5.998	6.058	0.10	
	2	5.958	5.930	5.990	0.096	4.1
gamma-Chlordane	1	7.123	7.096	7.156	0.10	
	2	7.047	7.019	7.079	0.10	0.0
Heptachlor	1	6.364	6.336	6.396	0.091	
	2	6.262	6.233	6.293	0.097	6.4
Heptachlor Epoxide	1	7.030	7.003	7.063	0.10	
	2	6.908	6.880	6.940	0.096	4.1
Hexachlorobenzene	1	5.692	5.664	5.724	0.11	
	2	5.626	5.597	5.657	0.099	10.5
Methoxychlor	1	8.282	8.254	8.314	0.11	
	2	8.442	8.414	8.474	0.11	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS

Lab Sample ID: B216689-BS1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.049	0.000	0.000	11.1	
	2	15.633	0.000	0.000	12.2	10.3
2,4,5-TP (Silvex)	1	15.427	0.000	0.000	11.3	
	2	14.796	0.000	0.000	12.1	9.5
2,4-D	1	13.583	0.000	0.000	115	
	2	13.073	0.000	0.000	120	0.0
2,4-DB	1	16.939	0.000	0.000	118	
	2	16.690	0.000	0.000	128	6.5
Dalapon	1	4.545	0.000	0.000	182	
	2	4.035	0.000	0.000	187	3.8
Dicamba	1	11.466	0.000	0.000	11.0	
	2	10.905	0.000	0.000	11.6	5.3
Dichloroprop	1	13.073	0.000	0.000	117	
	2	12.407	0.000	0.000	120	0.0
Dinoseb	1	17.608	0.000	0.000	19.9	
	2	16.981	0.000	0.000	24.0	18.2
MCPA	1	12.288	0.000	0.000	10800	
	2	11.730	0.000	0.000	9900	10.5
MCPP	1	11.956	0.000	0.000	14300	
	2	11.248	0.000	0.000	10700	26.7

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS Dup

Lab Sample ID: B216689-BSD1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.050	0.000	0.000	10.4	
	2	15.634	0.000	0.000	11.4	13.1
2,4,5-TP (Silvex)	1	15.427	0.000	0.000	10.6	
	2	14.796	0.000	0.000	11.4	3.6
2,4-D	1	13.584	0.000	0.000	108	
	2	13.073	0.000	0.000	113	2.7
2,4-DB	1	16.939	0.000	0.000	110	
	2	16.690	0.000	0.000	120	8.7
Dalapon	1	4.544	0.000	0.000	192	
	2	4.033	0.000	0.000	195	2.6
Dicamba	1	11.464	0.000	0.000	11.1	
	2	10.905	0.000	0.000	11.0	0.0
Dichloroprop	1	13.073	0.000	0.000	111	
	2	12.406	0.000	0.000	115	4.4
Dinoseb	1	17.608	0.000	0.000	22.1	
	2	16.981	0.000	0.000	26.5	18.6
MCPA	1	12.287	0.000	0.000	10400	
	2	11.729	0.000	0.000	9460	5.6
MCPP	1	11.955	0.000	0.000	14400	
	2	11.246	0.000	0.000	10200	31.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

Matrix Spike

Lab Sample ID: B216689-MS1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.042	0.000	0.000	12.6	
	2	15.620	0.000	0.000	14.2	8.8
2,4,5-TP (Silvex)	1	15.421	0.000	0.000	13.0	
	2	14.785	0.000	0.000	13.6	4.5
2,4-D	1	13.577	0.000	0.000	131	
	2	13.063	0.000	0.000	141	8.1
2,4-DB	1	16.936	0.000	0.000	128	
	2	16.683	0.000	0.000	152	15.6
Dalapon	1	4.542	0.000	0.000	270	
	2	4.031	0.000	0.000	277	2.6
Dicamba	1	11.461	0.000	0.000	13.8	
	2	10.898	0.000	0.000	13.7	2.2
Dichloroprop	1	13.068	0.000	0.000	138	
	2	12.398	0.000	0.000	140	0.0
Dinoseb	1	17.610	0.000	0.000	25.4	
	2	16.979	0.000	0.000	29.3	15.8
MCPA	1	12.285	0.000	0.000	13100	
	2	11.723	0.000	0.000	11900	8.8
MCPP	1	11.951	0.000	0.000	17900	
	2	11.241	0.000	0.000	12500	36.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

Matrix Spike Dup

Lab Sample ID: B216689-MSD1 Date(s) Analyzed: 11/10/2018 11/10/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	16.047	0.000	0.000	14.1	
	2	15.619	0.000	0.000	14.7	4.9
2,4,5-TP (Silvex)	1	15.420	0.000	0.000	14.4	
	2	14.785	0.000	0.000	14.0	0.0
2,4-D	1	13.576	0.000	0.000	137	
	2	13.063	0.000	0.000	145	3.5
2,4-DB	1	16.934	0.000	0.000	131	
	2	16.683	0.000	0.000	154	16.9
Dalapon	1	4.543	0.000	0.000	255	
	2	4.032	0.000	0.000	261	0.4
Dicamba	1	11.461	0.000	0.000	13.4	
	2	10.899	0.000	0.000	13.7	5.2
Dichloroprop	1	13.068	0.000	0.000	139	
	2	12.398	0.000	0.000	143	2.1
Dinoseb	1	17.604	0.000	0.000	28.5	
	2	16.977	0.000	0.000	31.3	7.6
MCPA	1	12.284	0.000	0.000	13200	
	2	11.724	0.000	0.000	12000	8.0
MCPP	1	11.953	0.000	0.000	17900	
	2	11.241	0.000	0.000	12900	33.0

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-03	Elevated reporting limit due to matrix.
E	Reported result is estimated. Value reported over verified calibration range.
H-03	Sample received after recommended holding time was exceeded.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-19	Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8081B in Water	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA
Endrin	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Water	
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Water	
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8151A in Water	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
Dinoseb	ME,NC,NH,CT,NY,VA
Dinoseb [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Water	
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME

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Analyte	Certifications
SW-846 8260C in Soil	
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH

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CERTIFICATIONS

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Analyte	Certifications
SW-846 8270D in Soil	
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH
SW-846 8270D in Water	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH

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CERTIFICATIONS

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Analyte	Certifications
SW-846 8270D in Water	
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

18K0278

con-test ANALYTICAL LABORATORY

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http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page __1__ of __1__

KKM

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: JDF / FEB

Requested Turnaround Time
7-Day [✓] 10-Day [ ]
Due Date:

Rush-Approval Required
1-Day [ ] 3-Day [ ]
2-Day [ ] 4-Day [ ]

Data Delivery
Format: PDF [✓] EXCEL [✓]
Other: Limit Checl
CLP Like Data Pkg Required: [ ]
Email To: pcornell@vhb.com; ~~pmcklinlay@vhb.com~~; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	[1]Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals
								3	3	3		9	
								I	I	I	I	M/O	I
								A	A	A	A	V	A
1	MP-33	11/1/18	13:30	x	x	S	U	x	x	x	x	x	x
2	MP27	11/5/18	11:00					x	x	x	x	x	x
3	MP28		12:05					x	x	x	x	x	x
4	MP29		13:15					x	x	x	x	x	x
5	MP30	11/6/18	08:50					x	x	x	x	x	x
6	MP31		10:05					x	x	x	x	x	x
7	MP35		12:00					x	x	x	x	x	x

ANALYSIS REQUESTED

# of Containers | **[2] Preservation Code** | **[3] Container Code**

Dissolved Metals Samples
O Field Filtered
O Lab to Filter

Orthophosphate Samples
O Field Filtered
O Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define) _____

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O_____

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define) _____

Comments:
Thank you!
Vials frozen on day of generation by 16:00
TCLP 20x Rule

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

	Relinquished by: (signature)	Date/Time:
1		11/10/18 1430
2	Received by: (signature)	Date/Time: 11-6-18 15:37
3	Relinquished by: (signature)	Date/Time: 11-6-18 1740
4	Received by: (signature)	Date/Time: 11/6/18 1740
5	Relinquished by: (signature)	Date/Time: 11/6/18 1930
6	Received by: (signature)	Date/Time: 11-6-18 1930

Detection Limit Requirements
MA
CT
Other:

Special Requirements
[✓] MA MCP Required
MCP Certification Form Required
[ ] CT RCP Required
RCP Certification Form Required
[ ] MA State DW Required
PWSID #

DR Frozen 11-6-18 1930

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
[ ] Government [ ] Municipality [ ] MWRA [ ] WRTA
[ ] Federal [ ] 21 J [ ] School
[ ] City [ ] Brownfield [ ] MBTA

Other
[ ] Chromatogram
[ ] *AIHA-LAP,LLC*

PCB ONLY
[ ] Soxhlet
[ ] Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By LR Date 11-6-18 Time 1930

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 577 Actual Temp 2.2 By Blank # _____ Actual Temp -

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? F *

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Luke

Is there enough Volume? T

Is there Headspace where applicable? T MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	21
Meoh-	7	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-	14	Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen: DI 11-6-18 1930	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Samples MP-33, MP27, MP28, MP29 recieved out of holding time for pH

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18K0278
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18K0278-01 thru 18K0278-07

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 11/14/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 29, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K0568

Enclosed are results of analyses for samples received by the laboratory on November 13, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/29/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0568

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B34	18K0568-01	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
B33	18K0568-02	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
B37	18K0568-03	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO
B38	18K0568-04	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/29/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0568

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B39	18K0568-05	Soil		-	GAI-LAP-20-1996/AASHTO
				ASTM D1557	GAI-LAP-20-1996/AASHTO
				ASTM D2216	GAI-LAP-20-1996/AASHTO
				ASTM D6913	GAI-LAP-20-1996/AASHTO
				SM D 422-63	GAI-LAP-20-1996/AASHTO

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B34 | Sampled: 11/8/2018 13:00

Sample ID: 18K0568-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached		Attached	1		ASTM D6913		11/26/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B34 | Sampled: 11/8/2018 13:00

Sample ID: 18K0568-01

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached		Attached	1		ASTM D2216		11/20/18 0:00	GTE
See Attached Report Pages	Attached		Attached	1		ASTM D1557		11/27/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B33 | Sampled: 11/8/2018 10:00

Sample ID: 18K0568-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached		Attached	1		ASTM D6913		11/28/18 0:00	GTE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B33 | Sampled: 11/8/2018 10:00

Sample ID: 18K0568-02

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached		Attached	1		ASTM D2216		11/20/18 0:00	GTE
See Attached Report Pages	Attached		Attached	1		ASTM D1557		11/28/18 0:00	GTE

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B37 | Sampled: 11/12/2018 11:00

Sample ID: 18K0568-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached		Attached	1		ASTM D6913		11/26/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B37 | Sampled: 11/12/2018 11:00

Sample ID: 18K0568-03

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached		Attached	1		ASTM D2216		11/20/18 0:00	GTE
See Attached Report Pages	Attached		Attached	1		ASTM D1557		11/28/18 0:00	GTE

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Project Location: Sudbury, MA
Sample Description:
Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B38
Sampled: 11/12/2018 13:00

Sample ID: 18K0568-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached		Attached	1		ASTM D6913		11/26/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B38 | Sampled: 11/12/2018 13:00

Sample ID: 18K0568-04

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached		Attached	1		ASTM D2216		11/20/18 0:00	GTE
See Attached Report Pages	Attached		Attached	1		ASTM D1557		11/24/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B39 | Sampled: 11/9/2018 13:00

Sample ID: 18K0568-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Subcontracted Report	Attached		Attached	1		ASTM D6913		11/26/18 0:00	GTE

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0568

Date Received: 11/13/2018

Field Sample #: B39 | Sampled: 11/9/2018 13:00

Sample ID: 18K0568-05

Sample Matrix: Soil

Miscellaneous Test

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
See Attached Report Pages	Attached		Attached	1		ASTM D2216		11/20/18 0:00	GTE
See Attached Report Pages	Attached		Attached	1		ASTM D1557		11/24/18 0:00	GTE

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

KKM

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332 18K0568
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By:

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

ANALYSIS REQUESTED

	Grain Size	Proctor	Moisture
# of Containers	1		
[2] Preservation Code	NA	NA	NA
[3] Container Code	O	O	O

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	[1]Matrix Code	Conc Code	Grain Size	Proctor	Moisture
1	B34	11/8/18	13:00		x	S	U	X	X	X
2	B33	11/8/18	10:00		X	S	U	X	X	X
3	337	11/2/18	11:00		X	S	U	X	X	X
4	B36	11/2/18	13:00		X	S	U	X	X	X
5	B833	11/9/18	13:00		X	S	U	X	X	

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define) 5-gallon bucket

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Signature	Date/Time
Relinquished by: (signature)	11/13/18 11:00
Received by: (signature) Paul Chaltery	11-13-18 11:00
Relinquished by: (signature) Paul Chaltery	11-13-18
Received by: (signature)	11/13/18
Relinquished by: (signature)	
Received by: (signature)	11-13-18 1:30

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

con-test ANALYTICAL LABORATORY www.contestlabs.com

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

11-31-18 7:45

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/20/18	Checked By:	bfs
Depth :	---	Test Id:	482246		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	B33	---	Moist, olive yellow silty sand with gravel	11.0
---	B34	---	Moist, olive brown silty sand with gravel	12.0
---	B37	---	Moist, light olive brown silty sand with gravel	10.8
---	B38	---	Moist, light olive brown sand with silt	9.9
---	B39	---	Moist, light yellowish brown sand with silt	8.0

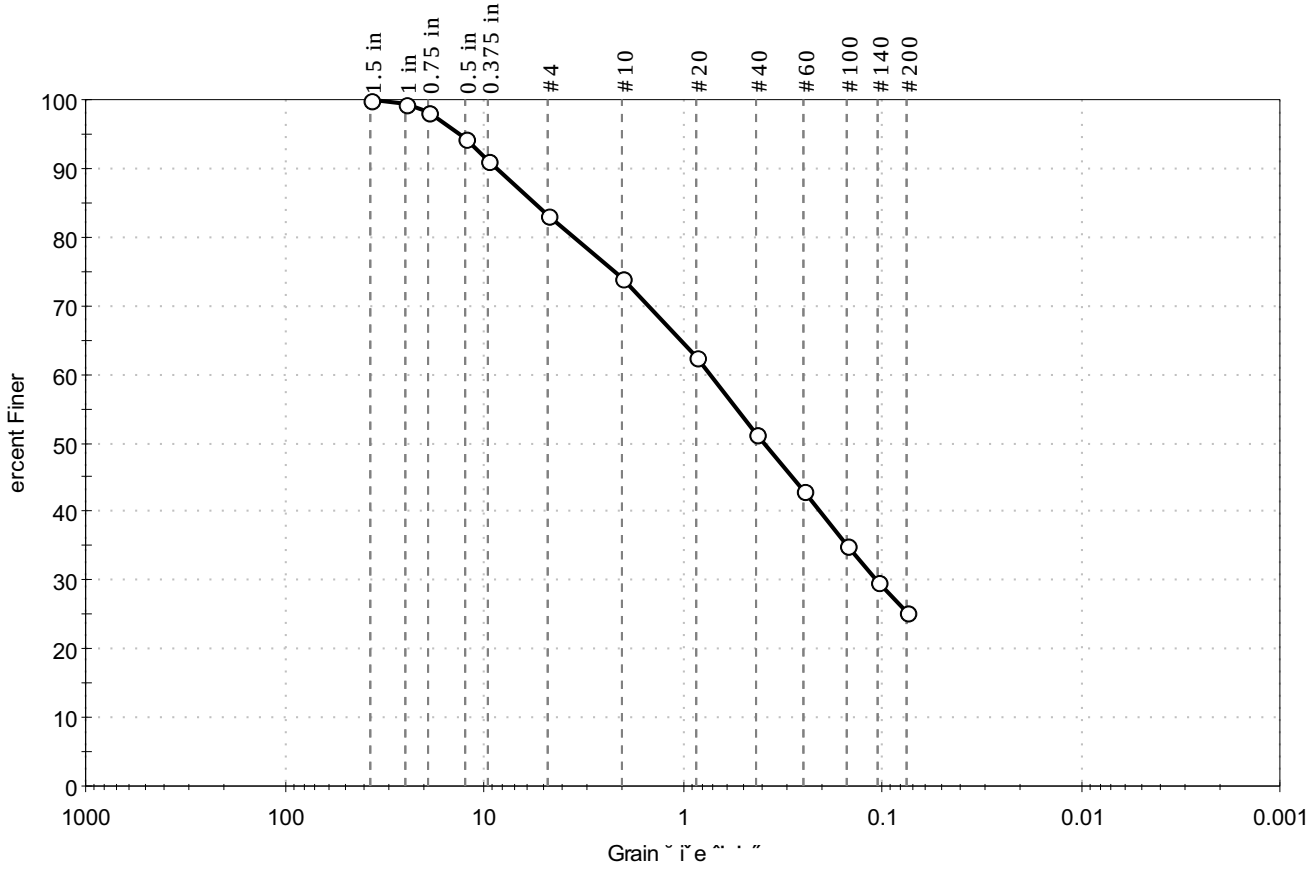
Notes: Temperature of Drying : 110° Celsius

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B33	Test Date:	11/28/18	Checked By:	bfs
Depth :	---	Test Id:	482233		

Test Comment: ---
Visual Description: Moist, olive yellow silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



%°˜ le	˛ Gravel	˛ ˇ and	˛ ˇ ilt & Cla&ˇ i˜e
""""	16.8	57.9	25.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	99		
0.75 in	19.00	98		
0.5 in	12.50	94		
0.375 in	9.50	91		
#4	4.75	83		
#10	2.00	74		
#20	0.85	63		
#40	0.42	51		
#60	0.25	43		
#100	0.15	35		
#140	0.11	30		
#200	0.075	25		

Coefficients

D_{85} = 5.5437 mm D_{30} = 0.1082 mm
D_{60} = 0.7273 mm D_{15} = N/A
D_{50} = 0.3906 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

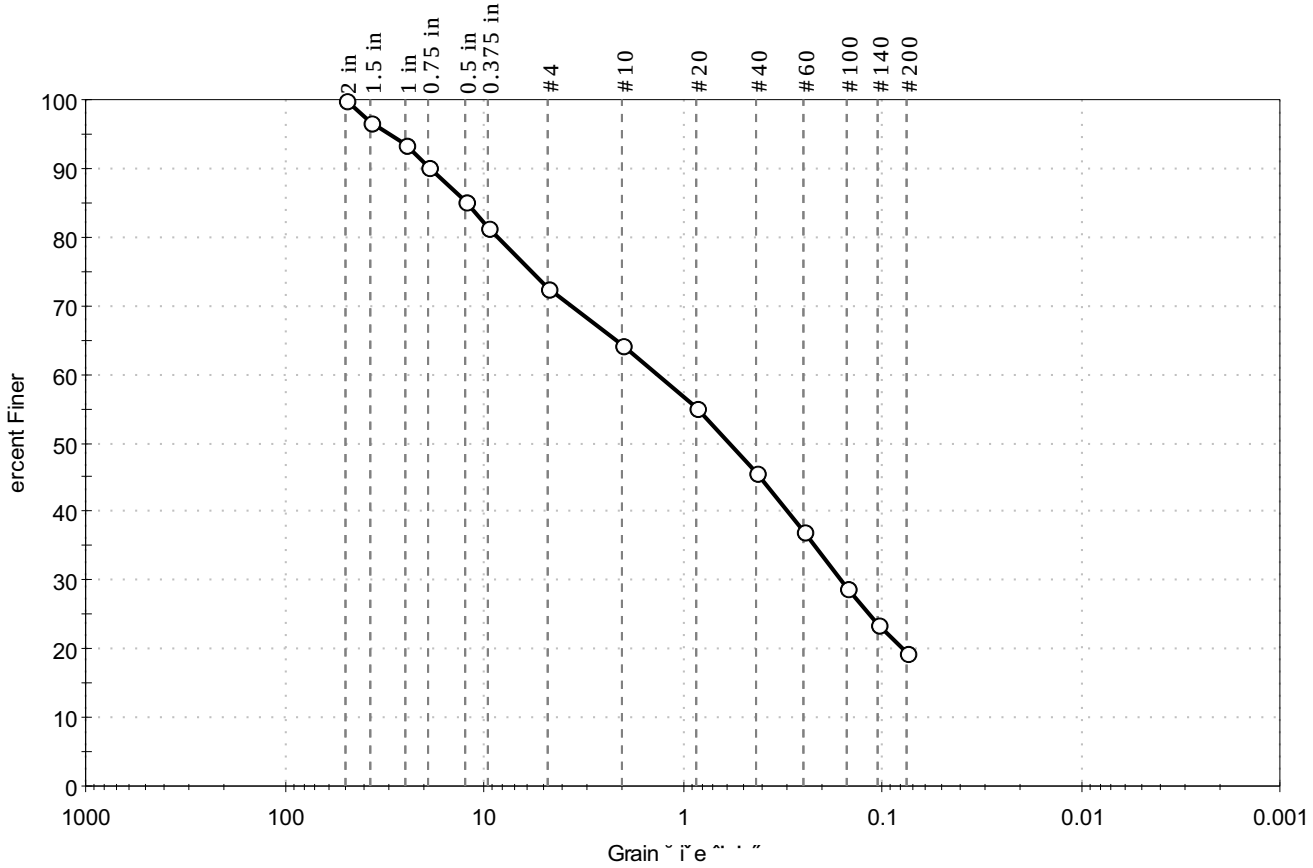
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED
Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B34	Test Date:	11/26/18	Checked By:	bfs
Depth :	---	Test Id:	482232		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand with gravel				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913



% ° ˜ le	¸ Gravel	¸ ˇ and	¸ ˇ ilt & Cla&ˇ i˜e
""""	27.3	53.2	19.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
2 in	50.00	100		
1.5 in	37.50	97		
1 in	25.00	94		
0.75 in	19.00	90		
0.5 in	12.50	85		
0.375 in	9.50	81		
#4	4.75	73		
#10	2.00	64		
#20	0.85	55		
#40	0.42	46		
#60	0.25	37		
#100	0.15	29		
#140	0.11	24		
#200	0.075	19		

Coefficients

D_{85} = 12.3440 mm D_{30} = 0.1606 mm

D_{60} = 1.3238 mm D_{15} = N/A

D_{50} = 0.5783 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

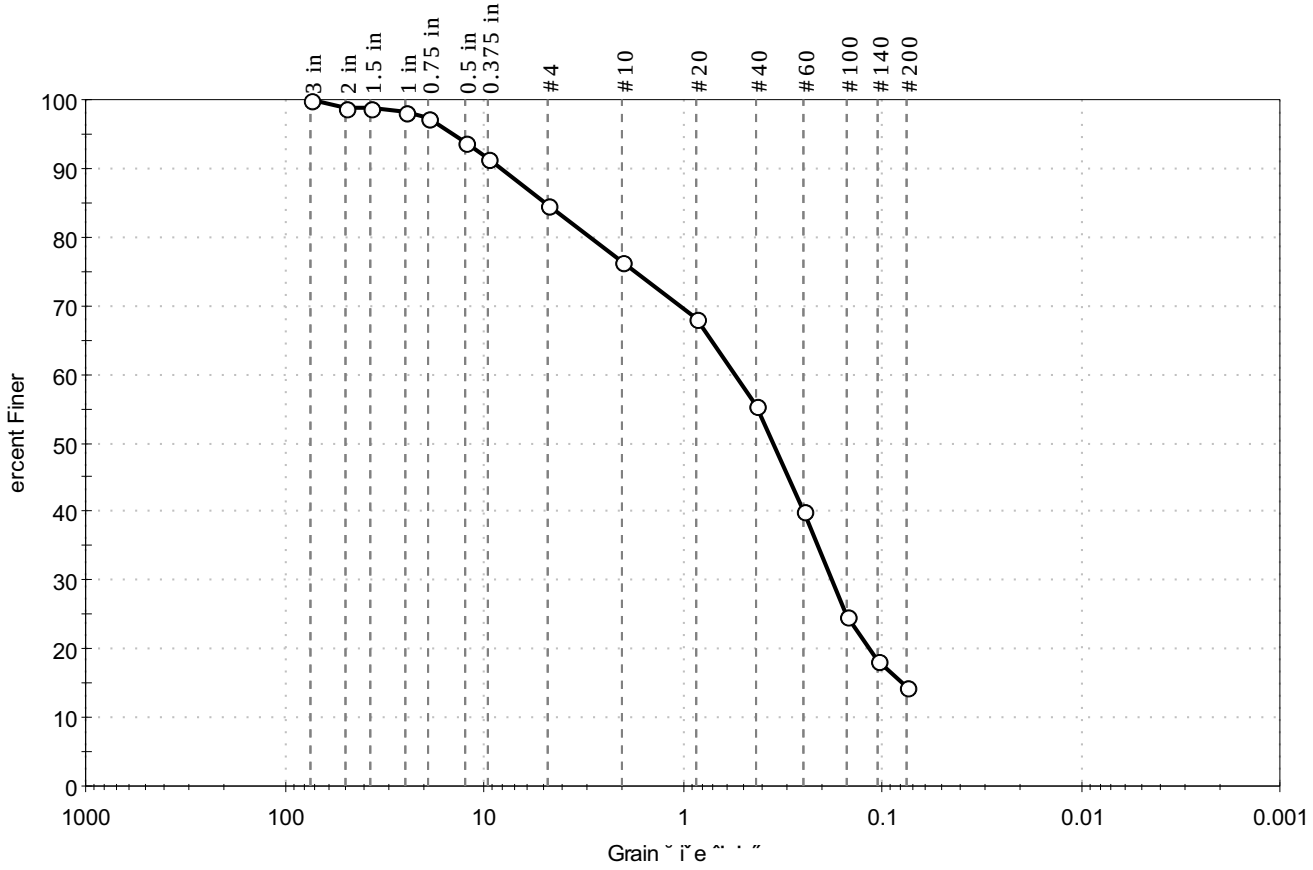
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B37	Test Date:	11/26/18	Checked By:	bfs
Depth :	---	Test Id:	482234		

Test Comment: ---
Visual Description: Moist, light olive brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



%°˜ le	˛ Gravel	˛ ˇ and	˛ ˇ ilt & Cla&ˇ i˜e
""""	15.3	70.4	14.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	99		
1.5 in	37.50	99		
1 in	25.00	98		
0.75 in	19.00	97		
0.5 in	12.50	94		
0.375 in	9.50	92		
#4	4.75	85		
#10	2.00	76		
#20	0.85	68		
#40	0.42	55		
#60	0.25	40		
#100	0.15	25		
#140	0.11	18		
#200	0.075	14		

Coefficients

D_{85} = 4.8680 mm D_{30} = 0.1786 mm
D_{60} = 0.5481 mm D_{15} = 0.0796 mm
D_{50} = 0.3524 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

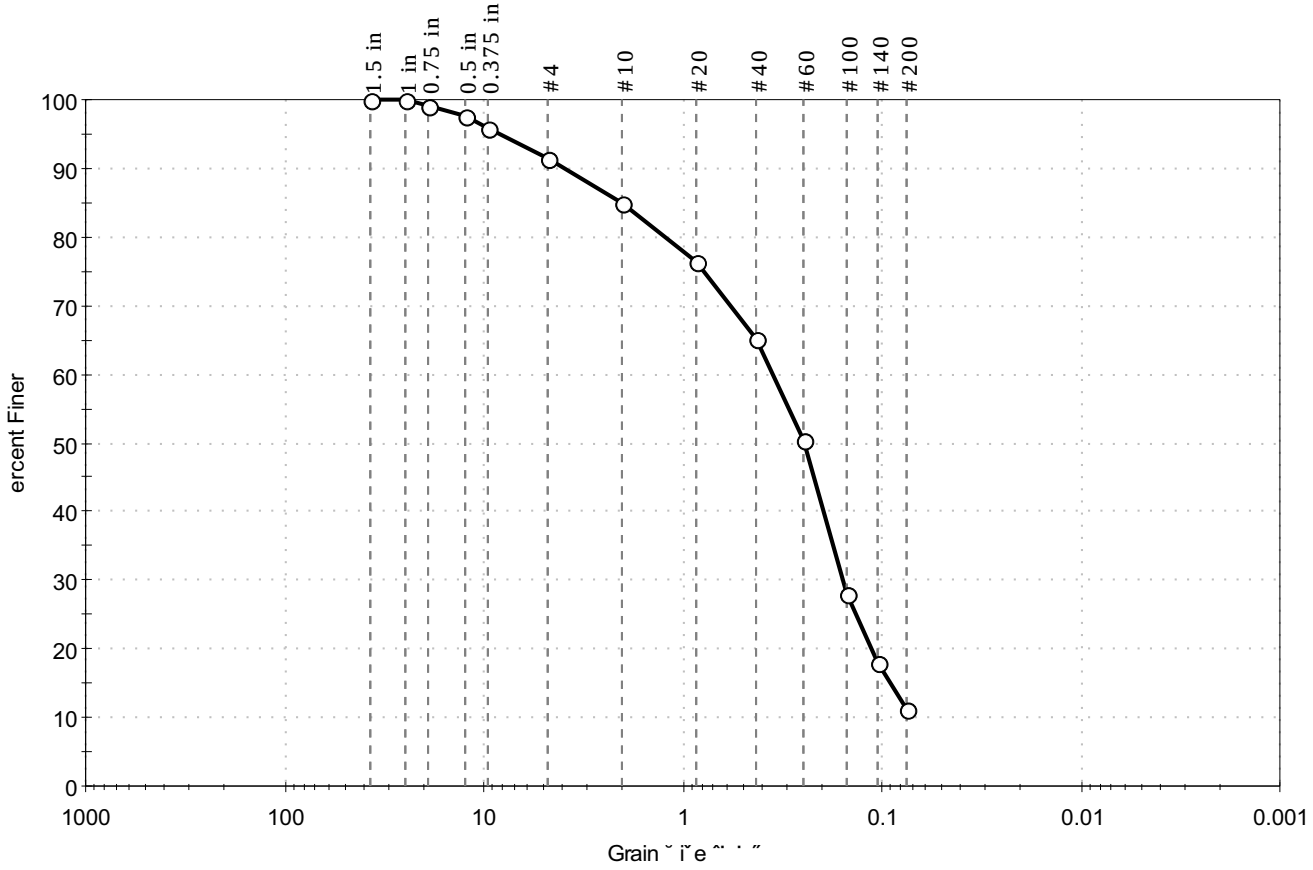
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B38	Test Date:	11/26/18	Checked By:	bfs
Depth :	---	Test Id:	482235		
Test Comment:	---				
Visual Description:	Moist, light olive brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



%°˜ le	˛ Gravel	˛ ˇ and	˛ ˇ ilt & Cla&ˇ i˜e
"""	8.5	80.4	11.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	100		
0.75 in	19.00	99		
0.5 in	12.50	98		
0.375 in	9.50	96		
#4	4.75	92		
#10	2.00	85		
#20	0.85	76		
#40	0.42	65		
#60	0.25	50		
#100	0.15	28		
#140	0.11	18		
#200	0.075	11		

Coefficients

D_{85} = 2.0004 mm D_{30} = 0.1573 mm

D_{60} = 0.3523 mm D_{15} = 0.0911 mm

D_{50} = 0.2477 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

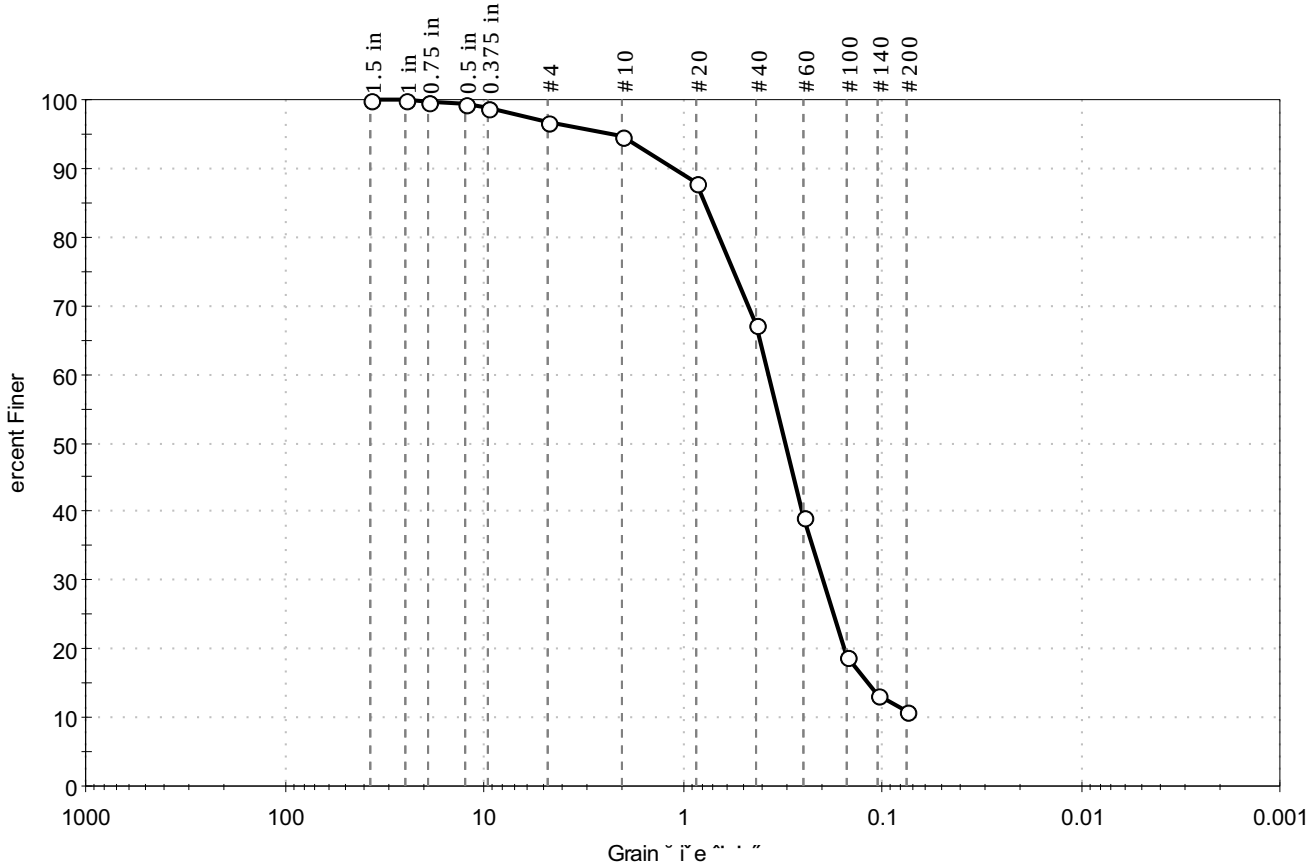
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	ckg
Sample ID:	B39	Test Date:	11/26/18	Checked By:	bfs
Depth :	---	Test Id:	482236		

Test Comment: ---
Visual Description: Moist, light yellowish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



%°˜ le	˛ Gravel	˛ ˇ and	˛ ˇ ilt & Cla&ˇ i˜e
"""	3.1	86.0	10.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	100		
0.75 in	19.00	100		
0.5 in	12.50	99		
0.375 in	9.50	99		
#4	4.75	97		
#10	2.00	95		
#20	0.85	88		
#40	0.42	67		
#60	0.25	39		
#100	0.15	19		
#140	0.11	13		
#200	0.075	11		

Coefficients

D_{85} = 0.7731 mm D_{30} = 0.1978 mm
D_{60} = 0.3695 mm D_{15} = 0.1175 mm
D_{50} = 0.3058 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

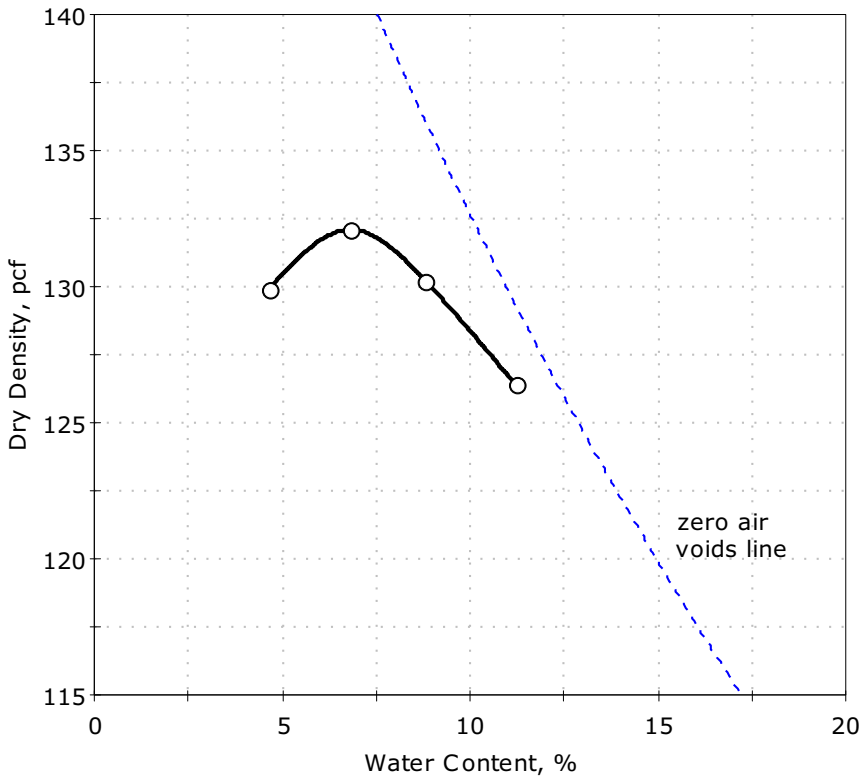
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B33	Test Date:	11/28/18	Checked By:	jsc
Depth :	---	Test Id:	482238		
Test Comment:	---				
Visual Description:	Moist, olive yellow silty sand with gravel				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	129.9	132.1	130.3	126.4
Moisture Content, %	4.7	6.8	8.8	11.2

Method : C

Preparation : DRY

As received Moisture :11 %

Rammer : Mechanical

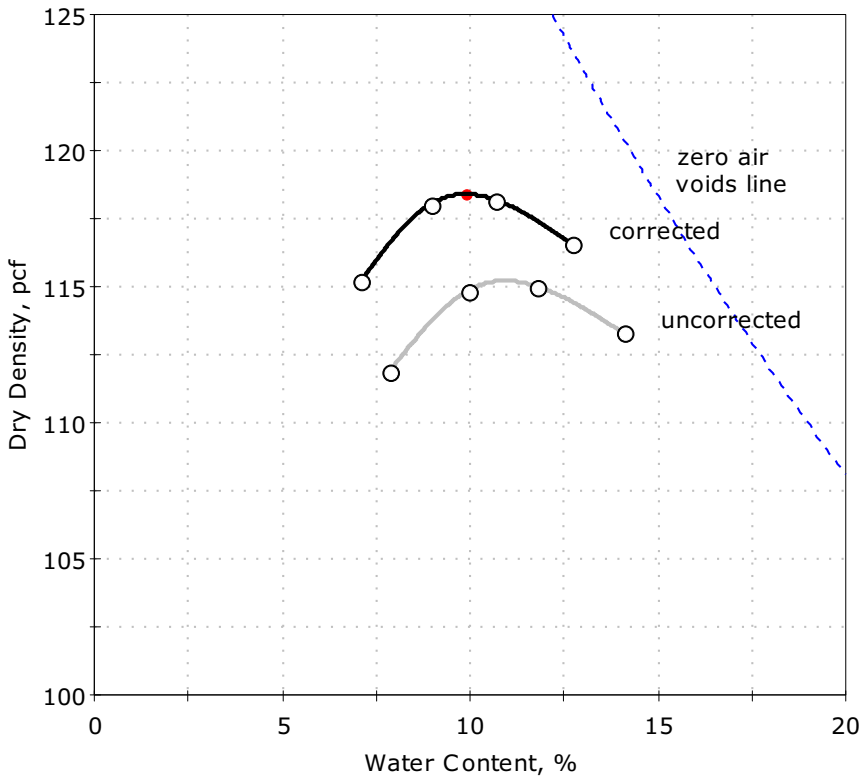
Zero voids line based on assumed specific gravity of 2.70

Maximum Dry Density= 132.1 pcf

Optimum Moisture= 6.8 %

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B34	Test Date:	11/27/18	Checked By:	jsc
Depth :	---	Test Id:	482237		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand with gravel				
Sample Comment:	Sample contains organics				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	111.9	114.9	115.0	113.3
Moisture Content, %	7.8	9.9	11.8	14.1

Method : C

Preparation : DRY

As received Moisture :12 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.65

Maximum Dry Density= 115.2 pcf

Optimum Moisture= 10.9 %

Oversize Correction (10% > 3/4 inch Sieve)

Corrected Maximum Dry Density= 118.4 pcf

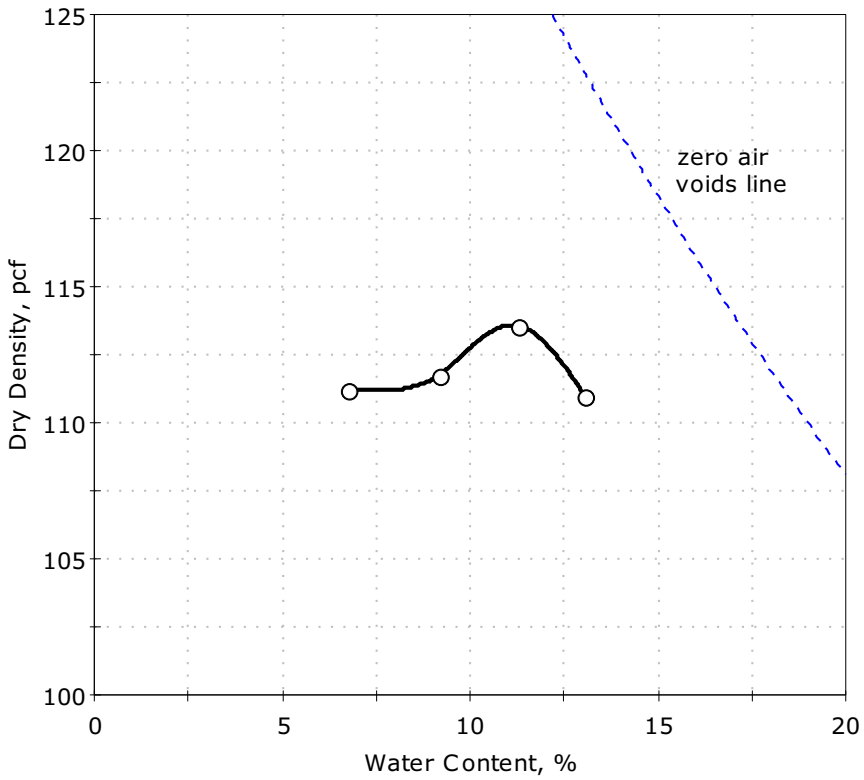
Corrected Optimum Moisture= 9.9 %

Assumed Average Bulk Specific Gravity = 2.55

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B37	Test Date:	11/28/18	Checked By:	jsc
Depth :	---	Test Id:	482239		
Test Comment:	---				
Visual Description:	Moist, light olive brown silty sand with gravel				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4
Dry density, pcf	111.2	111.7	113.6	111.0
Moisture Content, %	6.8	9.2	11.2	13.1

Method : C

Preparation : DRY

As received Moisture :11 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.65

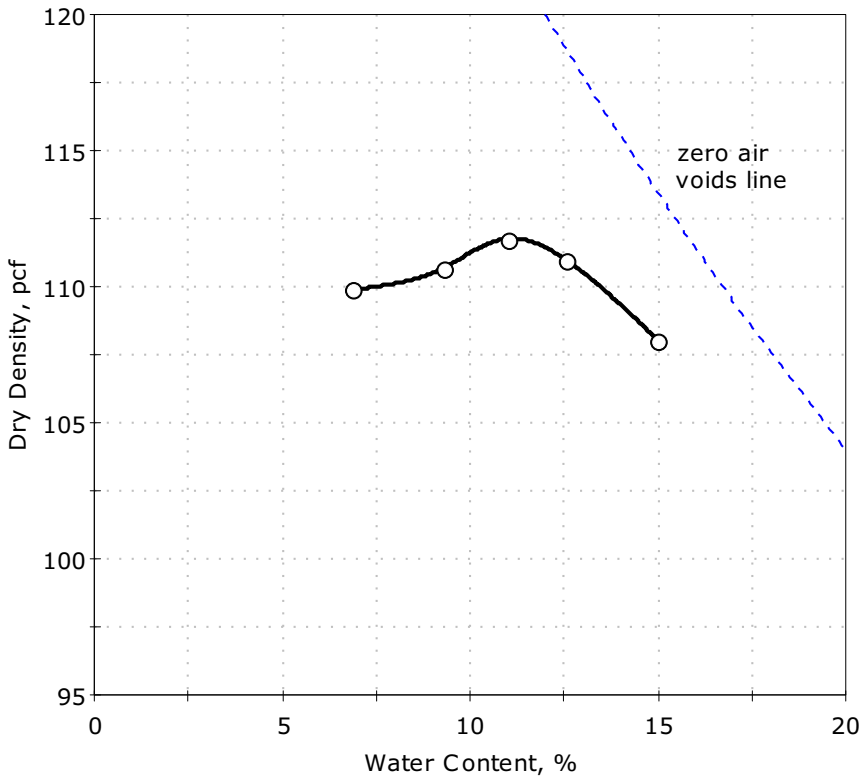
Maximum Dry Density= 113.6 pcf

Optimum Moisture= 11.1 %

GeoTesting EXPRESS

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B38	Test Date:	11/24/18	Checked By:	jsc
Depth :	---	Test Id:	482240		
Test Comment:	---				
Visual Description:	Moist, light olive brown sand with silt				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	109.9	110.7	111.8	111.0	108.1
Moisture Content, %	6.9	9.3	11.0	12.5	15.0

Method : B

Preparation : DRY

As received Moisture :10 %

Rammer : Mechanical

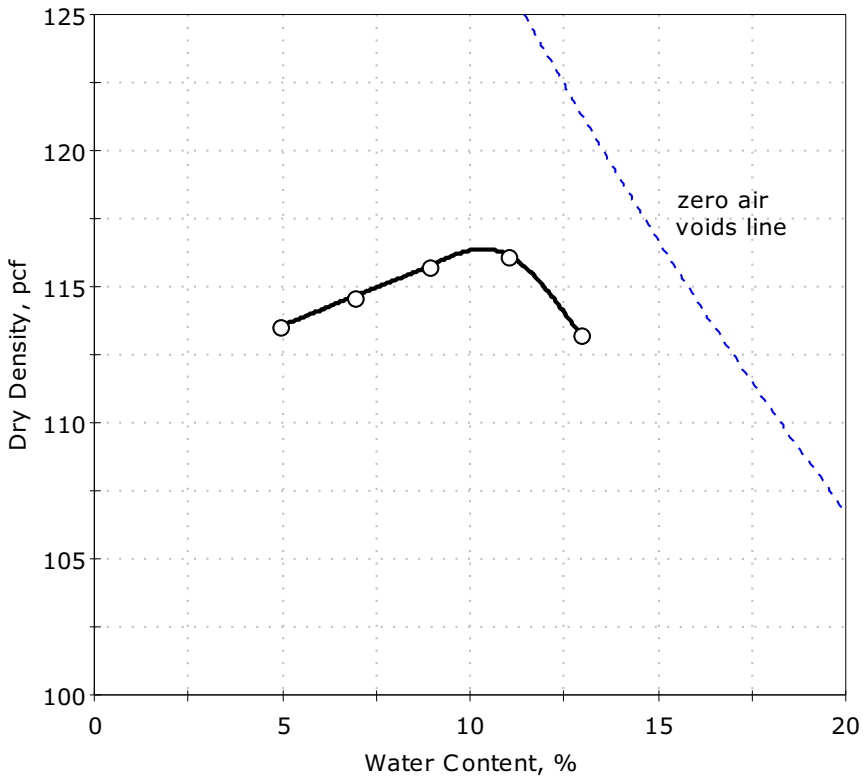
Zero voids line based on assumed specific gravity of 2.5

Maximum Dry Density= 111.8 pcf

Optimum Moisture= 11.1 %

Client:	Con-Test Analytical Lab				
Project:	Eversource Transmission				
Location:	Sudbury, MA			Project No:	GTX-308988
Boring ID:	---	Sample Type:	bucket	Tested By:	cwd
Sample ID:	B39	Test Date:	11/24/18	Checked By:	jsc
Depth :	---	Test Id:	482241		
Test Comment:	---				
Visual Description:	Moist, light yellowish brown sand with silt				
Sample Comment:	---				

Compaction Report - ASTM D1557



Data Points	Point 1	Point 2	Point 3	Point 4	Point 5
Dry density, pcf	113.5	114.7	115.7	116.2	113.2
Moisture Content, %	4.9	6.9	8.9	11.0	12.9

Method : A

Preparation : DRY

As received Moisture :8 %

Rammer : Mechanical

Zero voids line based on assumed specific gravity of 2.6

Maximum Dry Density= 116.4 pcf

Optimum Moisture= 10.4 %

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November 21, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K0569

Enclosed are results of analyses for samples received by the laboratory on November 13, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/21/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0569

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB33	18K0569-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB36	18K0569-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 11/21/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0569

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB35	18K0569-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB34	18K0569-04	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 11/16/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34]

SW-846 8151A

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18K0569-03[SB35], 18K0569-04[SB34]

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

2,4-DB
B217251-BS1, B217251-BSD1

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Dinoseb
B217251-MS1, B217251-MSD1

Dinoseb [2C]
B217251-MS1, B217251-MSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Dinoseb
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217251-MS1, B217251-MSD1

Dinoseb [2C]
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217251-MS1, B217251-MSD1

SW-846 8260C

Qualifications:

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

Bromomethane
B217293-BS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217293-BLK1, B217293-BS1, B217293-BSD1

Bromomethane
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217293-BLK1, B217293-BS1, B217293-BSD1

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V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217293-BLK1, B217293-BS1, B217293-BSD1

Tetrahydrofuran
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217293-BLK1, B217293-BS1, B217293-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217293-BLK1, B217293-BS1, B217293-BSD1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
B217293-BS1, B217293-BSD1

SW-846 8270D

Qualifications:

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

Aniline
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

Benzo(g,h,i)perylene
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

Pyridine
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

V-19

Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

Aniline
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217204-BLK1, B217204-BS1, B217204-BSD1

SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18K0569-01[SB33], 18K0569-02[SB36], 18K0569-03[SB35], 18K0569-04[SB34], B217354-DUP1

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SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Bromomethane	ND	0.0076	mg/Kg dry	1	R-05, V-34	SW-846 8260C	11/15/18	11/15/18 9:42	MFF
2-Butanone (MEK)	ND	0.030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Carbon Disulfide	ND	0.0045	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Chlorodibromomethane	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Chloroethane	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Chloroform	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Chloromethane	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2-Dibromoethane (EDB)	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1-Dichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,3-Dichloropropane	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
cis-1,3-Dichloropropene	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
trans-1,3-Dichloropropene	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Diethyl Ether	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Diisopropyl Ether (DIPE)	ND	0.00076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,4-Dioxane	ND	0.076	mg/Kg dry	1	R-05, V-16	SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,4-Dioxane (SIM)	ND	0.030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Methylene Chloride	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Naphthalene	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1,2,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Tetrahydrofuran	ND	0.0076	mg/Kg dry	1	V-16	SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2,3-Trichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
Vinyl Chloride	ND	0.0076	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
m+p Xylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 9:42	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	99.6	70-130		11/15/18 9:42
Toluene-d8	97.2	70-130		11/15/18 9:42
4-Bromofluorobenzene	97.6	70-130		11/15/18 9:42

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Acenaphthylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Acetophenone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Aniline	ND	0.42	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Benzo(a)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Benzo(a)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Benzo(b)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Benzo(g,h,i)perylene	ND	0.21	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Benzo(k)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Bis(2-chloroethoxy)methane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Bis(2-chloroethyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Bis(2-chloroisopropyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
4-Bromophenylphenylether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Butylbenzylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
4-Chloroaniline	ND	0.82	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2-Chloronaphthalene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2-Chlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Chrysene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Dibenzofuran	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Di-n-butylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
1,2-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
1,3-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
1,4-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4-Dichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Diethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4-Dimethylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Dimethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4-Dinitrophenol	ND	0.82	mg/Kg dry	1	V-19	SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,6-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Di-n-octylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Hexachlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Hexachlorobutadiene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Hexachloroethane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Indeno(1,2,3-cd)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Isophorone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
3/4-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Nitrobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2-Nitrophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
4-Nitrophenol	ND	0.82	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Pentachlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Phenanthrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Phenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
Pyridine	ND	0.42	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 13:26	BGL
1,2,4-Trichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4,5-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL
2,4,6-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:26	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	52.4	30-130		11/15/18 13:26
Phenol-d6	56.1	30-130		11/15/18 13:26
Nitrobenzene-d5	58.2	30-130		11/15/18 13:26
2-Fluorobiphenyl	50.6	30-130		11/15/18 13:26
2,4,6-Tribromophenol	73.6	30-130		11/15/18 13:26
p-Terphenyl-d14	62.5	30-130		11/15/18 13:26

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Aldrin [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
alpha-BHC [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
beta-BHC [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
delta-BHC [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
gamma-BHC (Lindane) [1]	ND	0.0023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Chlordane [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
4,4'-DDD [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
4,4'-DDE [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
4,4'-DDT [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Dieldrin [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endosulfan I [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endosulfan II [1]	ND	0.0094	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endosulfan sulfate [1]	ND	0.0094	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endrin [1]	ND	0.0094	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endrin aldehyde [1]	ND	0.0094	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Endrin ketone [1]	ND	0.0094	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Heptachlor [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Heptachlor epoxide [1]	ND	0.0058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Hexachlorobenzene [1]	ND	0.0070	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Methoxychlor [1]	ND	0.058	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:22	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.7	30-150		11/15/18 20:22
Decachlorobiphenyl [2]	84.7	30-150		11/15/18 20:22
Tetrachloro-m-xylene [1]	74.1	30-150		11/15/18 20:22
Tetrachloro-m-xylene [2]	71.1	30-150		11/15/18 20:22

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1221 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1232 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1242 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1248 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1254 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1260 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1262 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB
Aroclor-1268 [1]	ND	0.094	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:01	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.5	30-150		11/16/18 17:01
Decachlorobiphenyl [2]	91.7	30-150		11/16/18 17:01
Tetrachloro-m-xylene [1]	84.5	30-150		11/16/18 17:01
Tetrachloro-m-xylene [2]	87.2	30-150		11/16/18 17:01

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
2,4-DB [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
2,4,5-TP (Silvex) [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
2,4,5-T [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
Dalalpon [1]	ND	78	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
Dicamba [1]	ND	3.1	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
Dichloroprop [1]	ND	31	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
Dinoseb [1]	ND	16	µg/kg dry	1	V-20	SW-846 8151A	11/15/18	11/17/18 18:44	JMB
MCPA [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB
MCPP [1]	ND	3100	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 18:44	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	86.3	30-150		11/17/18 18:44
2,4-Dichlorophenylacetic acid [2]	87.0	30-150		11/17/18 18:44

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA
Sample Description:
Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33
Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	12	10	mg/Kg dry	1		SW-846 8100 Modified	11/14/18	11/17/18 17:51	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	45.8	40-140		11/17/18 17:51

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Arsenic	4.4	2.1	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Barium	19	2.1	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Beryllium	0.21	0.21	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Cadmium	ND	0.21	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Chromium	9.3	0.41	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Lead	3.3	0.62	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Mercury	ND	0.031	mg/Kg dry	1		SW-846 7471B	11/20/18	11/21/18 10:09	AJL
Nickel	5.1	0.41	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Selenium	ND	4.1	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Silver	ND	0.41	mg/Kg dry	1		SW-846 6010D	11/16/18	11/20/18 14:44	QNW
Thallium	ND	2.1	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Vanadium	12	0.83	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW
Zinc	10	0.83	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:25	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB33 | Sampled: 11/7/2018 14:36

Sample ID: 18K0569-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/15/18	11/15/18 16:50	DJM
pH @19.6°C	5.9		pH Units	1	H-03	SW-846 9045C	11/15/18	11/15/18 20:32	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/14/18	11/15/18 14:15	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/15/18	11/15/18 13:30	DJM
Specific conductance	2.7	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/21/18	11/21/18 13:23	MMH
% Solids	80.6		% Wt	1		SM 2540G	11/19/18	11/20/18 8:41	KMG

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Bromomethane	ND	0.0083	mg/Kg dry	1	R-05, V-34	SW-846 8260C	11/15/18	11/15/18 10:09	MFF
2-Butanone (MEK)	ND	0.033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Carbon Disulfide	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Chlorodibromomethane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Chloroethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Chloroform	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Chloromethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2-Dibromoethane (EDB)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1-Dichloroethylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,3-Dichloropropane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
cis-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
trans-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Diethyl Ether	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Diisopropyl Ether (DIPE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,4-Dioxane	ND	0.083	mg/Kg dry	1	R-05, V-16	SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,4-Dioxane (SIM)	ND	0.033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Methylene Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Naphthalene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1,2,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Tetrahydrofuran	ND	0.0083	mg/Kg dry	1	V-16	SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2,3-Trichlorobenzene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2,4-Trichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
Vinyl Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
m+p Xylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:09	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	98.3	70-130		11/15/18 10:09
Toluene-d8	96.4	70-130		11/15/18 10:09
4-Bromofluorobenzene	97.6	70-130		11/15/18 10:09

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Acetophenone	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Aniline	ND	0.38	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Benzo(b)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Bis(2-chloroethoxy)methane	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Bis(2-chloroethyl)ether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Bis(2-chloroisopropyl)ether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
4-Bromophenylphenylether	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Butylbenzylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
4-Chloroaniline	ND	0.73	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2-Chloronaphthalene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2-Chlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Chrysene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Dibenzofuran	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Di-n-butylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
1,2-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
1,3-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
1,4-Dichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4-Dichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Diethylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4-Dimethylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Dimethylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4-Dinitrophenol	ND	0.73	mg/Kg dry	1	V-19	SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4-Dinitrotoluene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,6-Dinitrotoluene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Di-n-octylphthalate	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Hexachlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Hexachlorobutadiene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Hexachloroethane	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Isophorone	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
3/4-Methylphenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Nitrobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2-Nitrophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
4-Nitrophenol	ND	0.73	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Pentachlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Phenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
Pyridine	ND	0.38	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 13:52	BGL
1,2,4-Trichlorobenzene	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4,5-Trichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL
2,4,6-Trichlorophenol	ND	0.38	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 13:52	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	65.9	30-130		11/15/18 13:52
Phenol-d6	70.4	30-130		11/15/18 13:52
Nitrobenzene-d5	70.6	30-130		11/15/18 13:52
2-Fluorobiphenyl	57.4	30-130		11/15/18 13:52
2,4,6-Tribromophenol	84.0	30-130		11/15/18 13:52
p-Terphenyl-d14	71.7	30-130		11/15/18 13:52

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Aldrin [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
alpha-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
beta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
delta-BHC [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
4,4'-DDD [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
4,4'-DDE [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
4,4'-DDT [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Dieldrin [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endosulfan I [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endosulfan II [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endosulfan sulfate [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endrin [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endrin aldehyde [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Endrin ketone [1]	ND	0.0086	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Heptachlor [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Heptachlor epoxide [1]	ND	0.0054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Hexachlorobenzene [1]	ND	0.0065	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Methoxychlor [1]	ND	0.054	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 20:49	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.4	30-150		11/15/18 20:49
Decachlorobiphenyl [2]	87.4	30-150		11/15/18 20:49
Tetrachloro-m-xylene [1]	79.2	30-150		11/15/18 20:49
Tetrachloro-m-xylene [2]	75.2	30-150		11/15/18 20:49

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:14	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.3	30-150		11/16/18 17:14
Decachlorobiphenyl [2]	90.6	30-150		11/16/18 17:14
Tetrachloro-m-xylene [1]	84.8	30-150		11/16/18 17:14
Tetrachloro-m-xylene [2]	86.6	30-150		11/16/18 17:14

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Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
2,4-DB [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
2,4,5-TP (Silvex) [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
2,4,5-T [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
Dalalpon [1]	ND	70	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
Dicamba [1]	ND	2.8	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
Dichloroprop [1]	ND	28	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
Dinoseb [1]	ND	14	µg/kg dry	1	V-20	SW-846 8151A	11/15/18	11/17/18 19:23	JMB
MCPA [1]	ND	2800	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB
MCPP [1]	ND	2800	µg/kg dry	1		SW-846 8151A	11/15/18	11/17/18 19:23	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	77.7	30-150		11/17/18 19:23
2,4-Dichlorophenylacetic acid [2]	74.2	30-150		11/17/18 19:23

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	18	9.2	mg/Kg dry	1		SW-846 8100 Modified	11/14/18	11/17/18 18:31	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	53.2	40-140					11/17/18 18:31

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Arsenic	21	1.9	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Barium	19	1.9	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Beryllium	0.21	0.19	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Cadmium	0.41	0.19	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Chromium	8.8	0.37	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Lead	7.9	0.56	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Mercury	ND	0.028	mg/Kg dry	1		SW-846 7471B	11/20/18	11/21/18 10:11	AJL
Nickel	4.7	0.37	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	11/16/18	11/20/18 14:49	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Vanadium	11	0.74	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW
Zinc	10	0.74	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:31	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB36 | Sampled: 11/7/2018 14:45

Sample ID: 18K0569-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/15/18	11/15/18 16:50	DJM
pH @19.7°C	5.4		pH Units	1	H-03	SW-846 9045C	11/15/18	11/15/18 20:32	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/14/18	11/15/18 14:15	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/15/18	11/15/18 13:30	DJM
Specific conductance	2.2	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/21/18	11/21/18 13:23	MMH
% Solids	89.0		% Wt	1		SM 2540G	11/19/18	11/20/18 8:42	KMG

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.12	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Benzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Bromobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Bromochloromethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Bromodichloromethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Bromoform	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Bromomethane	ND	0.012	mg/Kg dry	1	R-05, V-34	SW-846 8260C	11/15/18	11/15/18 10:39	MFF
2-Butanone (MEK)	ND	0.050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
n-Butylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
sec-Butylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
tert-Butylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Carbon Disulfide	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Carbon Tetrachloride	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Chlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Chlorodibromomethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Chloroethane	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Chloroform	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Chloromethane	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
2-Chlorotoluene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
4-Chlorotoluene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2-Dibromoethane (EDB)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Dibromomethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2-Dichlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,3-Dichlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,4-Dichlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1-Dichloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2-Dichloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1-Dichloroethylene	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
cis-1,2-Dichloroethylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
trans-1,2-Dichloroethylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2-Dichloropropane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,3-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
2,2-Dichloropropane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1-Dichloropropene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
cis-1,3-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
trans-1,3-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Diethyl Ether	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Diisopropyl Ether (DIPE)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,4-Dioxane	ND	0.12	mg/Kg dry	1	R-05, V-16	SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,4-Dioxane (SIM)	ND	0.050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ethylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Hexachlorobutadiene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
2-Hexanone (MBK)	ND	0.025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Isopropylbenzene (Cumene)	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Methylene Chloride	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Naphthalene	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
n-Propylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Styrene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1,1,2-Tetrachloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1,2,2-Tetrachloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Tetrachloroethylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Tetrahydrofuran	ND	0.012	mg/Kg dry	1	V-16	SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Toluene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2,3-Trichlorobenzene	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2,4-Trichlorobenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1,1-Trichloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,1,2-Trichloroethane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Trichloroethylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Trichlorofluoromethane (Freon 11)	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2,3-Trichloropropane	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,2,4-Trimethylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
1,3,5-Trimethylbenzene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
Vinyl Chloride	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
m+p Xylene	ND	0.0050	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF
o-Xylene	ND	0.0025	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 10:39	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	99.3	70-130		11/15/18 10:39
Toluene-d8	97.3	70-130		11/15/18 10:39
4-Bromofluorobenzene	97.3	70-130		11/15/18 10:39

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Acetophenone	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Aniline	ND	0.40	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Anthracene	0.35	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Benzo(a)anthracene	0.45	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Benzo(a)pyrene	0.29	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Benzo(b)fluoranthene	0.68	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Benzo(g,h,i)perylene	0.20	0.20	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Benzo(k)fluoranthene	0.23	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Bis(2-chloroethoxy)methane	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Bis(2-chloroethyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Bis(2-chloroisopropyl)ether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
4-Bromophenylphenylether	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Butylbenzylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
4-Chloroaniline	ND	0.78	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2-Chloronaphthalene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2-Chlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Chrysene	0.51	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Dibenzofuran	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Di-n-butylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
1,2-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
1,3-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
1,4-Dichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4-Dichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Diethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4-Dimethylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Dimethylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4-Dinitrophenol	ND	0.78	mg/Kg dry	1	V-19	SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,6-Dinitrotoluene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Di-n-octylphthalate	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Fluoranthene	1.4	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Hexachlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Hexachlorobutadiene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Hexachloroethane	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Indeno(1,2,3-cd)pyrene	0.23	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Isophorone	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
3/4-Methylphenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Naphthalene	0.25	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Nitrobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2-Nitrophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
4-Nitrophenol	ND	0.78	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Pentachlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Phenanthrene	1.3	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Phenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Pyrene	1.1	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
Pyridine	ND	0.40	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 14:19	BGL
1,2,4-Trichlorobenzene	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4,5-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL
2,4,6-Trichlorophenol	ND	0.40	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:19	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	73.7	30-130		11/15/18 14:19
Phenol-d6	77.2	30-130		11/15/18 14:19
Nitrobenzene-d5	74.7	30-130		11/15/18 14:19
2-Fluorobiphenyl	63.9	30-130		11/15/18 14:19
2,4,6-Tribromophenol	84.9	30-130		11/15/18 14:19
p-Terphenyl-d14	73.8	30-130		11/15/18 14:19

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Aldrin [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
alpha-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
beta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
delta-BHC [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
gamma-BHC (Lindane) [1]	ND	0.0022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Chlordane [1]	ND	0.022	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
4,4'-DDD [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
4,4'-DDE [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
4,4'-DDT [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Dieldrin [1]	ND	0.0045	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endosulfan I [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endosulfan II [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endosulfan sulfate [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endrin [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endrin aldehyde [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Endrin ketone [1]	ND	0.0090	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Heptachlor [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Heptachlor epoxide [1]	ND	0.0056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Hexachlorobenzene [1]	ND	0.0067	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Methoxychlor [1]	ND	0.056	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:16	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	88.2	30-150		11/15/18 21:16
Decachlorobiphenyl [2]	91.8	30-150		11/15/18 21:16
Tetrachloro-m-xylene [1]	72.5	30-150		11/15/18 21:16
Tetrachloro-m-xylene [2]	67.9	30-150		11/15/18 21:16

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1221 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1232 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1242 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1248 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1254 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1260 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1262 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB
Aroclor-1268 [1]	ND	0.089	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:26	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	83.0	30-150		11/16/18 17:26
Decachlorobiphenyl [2]	86.3	30-150		11/16/18 17:26
Tetrachloro-m-xylene [1]	81.2	30-150		11/16/18 17:26
Tetrachloro-m-xylene [2]	82.8	30-150		11/16/18 17:26

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
2,4-DB [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
2,4,5-TP (Silvex) [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
2,4,5-T [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
Dalalpon [1]	ND	380	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
Dicamba [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
Dichloroprop [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
Dinoseb [1]	ND	75	µg/kg dry	5	V-20	SW-846 8151A	11/15/18	11/17/18 20:02	JMB
MCPA [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB
MCPP [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:02	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	97.3	30-150		11/17/18 20:02
2,4-Dichlorophenylacetic acid [2]	101	30-150		11/17/18 20:02

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	180	9.8	mg/Kg dry	1		SW-846 8100 Modified	11/14/18	11/17/18 19:51	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	61.4	40-140				11/17/18 19:51	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Arsenic	2.5	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Barium	16	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Beryllium	0.23	0.20	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Cadmium	ND	0.20	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Chromium	9.2	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Lead	6.9	0.60	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	11/20/18	11/21/18 10:13	AJL
Nickel	7.7	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Selenium	ND	4.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Silver	ND	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/20/18 14:55	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Vanadium	10	0.80	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW
Zinc	16	0.80	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:37	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB35 | Sampled: 11/7/2018 14:50

Sample ID: 18K0569-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/15/18	11/15/18 16:50	DJM
pH @19.7°C	6.3		pH Units	1	H-03	SW-846 9045C	11/15/18	11/15/18 20:32	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/14/18	11/15/18 14:15	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/15/18	11/15/18 13:30	DJM
Specific conductance	3.1	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/21/18	11/21/18 13:23	MMH
% Solids	83.3		% Wt	1		SM 2540G	11/19/18	11/20/18 8:42	KMG

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Benzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Bromobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Bromochloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Bromodichloromethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Bromoform	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Bromomethane	ND	0.0069	mg/Kg dry	1	R-05, V-34	SW-846 8260C	11/15/18	11/15/18 11:06	MFF
2-Butanone (MEK)	ND	0.028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
n-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
sec-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
tert-Butylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Carbon Disulfide	ND	0.0042	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Carbon Tetrachloride	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Chlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Chlorodibromomethane	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Chloroethane	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Chloroform	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Chloromethane	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
2-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
4-Chlorotoluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2-Dibromoethane (EDB)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Dibromomethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,3-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,4-Dichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2-Dichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1-Dichloroethylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
cis-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
trans-1,2-Dichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,3-Dichloropropane	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
2,2-Dichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1-Dichloropropene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
cis-1,3-Dichloropropene	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
trans-1,3-Dichloropropene	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Diethyl Ether	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Diisopropyl Ether (DIPE)	ND	0.00069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,4-Dioxane	ND	0.069	mg/Kg dry	1	R-05, V-16	SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,4-Dioxane (SIM)	ND	0.028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Hexachlorobutadiene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
2-Hexanone (MBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Isopropylbenzene (Cumene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Methylene Chloride	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Naphthalene	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
n-Propylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Styrene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1,1,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1,2,2-Tetrachloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Tetrachloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Tetrahydrofuran	ND	0.0069	mg/Kg dry	1	V-16	SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Toluene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2,3-Trichlorobenzene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2,4-Trichlorobenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1,1-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,1,2-Trichloroethane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Trichloroethylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2,3-Trichloropropane	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,2,4-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
1,3,5-Trimethylbenzene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
Vinyl Chloride	ND	0.0069	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
m+p Xylene	ND	0.0028	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF
o-Xylene	ND	0.0014	mg/Kg dry	1		SW-846 8260C	11/15/18	11/15/18 11:06	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	101	70-130		11/15/18 11:06
Toluene-d8	97.4	70-130		11/15/18 11:06
4-Bromofluorobenzene	97.7	70-130		11/15/18 11:06

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Acenaphthylene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Acetophenone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Aniline	ND	0.41	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Benzo(a)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Benzo(a)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Benzo(b)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Benzo(g,h,i)perylene	ND	0.20	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Benzo(k)fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Bis(2-chloroethoxy)methane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Bis(2-chloroethyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Bis(2-chloroisopropyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
4-Bromophenylphenylether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Butylbenzylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
4-Chloroaniline	ND	0.79	mg/Kg dry	1	V-05, V-34	SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2-Chloronaphthalene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2-Chlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Chrysene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Dibenz(a,h)anthracene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Dibenzofuran	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Di-n-butylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
1,2-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
1,3-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
1,4-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
3,3-Dichlorobenzidine	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4-Dichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Diethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4-Dimethylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Dimethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4-Dinitrophenol	ND	0.79	mg/Kg dry	1	V-19	SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,6-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Di-n-octylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Fluoranthene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Fluorene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Hexachlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Hexachlorobutadiene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Hexachloroethane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Indeno(1,2,3-cd)pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Isophorone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2-Methylnaphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
3/4-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Naphthalene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Nitrobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2-Nitrophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
4-Nitrophenol	ND	0.79	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Pentachlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Phenanthrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Phenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Pyrene	ND	0.20	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
Pyridine	ND	0.41	mg/Kg dry	1	V-05	SW-846 8270D	11/14/18	11/15/18 14:45	BGL
1,2,4-Trichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4,5-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL
2,4,6-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/14/18	11/15/18 14:45	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	58.4	30-130		11/15/18 14:45
Phenol-d6	64.0	30-130		11/15/18 14:45
Nitrobenzene-d5	66.8	30-130		11/15/18 14:45
2-Fluorobiphenyl	58.0	30-130		11/15/18 14:45
2,4,6-Tribromophenol	77.7	30-130		11/15/18 14:45
p-Terphenyl-d14	66.1	30-130		11/15/18 14:45

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Aldrin [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
alpha-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
beta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
delta-BHC [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
gamma-BHC (Lindane) [1]	ND	0.0023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Chlordane [1]	ND	0.023	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
4,4'-DDD [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
4,4'-DDE [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
4,4'-DDT [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Dieldrin [1]	ND	0.0046	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endosulfan I [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endosulfan II [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endosulfan sulfate [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endrin [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endrin aldehyde [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Endrin ketone [1]	ND	0.0092	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Heptachlor [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Heptachlor epoxide [1]	ND	0.0057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Hexachlorobenzene [1]	ND	0.0069	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Methoxychlor [1]	ND	0.057	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/14/18	11/15/18 21:43	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.8	30-150		11/15/18 21:43
Decachlorobiphenyl [2]	86.1	30-150		11/15/18 21:43
Tetrachloro-m-xylene [1]	84.4	30-150		11/15/18 21:43
Tetrachloro-m-xylene [2]	80.6	30-150		11/15/18 21:43

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1221 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1232 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1242 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1248 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1254 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1260 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1262 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB
Aroclor-1268 [1]	ND	0.095	mg/Kg dry	4		SW-846 8082A	11/15/18	11/16/18 17:39	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	91.8	30-150		11/16/18 17:39
Decachlorobiphenyl [2]	95.9	30-150		11/16/18 17:39
Tetrachloro-m-xylene [1]	87.6	30-150		11/16/18 17:39
Tetrachloro-m-xylene [2]	89.9	30-150		11/16/18 17:39

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
2,4-DB [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
2,4,5-TP (Silvex) [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
2,4,5-T [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
Dalalpon [1]	ND	380	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
Dicamba [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
Dichloroprop [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
Dinoseb [1]	ND	76	µg/kg dry	5	V-20	SW-846 8151A	11/15/18	11/17/18 20:42	JMB
MCPA [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB
MCPP [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/15/18	11/17/18 20:42	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	89.5	30-150		11/17/18 20:42
2,4-Dichlorophenylacetic acid [2]	101	30-150		11/17/18 20:42

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	22	10	mg/Kg dry	1		SW-846 8100 Modified	11/14/18	11/17/18 18:11	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	52.9	40-140					11/17/18 18:11

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Arsenic	2.9	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Barium	16	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Beryllium	0.24	0.20	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Cadmium	ND	0.20	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Chromium	8.2	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Lead	6.8	0.60	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	11/20/18	11/21/18 10:14	AJL
Nickel	4.4	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Selenium	ND	4.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Silver	ND	0.40	mg/Kg dry	1		SW-846 6010D	11/16/18	11/20/18 15:10	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Vanadium	10	0.80	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW
Zinc	27	0.80	mg/Kg dry	1		SW-846 6010D	11/16/18	11/19/18 17:42	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0569

Date Received: 11/13/2018

Field Sample #: SB34 | Sampled: 11/7/2018 14:40

Sample ID: 18K0569-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/15/18	11/15/18 16:50	DJM
pH @19.8°C	4.9		pH Units	1	H-03	SW-846 9045C	11/15/18	11/15/18 20:32	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/14/18	11/15/18 14:15	DJM
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/15/18	11/15/18 13:30	DJM
Specific conductance	7.3	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/21/18	11/21/18 13:23	MMH
% Solids	82.4		% Wt	1		SM 2540G	11/19/18	11/20/18 8:42	KMG

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18K0569-01 [SB33]	B217587	11/19/18
18K0569-02 [SB36]	B217587	11/19/18
18K0569-03 [SB35]	B217587	11/19/18
18K0569-04 [SB34]	B217587	11/19/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0569-01 [SB33]	B217751	1.00	11/21/18
18K0569-02 [SB36]	B217751	1.00	11/21/18
18K0569-03 [SB35]	B217751	1.00	11/21/18
18K0569-04 [SB34]	B217751	1.00	11/21/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0569-01 [SB33]	B217341	50.0	11/15/18
18K0569-02 [SB36]	B217341	50.0	11/15/18
18K0569-03 [SB35]	B217341	50.0	11/15/18
18K0569-04 [SB34]	B217341	50.0	11/15/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217443	1.50	50.0	11/16/18
18K0569-02 [SB36]	B217443	1.52	50.0	11/16/18
18K0569-03 [SB35]	B217443	1.51	50.0	11/16/18
18K0569-04 [SB34]	B217443	1.51	50.0	11/16/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217633	0.600	50.0	11/20/18
18K0569-02 [SB36]	B217633	0.604	50.0	11/20/18
18K0569-03 [SB35]	B217633	0.615	50.0	11/20/18
18K0569-04 [SB34]	B217633	0.601	50.0	11/20/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217211	10.6	10.0	11/14/18
18K0569-02 [SB36]	B217211	10.4	10.0	11/14/18
18K0569-03 [SB35]	B217211	10.7	10.0	11/14/18
18K0569-04 [SB34]	B217211	10.6	10.0	11/14/18

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Sample Extraction Data

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217320	10.6	10.0	11/15/18
18K0569-02 [SB36]	B217320	10.1	10.0	11/15/18
18K0569-03 [SB35]	B217320	10.8	10.0	11/15/18
18K0569-04 [SB34]	B217320	10.2	10.0	11/15/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217216	30.0	1.00	11/14/18
18K0569-02 [SB36]	B217216	30.4	1.00	11/14/18
18K0569-03 [SB35]	B217216	30.6	1.00	11/14/18
18K0569-04 [SB34]	B217216	30.3	1.00	11/14/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217251	20.0	5.00	11/15/18
18K0569-02 [SB36]	B217251	20.0	5.00	11/15/18
18K0569-03 [SB35]	B217251	20.0	5.00	11/15/18
18K0569-04 [SB34]	B217251	20.0	5.00	11/15/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217293	8.20	10.0	11/15/18
18K0569-02 [SB36]	B217293	6.78	10.0	11/15/18
18K0569-03 [SB35]	B217293	4.84	10.0	11/15/18
18K0569-04 [SB34]	B217293	8.74	10.0	11/15/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217204	30.0	1.00	11/14/18
18K0569-02 [SB36]	B217204	30.4	1.00	11/14/18
18K0569-03 [SB35]	B217204	30.6	1.00	11/14/18
18K0569-04 [SB34]	B217204	30.3	1.00	11/14/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217174	25.5	250	11/14/18
18K0569-02 [SB36]	B217174	25.1	250	11/14/18
18K0569-03 [SB35]	B217174	25.6	250	11/14/18
18K0569-04 [SB34]	B217174	25.6	250	11/14/18

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Sample Extraction Data

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0569-01 [SB33]	B217265	25.5	250	11/15/18
18K0569-02 [SB36]	B217265	25.1	250	11/15/18
18K0569-03 [SB35]	B217265	25.6	250	11/15/18
18K0569-04 [SB34]	B217265	25.6	250	11/15/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0569-01 [SB33]	B217354	20.0	11/15/18
18K0569-02 [SB36]	B217354	20.0	11/15/18
18K0569-03 [SB35]	B217354	20.0	11/15/18
18K0569-04 [SB34]	B217354	20.0	11/15/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217293 - SW-846 5035										
Blank (B217293-BLK1)				Prepared & Analyzed: 11/15/18						
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							R-05, V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							R-05, V-16
1,4-Dioxane (SIM)	ND	0.040	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B217293 - SW-846 5035												
Blank (B217293-BLK1)				Prepared & Analyzed: 11/15/18								
Naphthalene	ND	0.0040	mg/Kg wet									
n-Propylbenzene	ND	0.0020	mg/Kg wet									
Styrene	ND	0.0020	mg/Kg wet									
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet									
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet									
Tetrachloroethylene	ND	0.0020	mg/Kg wet									
Tetrahydrofuran	ND	0.010	mg/Kg wet								V-16	
Toluene	ND	0.0020	mg/Kg wet									
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet									
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet									
Trichloroethylene	ND	0.0020	mg/Kg wet									
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet									
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet									
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet									
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet									
Vinyl Chloride	ND	0.010	mg/Kg wet									
m+p Xylene	ND	0.0040	mg/Kg wet									
o-Xylene	ND	0.0020	mg/Kg wet									
Surrogate: 1,2-Dichloroethane-d4	*0.0519*		mg/Kg wet	0.0500		104		70-130				
Surrogate: Toluene-d8	*0.0483*		mg/Kg wet	0.0500		96.6		70-130				
Surrogate: 4-Bromofluorobenzene	*0.0505*		mg/Kg wet	0.0500		101		70-130				
LCS (B217293-BS1)				Prepared & Analyzed: 11/15/18								
Acetone	0.214	0.10	mg/Kg wet	0.200		107		40-160				†
tert-Amyl Methyl Ether (TAME)	0.0191	0.0010	mg/Kg wet	0.0200		95.3		70-130				
Benzene	0.0183	0.0020	mg/Kg wet	0.0200		91.6		70-130				
Bromobenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0		70-130				
Bromochloromethane	0.0206	0.0020	mg/Kg wet	0.0200		103		70-130				
Bromodichloromethane	0.0186	0.0020	mg/Kg wet	0.0200		92.9		70-130				
Bromoform	0.0210	0.0020	mg/Kg wet	0.0200		105		70-130				
Bromomethane	0.00716	0.010	mg/Kg wet	0.0200		**35.8**	*	40-160			L-07A, R-05, V-34	†
2-Butanone (MEK)	0.224	0.040	mg/Kg wet	0.200		112		40-160				†
n-Butylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.7		70-130				
sec-Butylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		100		70-130				
tert-Butylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.5		70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0188	0.0010	mg/Kg wet	0.0200		93.8		70-130				
Carbon Disulfide	0.0156	0.0060	mg/Kg wet	0.0200		78.2		70-130				
Carbon Tetrachloride	0.0191	0.0020	mg/Kg wet	0.0200		95.3		70-130				
Chlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		97.9		70-130				
Chlorodibromomethane	0.0213	0.0010	mg/Kg wet	0.0200		107		70-130				
Chloroethane	0.0148	0.010	mg/Kg wet	0.0200		74.2		70-130				
Chloroform	0.0191	0.0040	mg/Kg wet	0.0200		95.4		70-130				
Chloromethane	0.0166	0.010	mg/Kg wet	0.0200		83.2		40-160				†
2-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.7		70-130				
4-Chlorotoluene	0.0195	0.0020	mg/Kg wet	0.0200		97.4		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0217	0.0020	mg/Kg wet	0.0200		109		70-130				
1,2-Dibromoethane (EDB)	0.0196	0.0010	mg/Kg wet	0.0200		98.1		70-130				
Dibromomethane	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130				
1,2-Dichlorobenzene	0.0206	0.0020	mg/Kg wet	0.0200		103		70-130				
1,3-Dichlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104		70-130				

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QUALITY CONTROL

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217293 - SW-846 5035											
LCS (B217293-BS1)				Prepared & Analyzed: 11/15/18							
1,4-Dichlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
Dichlorodifluoromethane (Freon 12)	0.0159	0.010	mg/Kg wet	0.0200		79.7	40-160				†
1,1-Dichloroethane	0.0188	0.0020	mg/Kg wet	0.0200		93.9	70-130				
1,2-Dichloroethane	0.0185	0.0020	mg/Kg wet	0.0200		92.6	70-130				
1,1-Dichloroethylene	0.0158	0.0040	mg/Kg wet	0.0200		78.9	70-130				
cis-1,2-Dichloroethylene	0.0176	0.0020	mg/Kg wet	0.0200		88.2	70-130				
trans-1,2-Dichloroethylene	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130				
1,2-Dichloropropane	0.0184	0.0020	mg/Kg wet	0.0200		91.8	70-130				
1,3-Dichloropropane	0.0194	0.0010	mg/Kg wet	0.0200		97.2	70-130				
2,2-Dichloropropane	0.0181	0.0020	mg/Kg wet	0.0200		90.4	70-130				
1,1-Dichloropropene	0.0195	0.0020	mg/Kg wet	0.0200		97.7	70-130				
cis-1,3-Dichloropropene	0.0193	0.0010	mg/Kg wet	0.0200		96.4	70-130				
trans-1,3-Dichloropropene	0.0200	0.0010	mg/Kg wet	0.0200		100	70-130				
Diethyl Ether	0.0162	0.010	mg/Kg wet	0.0200		81.1	70-130				
Diisopropyl Ether (DIPE)	0.0185	0.0010	mg/Kg wet	0.0200		92.5	70-130				
1,4-Dioxane	0.249	0.10	mg/Kg wet	0.200		124	40-160			R-05, V-16, V-36	†
1,4-Dioxane (SIM)	0.207	0.040	mg/Kg wet	0.200		104	40-160				†
Ethylbenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130				
Hexachlorobutadiene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130				
2-Hexanone (MBK)	0.219	0.020	mg/Kg wet	0.200		109	40-160				†
Isopropylbenzene (Cumene)	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
p-Isopropyltoluene (p-Cymene)	0.0189	0.0020	mg/Kg wet	0.0200		94.4	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0199	0.0040	mg/Kg wet	0.0200		99.5	70-130				
Methylene Chloride	0.0188	0.010	mg/Kg wet	0.0200		93.8	70-130				
4-Methyl-2-pentanone (MIBK)	0.211	0.020	mg/Kg wet	0.200		106	40-160				†
Naphthalene	0.0192	0.0040	mg/Kg wet	0.0200		96.2	70-130				
n-Propylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130				
Styrene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
1,1,1,2-Tetrachloroethane	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130				
1,1,2,2-Tetrachloroethane	0.0201	0.0010	mg/Kg wet	0.0200		100	70-130				
Tetrachloroethylene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
Tetrahydrofuran	0.0202	0.010	mg/Kg wet	0.0200		101	70-130			V-16	
Toluene	0.0188	0.0020	mg/Kg wet	0.0200		94.0	70-130				
1,2,3-Trichlorobenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130				
1,2,4-Trichlorobenzene	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
1,1,1-Trichloroethane	0.0174	0.0020	mg/Kg wet	0.0200		86.9	70-130				
1,1,2-Trichloroethane	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130				
Trichloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		93.0	70-130				
Trichlorofluoromethane (Freon 11)	0.0158	0.010	mg/Kg wet	0.0200		79.1	70-130				
1,2,3-Trichloropropane	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
1,2,4-Trimethylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.3	70-130				
1,3,5-Trimethylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.0	70-130				
Vinyl Chloride	0.0161	0.010	mg/Kg wet	0.0200		80.3	70-130				
m+p Xylene	0.0373	0.0040	mg/Kg wet	0.0400		93.3	70-130				
o-Xylene	0.0187	0.0020	mg/Kg wet	0.0200		93.6	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0515*		mg/Kg wet	0.0500		103	70-130				
Surrogate: Toluene-d8	*0.0490*		mg/Kg wet	0.0500		97.9	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0500*		mg/Kg wet	0.0500		100	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B217293 - SW-846 5035												
LCS Dup (B217293-BSD1)				Prepared & Analyzed: 11/15/18								
Acetone	0.211	0.10	mg/Kg wet	0.200		105	40-160	1.35		20		†
tert-Amyl Methyl Ether (TAME)	0.0195	0.0010	mg/Kg wet	0.0200		97.3	70-130	2.08		20		
Benzene	0.0183	0.0020	mg/Kg wet	0.0200		91.4	70-130	0.219		20		
Bromobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	0.514		20		
Bromochloromethane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	1.67		20		
Bromodichloromethane	0.0190	0.0020	mg/Kg wet	0.0200		94.8	70-130	2.02		20		
Bromoform	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130	7.11		20		
Bromomethane	0.0119	0.010	mg/Kg wet	0.0200		59.7	40-160	**50.1**	*	20	L-14, R-05, V-34	†
2-Butanone (MEK)	0.210	0.040	mg/Kg wet	0.200		105	40-160	6.73		20		†
n-Butylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130	0.513		20		
sec-Butylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130	0.602		20		
tert-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.4	70-130	1.16		20		
tert-Butyl Ethyl Ether (TBEE)	0.0188	0.0010	mg/Kg wet	0.0200		93.8	70-130	0.00		20		
Carbon Disulfide	0.0186	0.0060	mg/Kg wet	0.0200		92.8	70-130	17.1		20		
Carbon Tetrachloride	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130	3.40		20		
Chlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130	0.712		20		
Chlorodibromomethane	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130	1.51		20		
Chloroethane	0.0157	0.010	mg/Kg wet	0.0200		78.5	70-130	5.63		20		
Chloroform	0.0186	0.0040	mg/Kg wet	0.0200		92.9	70-130	2.66		20		
Chloromethane	0.0158	0.010	mg/Kg wet	0.0200		79.0	40-160	5.18		20		†
2-Chlorotoluene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130	3.33		20		
4-Chlorotoluene	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130	0.716		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0190	0.0020	mg/Kg wet	0.0200		95.2	70-130	13.2		20		
1,2-Dibromoethane (EDB)	0.0205	0.0010	mg/Kg wet	0.0200		103	70-130	4.58		20		
Dibromomethane	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	3.51		20		
1,2-Dichlorobenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	1.37		20		
1,3-Dichlorobenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	2.33		20		
1,4-Dichlorobenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130	6.64		20		
Dichlorodifluoromethane (Freon 12)	0.0152	0.010	mg/Kg wet	0.0200		76.1	40-160	4.62		20		†
1,1-Dichloroethane	0.0189	0.0020	mg/Kg wet	0.0200		94.4	70-130	0.531		20		
1,2-Dichloroethane	0.0196	0.0020	mg/Kg wet	0.0200		98.1	70-130	5.77		20		
1,1-Dichloroethylene	0.0178	0.0040	mg/Kg wet	0.0200		88.9	70-130	11.9		20		
cis-1,2-Dichloroethylene	0.0181	0.0020	mg/Kg wet	0.0200		90.7	70-130	2.79		20		
trans-1,2-Dichloroethylene	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130	2.77		20		
1,2-Dichloropropane	0.0196	0.0020	mg/Kg wet	0.0200		98.0	70-130	6.53		20		
1,3-Dichloropropane	0.0189	0.0010	mg/Kg wet	0.0200		94.3	70-130	3.03		20		
2,2-Dichloropropane	0.0186	0.0020	mg/Kg wet	0.0200		93.0	70-130	2.84		20		
1,1-Dichloropropene	0.0198	0.0020	mg/Kg wet	0.0200		99.2	70-130	1.52		20		
cis-1,3-Dichloropropene	0.0201	0.0010	mg/Kg wet	0.0200		101	70-130	4.26		20		
trans-1,3-Dichloropropene	0.0207	0.0010	mg/Kg wet	0.0200		104	70-130	3.44		20		
Diethyl Ether	0.0183	0.010	mg/Kg wet	0.0200		91.6	70-130	12.2		20		
Diisopropyl Ether (DIPE)	0.0189	0.0010	mg/Kg wet	0.0200		94.4	70-130	2.03		20		
1,4-Dioxane	0.313	0.10	mg/Kg wet	0.200		156	40-160	**22.8**	*	20	V-36, L-14, R-05, V-16	†
1,4-Dioxane (SIM)	0.206	0.040	mg/Kg wet	0.200		103	40-160	0.406		20		† ‡
Ethylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.0	70-130	3.50		20		
Hexachlorobutadiene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.993		20		
2-Hexanone (MBK)	0.212	0.020	mg/Kg wet	0.200		106	40-160	3.06		20		†
Isopropylbenzene (Cumene)	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	1.08		20		
p-Isopropyltoluene (p-Cymene)	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130	0.318		20		
Methyl tert-Butyl Ether (MTBE)	0.0203	0.0040	mg/Kg wet	0.0200		102	70-130	2.09		20		
Methylene Chloride	0.0194	0.010	mg/Kg wet	0.0200		96.9	70-130	3.25		20		
4-Methyl-2-pentanone (MIBK)	0.207	0.020	mg/Kg wet	0.200		103	40-160	2.17		20		†

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217293 - SW-846 5035										
LCS Dup (B217293-BSD1)				Prepared & Analyzed: 11/15/18						
Naphthalene	0.0195	0.0040	mg/Kg wet	0.0200		97.3	70-130	1.14	20	
n-Propylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130	1.24	20	
Styrene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	0.948	20	
1,1,1,2-Tetrachloroethane	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	8.49	20	
1,1,2,2-Tetrachloroethane	0.0197	0.0010	mg/Kg wet	0.0200		98.6	70-130	1.81	20	
Tetrachloroethylene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	3.13	20	
Tetrahydrofuran	0.0195	0.010	mg/Kg wet	0.0200		97.4	70-130	3.63	20	V-16
Toluene	0.0188	0.0020	mg/Kg wet	0.0200		94.2	70-130	0.213	20	
1,2,3-Trichlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130	3.40	20	
1,2,4-Trichlorobenzene	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	4.94	20	
1,1,1-Trichloroethane	0.0174	0.0020	mg/Kg wet	0.0200		87.0	70-130	0.115	20	
1,1,2-Trichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	1.87	20	
Trichloroethylene	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130	0.539	20	
Trichlorofluoromethane (Freon 11)	0.0155	0.010	mg/Kg wet	0.0200		77.3	70-130	2.30	20	
1,2,3-Trichloropropane	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	4.85	20	
1,2,4-Trimethylbenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	3.20	20	
1,3,5-Trimethylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130	0.933	20	
Vinyl Chloride	0.0155	0.010	mg/Kg wet	0.0200		77.3	70-130	3.81	20	
m+p Xylene	0.0380	0.0040	mg/Kg wet	0.0400		95.1	70-130	1.91	20	
o-Xylene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	1.90	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0503*		mg/Kg wet	0.0500		101	70-130			
Surrogate: Toluene-d8	*0.0492*		mg/Kg wet	0.0500		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/Kg wet	0.0500		99.1	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217204 - SW-846 3546										
Blank (B217204-BLK1)				Prepared: 11/14/18 Analyzed: 11/15/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-05, V-34
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							V-05
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-05, V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							V-19
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217204 - SW-846 3546											
Blank (B217204-BLK1)				Prepared: 11/14/18 Analyzed: 11/15/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet							V-05	
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*4.21*		mg/Kg wet	6.67		63.1	30-130				
Surrogate: Phenol-d6	*4.95*		mg/Kg wet	6.67		74.2	30-130				
Surrogate: Nitrobenzene-d5	*2.31*		mg/Kg wet	3.33		69.2	30-130				
Surrogate: 2-Fluorobiphenyl	*2.22*		mg/Kg wet	3.33		66.7	30-130				
Surrogate: 2,4,6-Tribromophenol	*6.27*		mg/Kg wet	6.67		94.0	30-130				
Surrogate: p-Terphenyl-d14	*2.85*		mg/Kg wet	3.33		85.5	30-130				
LCS (B217204-BS1)				Prepared: 11/14/18 Analyzed: 11/15/18							
Acenaphthene	1.22	0.17	mg/Kg wet	1.67		73.2	40-140				
Acenaphthylene	1.32	0.17	mg/Kg wet	1.67		78.9	40-140				
Acetophenone	1.22	0.34	mg/Kg wet	1.67		73.4	40-140				
Aniline	0.727	0.34	mg/Kg wet	1.67		43.6	40-140			V-05, V-34	
Anthracene	1.23	0.17	mg/Kg wet	1.67		73.8	40-140				
Benzo(a)anthracene	1.27	0.17	mg/Kg wet	1.67		76.0	40-140				
Benzo(a)pyrene	1.33	0.17	mg/Kg wet	1.67		79.7	40-140				
Benzo(b)fluoranthene	1.19	0.17	mg/Kg wet	1.67		71.4	40-140				
Benzo(g,h,i)perylene	1.34	0.17	mg/Kg wet	1.67		80.6	40-140			V-05	
Benzo(k)fluoranthene	1.20	0.17	mg/Kg wet	1.67		72.1	40-140				
Bis(2-chloroethoxy)methane	1.36	0.34	mg/Kg wet	1.67		81.9	40-140				
Bis(2-chloroethyl)ether	1.29	0.34	mg/Kg wet	1.67		77.3	40-140				
Bis(2-chloroisopropyl)ether	1.60	0.34	mg/Kg wet	1.67		95.8	40-140				
Bis(2-Ethylhexyl)phthalate	1.46	0.34	mg/Kg wet	1.67		87.4	40-140				
4-Bromophenylphenylether	1.32	0.34	mg/Kg wet	1.67		79.3	40-140				
Butylbenzylphthalate	1.32	0.34	mg/Kg wet	1.67		79.4	40-140				
4-Chloroaniline	0.597	0.66	mg/Kg wet	1.67		35.8	15-140			V-34, V-05	†
2-Chloronaphthalene	1.19	0.34	mg/Kg wet	1.67		71.6	40-140				
2-Chlorophenol	1.16	0.34	mg/Kg wet	1.67		69.9	30-130				
Chrysene	1.13	0.17	mg/Kg wet	1.67		67.9	40-140				
Dibenz(a,h)anthracene	1.34	0.17	mg/Kg wet	1.67		80.3	40-140				
Dibenzofuran	1.37	0.34	mg/Kg wet	1.67		82.3	40-140				
Di-n-butylphthalate	1.28	0.34	mg/Kg wet	1.67		76.7	40-140				
1,2-Dichlorobenzene	0.972	0.34	mg/Kg wet	1.67		58.3	40-140				
1,3-Dichlorobenzene	0.929	0.34	mg/Kg wet	1.67		55.7	40-140				
1,4-Dichlorobenzene	0.936	0.34	mg/Kg wet	1.67		56.1	40-140				
3,3-Dichlorobenzidine	0.876	0.17	mg/Kg wet	1.67		52.5	40-140				
2,4-Dichlorophenol	1.23	0.34	mg/Kg wet	1.67		73.9	30-130				
Diethylphthalate	1.40	0.34	mg/Kg wet	1.67		84.1	40-140				
2,4-Dimethylphenol	1.08	0.34	mg/Kg wet	1.67		64.5	30-130				
Dimethylphthalate	1.43	0.34	mg/Kg wet	1.67		86.1	40-140				
2,4-Dinitrophenol	0.903	0.66	mg/Kg wet	1.67		54.2	15-140			V-19	†
2,4-Dinitrotoluene	1.44	0.34	mg/Kg wet	1.67		86.4	40-140				
2,6-Dinitrotoluene	1.55	0.34	mg/Kg wet	1.67		93.0	40-140				
Di-n-octylphthalate	1.35	0.34	mg/Kg wet	1.67		81.3	40-140				
1,2-Diphenylhydrazine/Azobenzene	1.37	0.34	mg/Kg wet	1.67		82.1	40-140				
Fluoranthene	1.22	0.17	mg/Kg wet	1.67		73.3	40-140				
Fluorene	1.32	0.17	mg/Kg wet	1.67		79.5	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217204 - SW-846 3546											
LCS (B217204-BS1)				Prepared: 11/14/18 Analyzed: 11/15/18							
Hexachlorobenzene	1.34	0.34	mg/Kg wet	1.67		80.2	40-140				
Hexachlorobutadiene	1.19	0.34	mg/Kg wet	1.67		71.5	40-140				
Hexachloroethane	1.04	0.34	mg/Kg wet	1.67		62.2	40-140				
Indeno(1,2,3-cd)pyrene	1.44	0.17	mg/Kg wet	1.67		86.6	40-140				
Isophorone	1.32	0.34	mg/Kg wet	1.67		79.5	40-140				
2-Methylnaphthalene	1.24	0.17	mg/Kg wet	1.67		74.1	40-140				
2-Methylphenol	1.20	0.34	mg/Kg wet	1.67		72.2	30-130				
3/4-Methylphenol	1.30	0.34	mg/Kg wet	1.67		77.8	30-130				
Naphthalene	1.14	0.17	mg/Kg wet	1.67		68.6	40-140				
Nitrobenzene	1.27	0.34	mg/Kg wet	1.67		75.9	40-140				
2-Nitrophenol	1.29	0.34	mg/Kg wet	1.67		77.4	30-130				
4-Nitrophenol	1.67	0.66	mg/Kg wet	1.67		100	15-140				†
Pentachlorophenol	0.800	0.34	mg/Kg wet	1.67		48.0	30-130				
Phenanthrene	1.22	0.17	mg/Kg wet	1.67		73.5	40-140				
Phenol	1.26	0.34	mg/Kg wet	1.67		75.9	15-140				†
Pyrene	1.27	0.17	mg/Kg wet	1.67		76.0	40-140				
Pyridine	0.550	0.34	mg/Kg wet	1.67		33.0	30-140			V-05	†
1,2,4-Trichlorobenzene	1.13	0.34	mg/Kg wet	1.67		67.9	40-140				
2,4,5-Trichlorophenol	1.36	0.34	mg/Kg wet	1.67		81.7	30-130				
2,4,6-Trichlorophenol	1.37	0.34	mg/Kg wet	1.67		82.5	30-130				
Surrogate: 2-Fluorophenol	*4.93*		mg/Kg wet	6.67		73.9	30-130				
Surrogate: Phenol-d6	*5.59*		mg/Kg wet	6.67		83.8	30-130				
Surrogate: Nitrobenzene-d5	*2.79*		mg/Kg wet	3.33		83.7	30-130				
Surrogate: 2-Fluorobiphenyl	*2.52*		mg/Kg wet	3.33		75.5	30-130				
Surrogate: 2,4,6-Tribromophenol	*7.15*		mg/Kg wet	6.67		107	30-130				
Surrogate: p-Terphenyl-d14	*2.87*		mg/Kg wet	3.33		86.2	30-130				
LCS Dup (B217204-BSD1)				Prepared: 11/14/18 Analyzed: 11/15/18							
Acenaphthene	1.23	0.17	mg/Kg wet	1.67		73.7	40-140	0.653	30		
Acenaphthylene	1.32	0.17	mg/Kg wet	1.67		79.1	40-140	0.203	30		
Acetophenone	1.21	0.34	mg/Kg wet	1.67		72.5	40-140	1.18	30		
Aniline	0.686	0.34	mg/Kg wet	1.67		41.1	40-140	5.85	30	V-05, V-34	
Anthracene	1.24	0.17	mg/Kg wet	1.67		74.4	40-140	0.864	30		
Benzo(a)anthracene	1.28	0.17	mg/Kg wet	1.67		77.1	40-140	1.44	30		
Benzo(a)pyrene	1.35	0.17	mg/Kg wet	1.67		80.9	40-140	1.54	30		
Benzo(b)fluoranthene	1.27	0.17	mg/Kg wet	1.67		76.0	40-140	6.24	30		
Benzo(g,h,i)perylene	1.20	0.17	mg/Kg wet	1.67		71.7	40-140	11.7	30	V-05	
Benzo(k)fluoranthene	1.24	0.17	mg/Kg wet	1.67		74.6	40-140	3.38	30		
Bis(2-chloroethoxy)methane	1.37	0.34	mg/Kg wet	1.67		82.1	40-140	0.293	30		
Bis(2-chloroethyl)ether	1.26	0.34	mg/Kg wet	1.67		75.6	40-140	2.28	30		
Bis(2-chloroisopropyl)ether	1.51	0.34	mg/Kg wet	1.67		90.6	40-140	5.62	30		
Bis(2-Ethylhexyl)phthalate	1.44	0.34	mg/Kg wet	1.67		86.2	40-140	1.36	30		
4-Bromophenylphenylether	1.30	0.34	mg/Kg wet	1.67		78.3	40-140	1.24	30		
Butylbenzylphthalate	1.36	0.34	mg/Kg wet	1.67		81.5	40-140	2.56	30		
4-Chloroaniline	0.608	0.66	mg/Kg wet	1.67		36.5	15-140	1.94	30	V-05, V-34	†
2-Chloronaphthalene	1.20	0.34	mg/Kg wet	1.67		72.0	40-140	0.585	30		
2-Chlorophenol	1.13	0.34	mg/Kg wet	1.67		67.6	30-130	3.32	30		
Chrysene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140	1.81	30		
Dibenz(a,h)anthracene	1.23	0.17	mg/Kg wet	1.67		73.6	40-140	8.81	30		
Dibenzofuran	1.37	0.34	mg/Kg wet	1.67		81.9	40-140	0.438	30		
Di-n-butylphthalate	1.27	0.34	mg/Kg wet	1.67		75.9	40-140	1.05	30		
1,2-Dichlorobenzene	0.945	0.34	mg/Kg wet	1.67		56.7	40-140	2.82	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217204 - SW-846 3546											
LCS Dup (B217204-BSD1)				Prepared: 11/14/18 Analyzed: 11/15/18							
1,3-Dichlorobenzene	0.903	0.34	mg/Kg wet	1.67		54.2	40-140	2.80	30		
1,4-Dichlorobenzene	0.934	0.34	mg/Kg wet	1.67		56.0	40-140	0.214	30		
3,3-Dichlorobenzidine	0.869	0.17	mg/Kg wet	1.67		52.1	40-140	0.803	30		
2,4-Dichlorophenol	1.23	0.34	mg/Kg wet	1.67		74.0	30-130	0.216	30		
Diethylphthalate	1.40	0.34	mg/Kg wet	1.67		84.2	40-140	0.119	30		
2,4-Dimethylphenol	1.10	0.34	mg/Kg wet	1.67		66.2	30-130	2.51	30		
Dimethylphthalate	1.43	0.34	mg/Kg wet	1.67		85.6	40-140	0.536	30		
2,4-Dinitrophenol	1.07	0.66	mg/Kg wet	1.67		64.1	15-140	16.8	30	V-19	†
2,4-Dinitrotoluene	1.47	0.34	mg/Kg wet	1.67		88.1	40-140	1.95	30		
2,6-Dinitrotoluene	1.55	0.34	mg/Kg wet	1.67		93.2	40-140	0.236	30		
Di-n-octylphthalate	1.39	0.34	mg/Kg wet	1.67		83.3	40-140	2.50	30		
1,2-Diphenylhydrazine/Azobenzene	1.35	0.34	mg/Kg wet	1.67		81.2	40-140	1.08	30		
Fluoranthene	1.26	0.17	mg/Kg wet	1.67		75.6	40-140	3.17	30		
Fluorene	1.33	0.17	mg/Kg wet	1.67		79.9	40-140	0.602	30		
Hexachlorobenzene	1.32	0.34	mg/Kg wet	1.67		79.3	40-140	1.13	30		
Hexachlorobutadiene	1.12	0.34	mg/Kg wet	1.67		67.4	40-140	5.96	30		
Hexachloroethane	0.977	0.34	mg/Kg wet	1.67		58.6	40-140	5.86	30		
Indeno(1,2,3-cd)pyrene	1.35	0.17	mg/Kg wet	1.67		80.7	40-140	6.96	30		
Isophorone	1.32	0.34	mg/Kg wet	1.67		79.0	40-140	0.555	30		
2-Methylnaphthalene	1.24	0.17	mg/Kg wet	1.67		74.4	40-140	0.323	30		
2-Methylphenol	1.18	0.34	mg/Kg wet	1.67		70.8	30-130	1.87	30		
3/4-Methylphenol	1.29	0.34	mg/Kg wet	1.67		77.7	30-130	0.206	30		
Naphthalene	1.13	0.17	mg/Kg wet	1.67		67.8	40-140	1.29	30		
Nitrobenzene	1.25	0.34	mg/Kg wet	1.67		75.1	40-140	1.17	30		
2-Nitrophenol	1.27	0.34	mg/Kg wet	1.67		76.3	30-130	1.46	30		
4-Nitrophenol	1.70	0.66	mg/Kg wet	1.67		102	15-140	1.96	30		†
Pentachlorophenol	0.850	0.34	mg/Kg wet	1.67		51.0	30-130	6.02	30		
Phenanthrene	1.24	0.17	mg/Kg wet	1.67		74.5	40-140	1.35	30		
Phenol	1.23	0.34	mg/Kg wet	1.67		74.0	15-140	2.51	30		†
Pyrene	1.28	0.17	mg/Kg wet	1.67		76.6	40-140	0.786	30		
Pyridine	0.530	0.34	mg/Kg wet	1.67		31.8	30-140	3.76	30	V-05	†
1,2,4-Trichlorobenzene	1.06	0.34	mg/Kg wet	1.67		63.8	40-140	6.23	30		
2,4,5-Trichlorophenol	1.39	0.34	mg/Kg wet	1.67		83.2	30-130	1.82	30		
2,4,6-Trichlorophenol	1.36	0.34	mg/Kg wet	1.67		81.5	30-130	1.20	30		
Surrogate: 2-Fluorophenol	*4.66*		mg/Kg wet	6.67		69.9	30-130				
Surrogate: Phenol-d6	*5.45*		mg/Kg wet	6.67		81.8	30-130				
Surrogate: Nitrobenzene-d5	*2.67*		mg/Kg wet	3.33		80.1	30-130				
Surrogate: 2-Fluorobiphenyl	*2.44*		mg/Kg wet	3.33		73.3	30-130				
Surrogate: 2,4,6-Tribromophenol	*7.01*		mg/Kg wet	6.67		105	30-130				
Surrogate: p-Terphenyl-d14	*2.83*		mg/Kg wet	3.33		85.0	30-130				

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217211 - SW-846 3546										
Blank (B217211-BLK1)				Prepared: 11/14/18 Analyzed: 11/15/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.173*		mg/Kg wet	0.200		86.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.172*		mg/Kg wet	0.200		86.1	30-150			
Surrogate: Tetrachloro-m-xylene	*0.155*		mg/Kg wet	0.200		77.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.147*		mg/Kg wet	0.200		73.7	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217211 - SW-846 3546										
LCS (B217211-BS1)				Prepared: 11/14/18 Analyzed: 11/15/18						
alpha-Chlordane	0.082	0.0050	mg/Kg wet	0.100		82.2	40-140			
alpha-Chlordane [2C]	0.078	0.0050	mg/Kg wet	0.100		78.3	40-140			
gamma-Chlordane	0.082	0.0050	mg/Kg wet	0.100		81.8	40-140			
gamma-Chlordane [2C]	0.078	0.0050	mg/Kg wet	0.100		78.5	40-140			
Alachlor	0.085	0.020	mg/Kg wet	0.100		85.4	40-140			
Alachlor [2C]	0.083	0.020	mg/Kg wet	0.100		83.2	40-140			
Aldrin	0.083	0.0050	mg/Kg wet	0.100		83.0	40-140			
Aldrin [2C]	0.077	0.0050	mg/Kg wet	0.100		77.0	40-140			
alpha-BHC	0.069	0.0050	mg/Kg wet	0.100		69.5	40-140			
alpha-BHC [2C]	0.067	0.0050	mg/Kg wet	0.100		67.3	40-140			
beta-BHC	0.073	0.0050	mg/Kg wet	0.100		73.3	40-140			
beta-BHC [2C]	0.071	0.0050	mg/Kg wet	0.100		71.1	40-140			
delta-BHC	0.077	0.0050	mg/Kg wet	0.100		77.0	40-140			
delta-BHC [2C]	0.074	0.0050	mg/Kg wet	0.100		73.9	40-140			
gamma-BHC (Lindane)	0.074	0.0020	mg/Kg wet	0.100		74.5	40-140			
gamma-BHC (Lindane) [2C]	0.070	0.0020	mg/Kg wet	0.100		69.8	40-140			
4,4'-DDD	0.085	0.0040	mg/Kg wet	0.100		85.0	40-140			
4,4'-DDD [2C]	0.080	0.0040	mg/Kg wet	0.100		80.4	40-140			
4,4'-DDE	0.088	0.0040	mg/Kg wet	0.100		88.4	40-140			
4,4'-DDE [2C]	0.080	0.0040	mg/Kg wet	0.100		80.2	40-140			
4,4'-DDT	0.082	0.0040	mg/Kg wet	0.100		81.5	40-140			
4,4'-DDT [2C]	0.075	0.0040	mg/Kg wet	0.100		75.0	40-140			
Dieldrin	0.080	0.0040	mg/Kg wet	0.100		79.9	40-140			
Dieldrin [2C]	0.074	0.0040	mg/Kg wet	0.100		73.5	40-140			
Endosulfan I	0.079	0.0050	mg/Kg wet	0.100		78.7	40-140			
Endosulfan I [2C]	0.076	0.0050	mg/Kg wet	0.100		75.9	40-140			
Endosulfan II	0.082	0.0080	mg/Kg wet	0.100		81.7	40-140			
Endosulfan II [2C]	0.079	0.0080	mg/Kg wet	0.100		78.7	40-140			
Endosulfan Sulfate	0.088	0.0080	mg/Kg wet	0.100		87.6	40-140			
Endosulfan Sulfate [2C]	0.080	0.0080	mg/Kg wet	0.100		80.4	40-140			
Endrin	0.085	0.0080	mg/Kg wet	0.100		85.1	40-140			
Endrin [2C]	0.077	0.0080	mg/Kg wet	0.100		77.1	40-140			
Endrin Aldehyde	0.080	0.0080	mg/Kg wet	0.100		80.0	40-140			
Endrin Aldehyde [2C]	0.076	0.0080	mg/Kg wet	0.100		75.8	40-140			
Endrin Ketone	0.083	0.0080	mg/Kg wet	0.100		82.6	40-140			
Endrin Ketone [2C]	0.079	0.0080	mg/Kg wet	0.100		78.8	40-140			
Heptachlor	0.077	0.0050	mg/Kg wet	0.100		77.2	40-140			
Heptachlor [2C]	0.074	0.0050	mg/Kg wet	0.100		73.8	40-140			
Heptachlor Epoxide	0.079	0.0050	mg/Kg wet	0.100		78.7	40-140			
Heptachlor Epoxide [2C]	0.076	0.0050	mg/Kg wet	0.100		75.5	40-140			
Hexachlorobenzene	0.084	0.0060	mg/Kg wet	0.100		84.1	40-140			
Hexachlorobenzene [2C]	0.081	0.0060	mg/Kg wet	0.100		80.9	40-140			
Methoxychlor	0.080	0.050	mg/Kg wet	0.100		79.5	40-140			
Methoxychlor [2C]	0.088	0.050	mg/Kg wet	0.100		88.5	40-140			
Surrogate: Decachlorobiphenyl	*0.167*		mg/Kg wet	0.200		83.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.165*		mg/Kg wet	0.200		82.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.156*		mg/Kg wet	0.200		78.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.152*		mg/Kg wet	0.200		76.1	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217211 - SW-846 3546										
LCS Dup (B217211-BSD1)				Prepared: 11/14/18 Analyzed: 11/15/18						
alpha-Chlordane	0.088	0.0050	mg/Kg wet	0.100		87.9	40-140	6.76	30	
alpha-Chlordane [2C]	0.084	0.0050	mg/Kg wet	0.100		83.7	40-140	6.60	30	
gamma-Chlordane	0.088	0.0050	mg/Kg wet	0.100		87.7	40-140	6.95	30	
gamma-Chlordane [2C]	0.084	0.0050	mg/Kg wet	0.100		84.0	40-140	6.83	30	
Alachlor	0.090	0.020	mg/Kg wet	0.100		90.1	40-140	5.38	30	
Alachlor [2C]	0.089	0.020	mg/Kg wet	0.100		89.2	40-140	6.94	30	
Aldrin	0.089	0.0050	mg/Kg wet	0.100		89.4	40-140	7.40	30	
Aldrin [2C]	0.083	0.0050	mg/Kg wet	0.100		82.6	40-140	7.04	30	
alpha-BHC	0.075	0.0050	mg/Kg wet	0.100		75.1	40-140	7.73	30	
alpha-BHC [2C]	0.072	0.0050	mg/Kg wet	0.100		72.4	40-140	7.37	30	
beta-BHC	0.079	0.0050	mg/Kg wet	0.100		78.6	40-140	7.07	30	
beta-BHC [2C]	0.076	0.0050	mg/Kg wet	0.100		75.8	40-140	6.38	30	
delta-BHC	0.082	0.0050	mg/Kg wet	0.100		82.3	40-140	6.69	30	
delta-BHC [2C]	0.079	0.0050	mg/Kg wet	0.100		78.7	40-140	6.23	30	
gamma-BHC (Lindane)	0.080	0.0020	mg/Kg wet	0.100		80.3	40-140	7.55	30	
gamma-BHC (Lindane) [2C]	0.075	0.0020	mg/Kg wet	0.100		75.0	40-140	7.30	30	
4,4'-DDD	0.091	0.0040	mg/Kg wet	0.100		90.9	40-140	6.72	30	
4,4'-DDD [2C]	0.086	0.0040	mg/Kg wet	0.100		85.8	40-140	6.52	30	
4,4'-DDE	0.095	0.0040	mg/Kg wet	0.100		94.6	40-140	6.72	30	
4,4'-DDE [2C]	0.086	0.0040	mg/Kg wet	0.100		85.5	40-140	6.39	30	
4,4'-DDT	0.088	0.0040	mg/Kg wet	0.100		88.2	40-140	7.86	30	
4,4'-DDT [2C]	0.081	0.0040	mg/Kg wet	0.100		81.2	40-140	7.86	30	
Dieldrin	0.085	0.0040	mg/Kg wet	0.100		85.3	40-140	6.58	30	
Dieldrin [2C]	0.078	0.0040	mg/Kg wet	0.100		78.4	40-140	6.43	30	
Endosulfan I	0.084	0.0050	mg/Kg wet	0.100		84.1	40-140	6.61	30	
Endosulfan I [2C]	0.081	0.0050	mg/Kg wet	0.100		81.4	40-140	6.96	30	
Endosulfan II	0.087	0.0080	mg/Kg wet	0.100		86.8	40-140	6.08	30	
Endosulfan II [2C]	0.083	0.0080	mg/Kg wet	0.100		83.0	40-140	5.32	30	
Endosulfan Sulfate	0.093	0.0080	mg/Kg wet	0.100		92.9	40-140	5.85	30	
Endosulfan Sulfate [2C]	0.085	0.0080	mg/Kg wet	0.100		85.2	40-140	5.76	30	
Endrin	0.091	0.0080	mg/Kg wet	0.100		90.5	40-140	6.22	30	
Endrin [2C]	0.082	0.0080	mg/Kg wet	0.100		82.1	40-140	6.27	30	
Endrin Aldehyde	0.085	0.0080	mg/Kg wet	0.100		85.0	40-140	6.06	30	
Endrin Aldehyde [2C]	0.080	0.0080	mg/Kg wet	0.100		80.2	40-140	5.68	30	
Endrin Ketone	0.089	0.0080	mg/Kg wet	0.100		89.0	40-140	7.48	30	
Endrin Ketone [2C]	0.085	0.0080	mg/Kg wet	0.100		85.1	40-140	7.64	30	
Heptachlor	0.083	0.0050	mg/Kg wet	0.100		83.3	40-140	7.65	30	
Heptachlor [2C]	0.080	0.0050	mg/Kg wet	0.100		79.6	40-140	7.46	30	
Heptachlor Epoxide	0.084	0.0050	mg/Kg wet	0.100		84.1	40-140	6.71	30	
Heptachlor Epoxide [2C]	0.081	0.0050	mg/Kg wet	0.100		80.8	40-140	6.73	30	
Hexachlorobenzene	0.091	0.0060	mg/Kg wet	0.100		90.7	40-140	7.53	30	
Hexachlorobenzene [2C]	0.087	0.0060	mg/Kg wet	0.100		87.0	40-140	7.21	30	
Methoxychlor	0.087	0.050	mg/Kg wet	0.100		86.7	40-140	8.60	30	
Methoxychlor [2C]	0.096	0.050	mg/Kg wet	0.100		95.5	40-140	7.63	30	
Surrogate: Decachlorobiphenyl	*0.177*		mg/Kg wet	0.200		88.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.176*		mg/Kg wet	0.200		87.9	30-150			
Surrogate: Tetrachloro-m-xylene	*0.168*		mg/Kg wet	0.200		84.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.162*		mg/Kg wet	0.200		81.1	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217320 - SW-846 3546										
Blank (B217320-BLK1)				Prepared: 11/15/18 Analyzed: 11/16/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.184*		mg/Kg wet	0.200		91.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.190*		mg/Kg wet	0.200		94.9	30-150			
Surrogate: Tetrachloro-m-xylene	*0.179*		mg/Kg wet	0.200		89.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.182*		mg/Kg wet	0.200		91.1	30-150			
LCS (B217320-BS1)				Prepared: 11/15/18 Analyzed: 11/16/18						
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		79.4	40-140			
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		79.4	40-140			
Aroclor-1260	0.16	0.020	mg/Kg wet	0.200		79.2	40-140			
Aroclor-1260 [2C]	0.16	0.020	mg/Kg wet	0.200		78.3	40-140			
Surrogate: Decachlorobiphenyl	*0.174*		mg/Kg wet	0.200		87.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.181*		mg/Kg wet	0.200		90.6	30-150			
Surrogate: Tetrachloro-m-xylene	*0.172*		mg/Kg wet	0.200		85.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.172*		mg/Kg wet	0.200		86.0	30-150			
LCS Dup (B217320-BSD1)				Prepared: 11/15/18 Analyzed: 11/16/18						
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		81.9	40-140	3.16	30	
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		80.6	40-140	1.50	30	
Aroclor-1260	0.16	0.020	mg/Kg wet	0.200		81.4	40-140	2.73	30	
Aroclor-1260 [2C]	0.16	0.020	mg/Kg wet	0.200		81.6	40-140	4.02	30	
Surrogate: Decachlorobiphenyl	*0.181*		mg/Kg wet	0.200		90.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.188*		mg/Kg wet	0.200		94.1	30-150			
Surrogate: Tetrachloro-m-xylene	*0.177*		mg/Kg wet	0.200		88.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.179*		mg/Kg wet	0.200		89.4	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217320 - SW-846 3546										
Matrix Spike (B217320-MS1)	**Source: 18K0569-01**			Prepared: 11/15/18 Analyzed: 11/16/18						
Aroclor-1016	0.20	0.095	mg/Kg dry	0.238	ND	83.3	40-140			
Aroclor-1016 [2C]	0.21	0.095	mg/Kg dry	0.238	ND	86.2	40-140			
Aroclor-1260	0.19	0.095	mg/Kg dry	0.238	ND	79.5	40-140			
Aroclor-1260 [2C]	0.21	0.095	mg/Kg dry	0.238	ND	87.3	40-140			
Surrogate: Decachlorobiphenyl	*0.201*		mg/Kg dry	0.238		84.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.213*		mg/Kg dry	0.238		89.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.203*		mg/Kg dry	0.238		85.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.209*		mg/Kg dry	0.238		87.4	30-150			
Matrix Spike Dup (B217320-MSD1)	**Source: 18K0569-01**			Prepared: 11/15/18 Analyzed: 11/16/18						
Aroclor-1016	0.24	0.098	mg/Kg dry	0.246	ND	97.8	40-140	16.0	30	
Aroclor-1016 [2C]	0.25	0.098	mg/Kg dry	0.246	ND	101	40-140	15.9	30	
Aroclor-1260	0.23	0.098	mg/Kg dry	0.246	ND	93.7	40-140	16.4	30	
Aroclor-1260 [2C]	0.25	0.098	mg/Kg dry	0.246	ND	101	40-140	14.5	30	
Surrogate: Decachlorobiphenyl	*0.239*		mg/Kg dry	0.246		97.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.251*		mg/Kg dry	0.246		102	30-150			
Surrogate: Tetrachloro-m-xylene	*0.241*		mg/Kg dry	0.246		97.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.245*		mg/Kg dry	0.246		100	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217251 - SW-846 8151										
Blank (B217251-BLK1)				Prepared: 11/15/18 Analyzed: 11/17/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*84.0*		µg/kg wet	95.2		88.2	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*85.3*		µg/kg wet	95.2		89.5	30-150			
LCS (B217251-BS1)				Prepared: 11/15/18 Analyzed: 11/17/18						
2,4-D	113	25	µg/kg wet	125		90.7	40-140			
2,4-D [2C]	125	25	µg/kg wet	125		100	40-140			
2,4-DB	114	25	µg/kg wet	125		91.3	40-140			V-05
2,4-DB [2C]	119	25	µg/kg wet	125		95.2	40-140			
2,4,5-TP (Silvex)	11.9	2.5	µg/kg wet	12.5		95.6	40-140			
2,4,5-TP (Silvex) [2C]	12.5	2.5	µg/kg wet	12.5		100	40-140			
2,4,5-T	11.4	2.5	µg/kg wet	12.5		91.5	40-140			
2,4,5-T [2C]	12.9	2.5	µg/kg wet	12.5		103	40-140			
Dalapon	196	62	µg/kg wet	312		62.7	40-140			
Dalapon [2C]	198	62	µg/kg wet	312		63.3	40-140			
Dicamba	12.0	2.5	µg/kg wet	12.5		96.2	40-140			
Dicamba [2C]	12.0	2.5	µg/kg wet	12.5		96.4	40-140			
Dichloroprop	123	25	µg/kg wet	125		98.8	40-140			
Dichloroprop [2C]	124	25	µg/kg wet	125		99.1	40-140			
Dinoseb	19.3	12	µg/kg wet	62.5		30.9	0-42.4			
Dinoseb [2C]	22.0	12	µg/kg wet	62.5		35.2	0-41.1			
MCPA	11300	2500	µg/kg wet	12500		90.7	40-140			
MCPA [2C]	10500	2500	µg/kg wet	12500		83.9	40-140			
MCPP	16700	2500	µg/kg wet	12500		134	40-140			
MCPP [2C]	11200	2500	µg/kg wet	12500		89.8	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*90.6*		µg/kg wet	100		90.6	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*89.6*		µg/kg wet	100		89.6	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217251 - SW-846 8151										
LCS Dup (B217251-BSD1)				Prepared: 11/15/18 Analyzed: 11/17/18						
2,4-D	115	25	µg/kg wet	125		92.3	40-140	1.79	30	
2,4-D [2C]	120	25	µg/kg wet	125		96.0	40-140	4.15	30	
2,4-DB	116	25	µg/kg wet	125		92.4	40-140	1.20	30	V-05
2,4-DB [2C]	121	25	µg/kg wet	125		97.2	40-140	2.04	30	
2,4,5-TP (Silvex)	12.0	2.5	µg/kg wet	12.5		96.2	40-140	0.599	30	
2,4,5-TP (Silvex) [2C]	12.6	2.5	µg/kg wet	12.5		101	40-140	0.472	30	
2,4,5-T	11.4	2.5	µg/kg wet	12.5		91.5	40-140	0.0350	30	
2,4,5-T [2C]	13.1	2.5	µg/kg wet	12.5		105	40-140	1.63	30	
Dalapon	195	62	µg/kg wet	312		62.4	40-140	0.492	30	
Dalapon [2C]	197	62	µg/kg wet	312		63.2	40-140	0.178	30	
Dicamba	12.0	2.5	µg/kg wet	12.5		95.7	40-140	0.536	30	
Dicamba [2C]	12.1	2.5	µg/kg wet	12.5		96.8	40-140	0.472	30	
Dichloroprop	123	25	µg/kg wet	125		98.5	40-140	0.300	30	
Dichloroprop [2C]	125	25	µg/kg wet	125		99.8	40-140	0.780	30	
Dinoseb	19.5	12	µg/kg wet	62.5		31.2	0-42.4	1.09	30	
Dinoseb [2C]	22.3	12	µg/kg wet	62.5		35.7	0-41.1	1.31	30	
MCPA	11300	2500	µg/kg wet	12500		90.7	40-140	0.0124	30	
MCPA [2C]	10500	2500	µg/kg wet	12500		83.8	40-140	0.0892	30	
MCPP	16800	2500	µg/kg wet	12500		134	40-140	0.290	30	
MCPP [2C]	11200	2500	µg/kg wet	12500		89.5	40-140	0.275	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*88.4*		µg/kg wet	100		88.4	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*90.0*		µg/kg wet	100		90.0	30-150			
Matrix Spike (B217251-MS1)		**Source: 18K0569-01**		Prepared: 11/15/18 Analyzed: 11/17/18						
2,4-D	135	31	µg/kg dry	155	ND	87.4	30-150			
2,4-D [2C]	149	31	µg/kg dry	155	ND	96.2	30-150			
2,4-DB	138	31	µg/kg dry	155	ND	89.1	30-150			
2,4-DB [2C]	149	31	µg/kg dry	155	ND	96.2	30-150			
2,4,5-TP (Silvex)	14.1	3.1	µg/kg dry	15.5	ND	91.1	30-150			
2,4,5-TP (Silvex) [2C]	14.0	3.1	µg/kg dry	15.5	ND	90.6	30-150			
2,4,5-T	13.1	3.1	µg/kg dry	15.5	ND	84.7	30-150			
2,4,5-T [2C]	14.7	3.1	µg/kg dry	15.5	ND	95.0	30-150			
Dalapon	241	78	µg/kg dry	388	ND	62.1	30-150			
Dalapon [2C]	245	78	µg/kg dry	388	ND	63.1	30-150			
Dicamba	13.5	3.1	µg/kg dry	15.5	ND	87.1	30-150			
Dicamba [2C]	14.1	3.1	µg/kg dry	15.5	ND	91.2	30-150			
Dichloroprop	144	31	µg/kg dry	155	ND	93.1	30-150			
Dichloroprop [2C]	142	31	µg/kg dry	155	ND	91.6	30-150			
Dinoseb	11.6	16	µg/kg dry	77.5	ND	15.0	10-150			V-06, V-20
Dinoseb [2C]	13.7	16	µg/kg dry	77.5	ND	17.6	10-150			V-06, V-20
MCPA	13200	3100	µg/kg dry	15500	ND	84.9	30-150			
MCPA [2C]	12200	3100	µg/kg dry	15500	ND	78.7	30-150			
MCPP	19700	3100	µg/kg dry	15500	ND	127	30-150			
MCPP [2C]	12900	3100	µg/kg dry	15500	ND	83.0	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid	*106*		µg/kg dry	124		85.4	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*104*		µg/kg dry	124		84.0	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217251 - SW-846 8151										
Matrix Spike Dup (B217251-MSD1)	**Source: 18K0569-01**			Prepared: 11/15/18 Analyzed: 11/17/18						
2,4-D	135	31	µg/kg dry	155	ND	87.2	30-150	0.177	30	
2,4-D [2C]	146	31	µg/kg dry	155	ND	93.9	30-150	2.36	30	
2,4-DB	138	31	µg/kg dry	155	ND	88.8	30-150	0.358	30	
2,4-DB [2C]	149	31	µg/kg dry	155	ND	96.1	30-150	0.0732	30	
2,4,5-TP (Silvex)	13.9	3.1	µg/kg dry	15.5	ND	89.5	30-150	1.70	30	
2,4,5-TP (Silvex) [2C]	13.4	3.1	µg/kg dry	15.5	ND	86.2	30-150	4.97	30	
2,4,5-T	13.2	3.1	µg/kg dry	15.5	ND	84.9	30-150	0.203	30	
2,4,5-T [2C]	14.6	3.1	µg/kg dry	15.5	ND	94.1	30-150	0.958	30	
Dalapon	225	78	µg/kg dry	388	ND	58.1	30-150	6.76	30	
Dalapon [2C]	227	78	µg/kg dry	388	ND	58.6	30-150	7.42	30	
Dicamba	13.4	3.1	µg/kg dry	15.5	ND	86.3	30-150	0.953	30	
Dicamba [2C]	13.3	3.1	µg/kg dry	15.5	ND	85.6	30-150	6.35	30	
Dichloroprop	143	31	µg/kg dry	155	ND	92.2	30-150	0.970	30	
Dichloroprop [2C]	141	31	µg/kg dry	155	ND	90.9	30-150	0.769	30	
Dinoseb	12.8	16	µg/kg dry	77.5	ND	16.5	10-150	9.51	30	V-06, V-20
Dinoseb [2C]	14.9	16	µg/kg dry	77.5	ND	19.3	10-150	8.90	30	V-06, V-20
MCPA	13100	3100	µg/kg dry	15500	ND	84.3	30-150	0.778	30	
MCPA [2C]	12200	3100	µg/kg dry	15500	ND	78.4	30-150	0.336	30	
MCPP	20200	3100	µg/kg dry	15500	ND	130	30-150	2.78	30	
MCPP [2C]	12700	3100	µg/kg dry	15500	ND	82.1	30-150	1.08	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*108*		µg/kg dry	124		86.9	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*107*		µg/kg dry	124		85.9	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217216 - SW-846 3546										
Blank (B217216-BLK1)				Prepared: 11/14/18 Analyzed: 11/15/18						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*1.99*		mg/Kg wet	3.33		59.8	40-140			
LCS (B217216-BS1)				Prepared: 11/14/18 Analyzed: 11/15/18						
TPH (C9-C36)	28.0	8.3	mg/Kg wet	33.3		84.0	40-140			
Surrogate: 2-Fluorobiphenyl	*2.23*		mg/Kg wet	3.33		67.0	40-140			
LCS Dup (B217216-BSD1)				Prepared: 11/14/18 Analyzed: 11/15/18						
TPH (C9-C36)	27.8	8.3	mg/Kg wet	33.3		83.4	40-140	0.809	30	
Surrogate: 2-Fluorobiphenyl	*2.15*		mg/Kg wet	3.33		64.4	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217443 - SW-846 3050B										
Blank (B217443-BLK1)				Prepared: 11/16/18 Analyzed: 11/19/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B217443-BS1)				Prepared: 11/16/18 Analyzed: 11/19/18						
Antimony	61.6	4.9	mg/Kg wet	75.5		81.6	3.8-196			
Arsenic	154	4.9	mg/Kg wet	161		95.8	83.2-116.8			
Barium	262	4.9	mg/Kg wet	260		101	82.7-117.3			
Beryllium	96.0	0.49	mg/Kg wet	97.6		98.4	83.4-116.8			
Cadmium	204	0.49	mg/Kg wet	211		96.8	83.4-116.6			
Chromium	134	0.98	mg/Kg wet	136		98.4	82.4-117.6			
Lead	108	1.5	mg/Kg wet	111		96.9	83-117.1			
Nickel	94.1	0.98	mg/Kg wet	91.9		102	82.9-117.5			
Selenium	177	9.8	mg/Kg wet	191		92.4	79.6-120.9			
Silver	42.6	0.98	mg/Kg wet	43.3		98.3	79.9-119.9			
Thallium	158	4.9	mg/Kg wet	156		101	81.4-119.2			
Vanadium	51.7	2.0	mg/Kg wet	56.7		91.1	79-121.2			
Zinc	198	2.0	mg/Kg wet	199		99.6	81.4-119.1			
LCS Dup (B217443-BSD1)				Prepared: 11/16/18 Analyzed: 11/19/18						
Antimony	60.3	4.9	mg/Kg wet	75.5		79.9	3.8-196	2.01	30	
Arsenic	153	4.9	mg/Kg wet	161		95.0	83.2-116.8	0.861	30	
Barium	257	4.9	mg/Kg wet	260		98.7	82.7-117.3	2.20	30	
Beryllium	96.2	0.49	mg/Kg wet	97.6		98.6	83.4-116.8	0.216	30	
Cadmium	200	0.49	mg/Kg wet	211		94.8	83.4-116.6	2.07	30	
Chromium	134	0.98	mg/Kg wet	136		98.5	82.4-117.6	0.136	30	
Lead	108	1.5	mg/Kg wet	111		97.2	83-117.1	0.376	30	
Nickel	93.5	0.98	mg/Kg wet	91.9		102	82.9-117.5	0.558	30	
Selenium	177	9.8	mg/Kg wet	191		92.4	79.6-120.9	0.00113	30	
Silver	42.3	0.98	mg/Kg wet	43.3		97.6	79.9-119.9	0.721	30	
Thallium	157	4.9	mg/Kg wet	156		101	81.4-119.2	0.757	30	
Vanadium	51.2	2.0	mg/Kg wet	56.7		90.3	79-121.2	0.875	30	
Zinc	195	2.0	mg/Kg wet	199		98.1	81.4-119.1	1.52	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217443 - SW-846 3050B										
MRL Check (B217443-MRL1)				Prepared: 11/16/18 Analyzed: 11/19/18						
Lead	0.558	0.50	mg/Kg wet	0.499		112	80-120			
Batch B217633 - SW-846 7471										
Blank (B217633-BLK1)				Prepared: 11/20/18 Analyzed: 11/21/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B217633-BS1)				Prepared: 11/20/18 Analyzed: 11/21/18						
Mercury	12.3	2.0	mg/Kg wet	11.5		107	71.6-127.8			
LCS Dup (B217633-BSD1)				Prepared: 11/20/18 Analyzed: 11/21/18						
Mercury	13.5	1.9	mg/Kg wet	11.5		117	71.6-127.8	9.31	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217174 - SW-846 9014										
Blank (B217174-BLK1)				Prepared: 11/14/18 Analyzed: 11/15/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B217174-BS1)				Prepared: 11/14/18 Analyzed: 11/15/18						
Reactive Cyanide	9.3	0.40	mg/Kg	10.0		92.9	83.6-111			
Batch B217265 - SW-846 9030A										
Blank (B217265-BLK1)				Prepared & Analyzed: 11/15/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B217265-BS1)				Prepared & Analyzed: 11/15/18						
Reactive Sulfide	13	2.0	mg/Kg	14.8		86.5	54.9-121			
Batch B217354 - SW-846 9045C										
LCS (B217354-BS1)				Prepared & Analyzed: 11/15/18						
pH	6.03		pH Units	6.00		101	90-110			
LCS (B217354-BS2)				Prepared & Analyzed: 11/15/18						
pH	6.02		pH Units	6.00		100	90-110			
Duplicate (B217354-DUP1)	**Source: 18K0569-03**			Prepared & Analyzed: 11/15/18						
pH	6.3		pH Units		6.3			0.0799	5	H-03
Batch B217587 - % Solids										
Duplicate (B217587-DUP2)	**Source: 18K0569-01**			Prepared: 11/19/18 Analyzed: 11/20/18						
% Solids	81.0		% Wt		80.6			0.469	20	
Batch B217751 - SM21-22 2510B Modified										
Blank (B217751-BLK1)				Prepared & Analyzed: 11/21/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B217751-BS1)				Prepared & Analyzed: 11/21/18						
Specific conductance	200		µmhos/cm	192		106	90-110			
Duplicate (B217751-DUP1)	**Source: 18K0569-01**			Prepared & Analyzed: 11/21/18						
Specific conductance	2.5	2.0	µmhos/cm		2.7			6.11	21	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-03	Elevated reporting limit due to matrix.
H-03	Sample received after recommended holding time was exceeded.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-19	Initial calibration did not meet method specifications. Compound was calibrated using linear regression with correlation coefficient <0.99. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Soil	
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test® ANALYTICAL LABORATORY
KKM
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Email: info@contestlabs.com

18K0564

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841

Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: PEC

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other: Limit Check
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals									# of Containers	Preservation Code	Container Code
								3	3	3		9												
								I	I	I	I	M/O	I											
								A	A	A	A	V	A											
1	SB33	11/7/18	14:36	x	x	S	U	x	x	x	x	x	x											
2	SB36	↓	14:25	x	x	S	U	x	x	x	x	x	x											
3	SB35		14:50	x	x	S	U	x	x	x	x	x	x											
4	SB34	↓	14:40	x	x	S	U	x	x	x	x	x	x											

ANALYSIS REQUESTED

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Vials frozen on day of generation by 16:00

TCLP 20x Rule

Relinquished by: (Signature)	Date/Time: 11/13/18 1100	
Received by: (signature) Paul Charteny	Date/Time: 11-13-18 1100	
Relinquished by: (signature) Paul Charteny	Date/Time: 11-13-18 17 30	
Received by: (signature)	Date/Time: 11-13-18 5:30	
Relinquished by: (signature)	Date/Time: 11-13-18 7:45	
Received by: (signature)	Date/Time: 11/13/18 19:45	

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By NP Date 11/13/18 Time 19:45

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 4.1 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T*

Did COC include all pertinent Information? Client T Project T Analysis ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Luke

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	12
Meoh-	4	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-	8	Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Samples received out of hold for pH analysis

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18K0569
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18K0569-01 thru 18K0569-04

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Lisa Worthington Position: Project Manager

Printed Name: Lisa A. Worthington Date: 11/21/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

December 3, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K0931

Enclosed are results of analyses for samples received by the laboratory on November 20, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

Table of Contents (continued)

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 12/3/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K0931

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B28	18K0931-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 11/28/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 6010D

Qualifications:

M-10

The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.

Analyte & Samples(s) Qualified:

Lead
18K0931-01[B28], B217937-MRL1

SW-846 8081B

Qualifications:

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

alpha-BHC [2C]
B217863-MSD1

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18K0931-01[B28]

SW-846 8260C

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

Acetone
B217803-BS1, B217803-BSD1, S029731-CCV1

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)
B217803-BS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

Acetone
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

Tetrahydrofuran
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

1,4-Dioxane (SIM)
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

Tetrahydrofuran
18K0931-01[B28], B217803-BLK1, B217803-BS1, B217803-BSD1, S029731-CCV1

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V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Bromomethane
B217803-BS1, B217803-BSD1, S029731-CCV1

Tetrahydrofuran
B217803-BS1, B217803-BSD1, S029731-CCV1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane
B217803-BS1, B217803-BSD1, S029731-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
B217803-BS1, B217803-BSD1, S029731-CCV1

1,4-Dioxane (SIM)
B217803-BS1, B217803-BSD1, S029731-CCV1

SW-846 8270D

Qualifications:

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:

Aniline
18K0931-01[B28], B217777-BLK1, B217777-BS1, B217777-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18K0931-01[B28], B217777-BLK1, B217777-BS1, B217777-BSD1

SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18K0931-01[B28], B217703-DUP1

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SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.056	mg/Kg dry	1	R-05	SW-846 8260C	11/26/18	11/26/18 9:09	BRF
tert-Amyl Methyl Ether (TAME)	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Benzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Bromobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Bromochloromethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Bromodichloromethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Bromoform	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Bromomethane	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
2-Butanone (MEK)	ND	0.022	mg/Kg dry	1	R-05	SW-846 8260C	11/26/18	11/26/18 9:09	BRF
n-Butylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
sec-Butylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
tert-Butylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Carbon Disulfide	ND	0.0033	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Carbon Tetrachloride	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Chlorobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Chlorodibromomethane	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Chloroethane	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Chloroform	ND	0.0022	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Chloromethane	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
2-Chlorotoluene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
4-Chlorotoluene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2-Dibromoethane (EDB)	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Dibromomethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2-Dichlorobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,3-Dichlorobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,4-Dichlorobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Dichlorodifluoromethane (Freon 12)	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1-Dichloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2-Dichloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1-Dichloroethylene	ND	0.0022	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
cis-1,2-Dichloroethylene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
trans-1,2-Dichloroethylene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2-Dichloropropane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,3-Dichloropropane	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
2,2-Dichloropropane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1-Dichloropropene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
cis-1,3-Dichloropropene	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
trans-1,3-Dichloropropene	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Diethyl Ether	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Diisopropyl Ether (DIPE)	ND	0.00056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,4-Dioxane	ND	0.056	mg/Kg dry	1	V-16	SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,4-Dioxane (SIM)	ND	0.022	mg/Kg dry	1	V-16	SW-846 8260C	11/26/18	11/26/18 9:09	BRF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ethylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Hexachlorobutadiene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
2-Hexanone (MBK)	ND	0.011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Isopropylbenzene (Cumene)	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
p-Isopropyltoluene (p-Cymene)	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Methyl tert-Butyl Ether (MTBE)	ND	0.0022	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Methylene Chloride	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
4-Methyl-2-pentanone (MIBK)	ND	0.011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Naphthalene	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
n-Propylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Styrene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1,1,2-Tetrachloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1,2,2-Tetrachloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Tetrachloroethylene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Tetrahydrofuran	ND	0.0056	mg/Kg dry	1	R-05, V-16	SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Toluene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2,3-Trichlorobenzene	ND	0.0022	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2,4-Trichlorobenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1,1-Trichloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,1,2-Trichloroethane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Trichloroethylene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Trichlorofluoromethane (Freon 11)	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2,3-Trichloropropane	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,2,4-Trimethylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
1,3,5-Trimethylbenzene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
Vinyl Chloride	ND	0.0056	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
m+p Xylene	ND	0.0022	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF
o-Xylene	ND	0.0011	mg/Kg dry	1		SW-846 8260C	11/26/18	11/26/18 9:09	BRF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	106	70-130		11/26/18 9:09
Toluene-d8	98.4	70-130		11/26/18 9:09
4-Bromofluorobenzene	99.8	70-130		11/26/18 9:09

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Acetophenone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Aniline	ND	0.39	mg/Kg dry	1	V-04	SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Benzo(b)fluoranthene	0.26	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Bis(2-chloroethoxy)methane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Bis(2-chloroethyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Bis(2-chloroisopropyl)ether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Bis(2-Ethylhexyl)phthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
4-Bromophenylphenylether	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Butylbenzylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
4-Chloroaniline	ND	0.75	mg/Kg dry	1	V-34	SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2-Chloronaphthalene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2-Chlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Chrysene	0.23	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Dibenzofuran	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Di-n-butylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
1,2-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
1,3-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
1,4-Dichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
3,3-Dichlorobenzidine	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4-Dichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Diethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4-Dimethylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Dimethylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4-Dinitrophenol	ND	0.75	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,6-Dinitrotoluene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Di-n-octylphthalate	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Fluoranthene	0.31	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Hexachlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Hexachlorobutadiene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Hexachloroethane	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Isophorone	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
3/4-Methylphenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Nitrobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2-Nitrophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
4-Nitrophenol	ND	0.75	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Pentachlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Phenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Pyrene	0.25	0.19	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
Pyridine	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
1,2,4-Trichlorobenzene	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4,5-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL
2,4,6-Trichlorophenol	ND	0.39	mg/Kg dry	1		SW-846 8270D	11/24/18	11/27/18 16:15	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	64.3	30-130		11/27/18 16:15
Phenol-d6	67.2	30-130		11/27/18 16:15
Nitrobenzene-d5	68.0	30-130		11/27/18 16:15
2-Fluorobiphenyl	58.7	30-130		11/27/18 16:15
2,4,6-Tribromophenol	66.1	30-130		11/27/18 16:15
p-Terphenyl-d14	68.7	30-130		11/27/18 16:15

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Aldrin [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
alpha-BHC [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
beta-BHC [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
delta-BHC [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
gamma-BHC (Lindane) [1]	ND	0.0021	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Chlordane [1]	ND	0.021	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
4,4'-DDD [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
4,4'-DDE [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
4,4'-DDT [1]	0.0078	0.0043	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Dieldrin [1]	ND	0.0043	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Endosulfan I [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Endosulfan II [1]	ND	0.0085	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Endosulfan sulfate [1]	ND	0.0085	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Endrin [1]	ND	0.0085	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Endrin aldehyde [1]	ND	0.0085	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 22:16	TG
Endrin ketone [1]	ND	0.0085	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Heptachlor [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Heptachlor epoxide [1]	ND	0.0053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Hexachlorobenzene [1]	ND	0.0064	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Methoxychlor [1]	ND	0.053	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG
Toxaphene [1]	ND	0.11	mg/Kg dry	1		SW-846 8081B	11/26/18	11/28/18 20:02	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	85.8	30-150		11/28/18 22:16
Decachlorobiphenyl [2]	79.0	30-150		11/28/18 22:16
Tetrachloro-m-xylene [1]	45.1	30-150		11/28/18 22:16
Tetrachloro-m-xylene [2]	40.4	30-150		11/28/18 22:16

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1221 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1232 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1242 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1248 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1254 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1260 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1262 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG
Aroclor-1268 [1]	ND	0.085	mg/Kg dry	4		SW-846 8082A	11/26/18	11/27/18 16:11	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	80.2	30-150		11/27/18 16:11
Decachlorobiphenyl [2]	82.2	30-150		11/27/18 16:11
Tetrachloro-m-xylene [1]	74.1	30-150		11/27/18 16:11
Tetrachloro-m-xylene [2]	75.4	30-150		11/27/18 16:11

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
2,4-DB [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
2,4,5-TP (Silvex) [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
2,4,5-T [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
Dalalpon [1]	ND	71	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
Dicamba [1]	ND	2.9	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
Dichloroprop [1]	ND	29	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
Dinoseb [1]	ND	14	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
MCPA [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG
MCPP [1]	ND	2900	µg/kg dry	1		SW-846 8151A	11/26/18	11/30/18 5:35	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	81.2	30-150		11/30/18 5:35	
2,4-Dichlorophenylacetic acid [2]	87.3	30-150		11/30/18 5:35	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	61	9.5	mg/Kg dry	1		SW-846 8100 Modified	11/24/18	11/27/18 15:30	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	57.1	40-140				11/27/18 15:30	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Arsenic	14	1.9	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Barium	46	1.9	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Beryllium	0.29	0.19	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Cadmium	0.37	0.19	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Chromium	13	0.38	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Lead	26	0.57	mg/Kg dry	1	M-10	SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Mercury	ND	0.028	mg/Kg dry	1		SW-846 7471B	11/27/18	11/28/18 11:14	AJL
Nickel	13	0.38	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Selenium	ND	3.8	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Silver	ND	0.38	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Vanadium	16	0.77	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB
Zinc	14	0.77	mg/Kg dry	1		SW-846 6010D	11/27/18	11/28/18 15:03	EJB

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K0931

Date Received: 11/20/2018

Field Sample #: B28 | Sampled: 11/13/2018 14:00

Sample ID: 18K0931-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/26/18	11/26/18 14:33	LED
pH @19.8°C	4.8		pH Units	1	H-03	SW-846 9045C	11/20/18	11/20/18 18:51	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	11/29/18	11/30/18 13:30	DJM
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/29/18	11/30/18 13:00	DJM
Specific conductance	6.0	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/26/18	11/26/18 15:21	MMH
% Solids	87.7		% Wt	1		SM 2540G	11/26/18	11/27/18 15:35	MJR

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18K0931-01 [B28]	B217892	11/26/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0931-01 [B28]	B217784	1.00	11/26/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0931-01 [B28]	B217884	50.0	11/26/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217937	1.49	50.0	11/27/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217947	0.621	50.0	11/27/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217863	10.7	10.0	11/26/18

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217862	10.7	10.0	11/26/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217782	30.1	1.00	11/24/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217799	20.0	5.00	11/26/18

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Sample Extraction Data

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217803	10.2	10.0	11/26/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B217777	30.1	1.00	11/24/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B218163	25.3	250	11/29/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K0931-01 [B28]	B218234	25.3	250	11/29/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18K0931-01 [B28]	B217703	20.0	11/20/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217803 - SW-846 5035										
Blank (B217803-BLK1)				Prepared & Analyzed: 11/26/18						
Acetone	ND	0.10	mg/Kg wet							R-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							
2-Butanone (MEK)	ND	0.040	mg/Kg wet							R-05
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
1,4-Dioxane (SIM)	ND	0.040	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B217803 - SW-846 5035												
Blank (B217803-BLK1)				Prepared & Analyzed: 11/26/18								
Naphthalene	ND	0.0040	mg/Kg wet									
n-Propylbenzene	ND	0.0020	mg/Kg wet									
Styrene	ND	0.0020	mg/Kg wet									
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet									
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet									
Tetrachloroethylene	ND	0.0020	mg/Kg wet									
Tetrahydrofuran	ND	0.010	mg/Kg wet								R-05, V-16	
Toluene	ND	0.0020	mg/Kg wet									
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet									
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet									
Trichloroethylene	ND	0.0020	mg/Kg wet									
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet									
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet									
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet									
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet									
Vinyl Chloride	ND	0.010	mg/Kg wet									
m+p Xylene	ND	0.0040	mg/Kg wet									
o-Xylene	ND	0.0020	mg/Kg wet									
Surrogate: 1,2-Dichloroethane-d4	*0.0547*		mg/Kg wet	0.0500		109		70-130				
Surrogate: Toluene-d8	*0.0486*		mg/Kg wet	0.0500		97.3		70-130				
Surrogate: 4-Bromofluorobenzene	*0.0494*		mg/Kg wet	0.0500		98.7		70-130				
LCS (B217803-BS1)				Prepared & Analyzed: 11/26/18								
Acetone	0.568	0.10	mg/Kg wet	0.200		**284**	*	40-160			L-02, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0207	0.0010	mg/Kg wet	0.0200		103		70-130				
Benzene	0.0191	0.0020	mg/Kg wet	0.0200		95.5		70-130				
Bromobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.4		70-130				
Bromochloromethane	0.0224	0.0020	mg/Kg wet	0.0200		112		70-130				
Bromodichloromethane	0.0198	0.0020	mg/Kg wet	0.0200		99.1		70-130				
Bromoform	0.0200	0.0020	mg/Kg wet	0.0200		100		70-130				
Bromomethane	0.0126	0.010	mg/Kg wet	0.0200		62.9		40-160			L-14, V-20, V-34	†
2-Butanone (MEK)	0.389	0.040	mg/Kg wet	0.200		**194**	*	40-160			L-07A, R-05	†
n-Butylbenzene	0.0184	0.0020	mg/Kg wet	0.0200		91.9		70-130				
sec-Butylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.1		70-130				
tert-Butylbenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.0		70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0205	0.0010	mg/Kg wet	0.0200		102		70-130				
Carbon Disulfide	0.0192	0.0060	mg/Kg wet	0.0200		95.9		70-130				
Carbon Tetrachloride	0.0219	0.0020	mg/Kg wet	0.0200		109		70-130				
Chlorobenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.3		70-130				
Chlorodibromomethane	0.0224	0.0010	mg/Kg wet	0.0200		112		70-130				
Chloroethane	0.0180	0.010	mg/Kg wet	0.0200		89.8		70-130				
Chloroform	0.0196	0.0040	mg/Kg wet	0.0200		98.2		70-130				
Chloromethane	0.0164	0.010	mg/Kg wet	0.0200		81.8		40-160				†
2-Chlorotoluene	0.0193	0.0020	mg/Kg wet	0.0200		96.3		70-130				
4-Chlorotoluene	0.0200	0.0020	mg/Kg wet	0.0200		100		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0208	0.0020	mg/Kg wet	0.0200		104		70-130				
1,2-Dibromoethane (EDB)	0.0216	0.0010	mg/Kg wet	0.0200		108		70-130				
Dibromomethane	0.0215	0.0020	mg/Kg wet	0.0200		107		70-130				
1,2-Dichlorobenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.5		70-130				
1,3-Dichlorobenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.5		70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217803 - SW-846 5035											
LCS (B217803-BS1)				Prepared & Analyzed: 11/26/18							
1,4-Dichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.9	70-130				
Dichlorodifluoromethane (Freon 12)	0.0128	0.010	mg/Kg wet	0.0200		63.9	40-160			L-14	†
1,1-Dichloroethane	0.0198	0.0020	mg/Kg wet	0.0200		99.1	70-130				
1,2-Dichloroethane	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130				
1,1-Dichloroethylene	0.0187	0.0040	mg/Kg wet	0.0200		93.6	70-130				
cis-1,2-Dichloroethylene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130				
trans-1,2-Dichloroethylene	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130				
1,2-Dichloropropane	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
1,3-Dichloropropane	0.0198	0.0010	mg/Kg wet	0.0200		98.9	70-130				
2,2-Dichloropropane	0.0194	0.0020	mg/Kg wet	0.0200		96.9	70-130				
1,1-Dichloropropene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
cis-1,3-Dichloropropene	0.0206	0.0010	mg/Kg wet	0.0200		103	70-130				
trans-1,3-Dichloropropene	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130				
Diethyl Ether	0.0196	0.010	mg/Kg wet	0.0200		98.0	70-130				
Diisopropyl Ether (DIPE)	0.0205	0.0010	mg/Kg wet	0.0200		102	70-130				
1,4-Dioxane	0.179	0.10	mg/Kg wet	0.200		89.7	40-160			V-16, V-36	†
1,4-Dioxane (SIM)	0.206	0.040	mg/Kg wet	0.200		103	40-160			V-16, V-36	†
Ethylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130				
Hexachlorobutadiene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130				
2-Hexanone (MBK)	0.314	0.020	mg/Kg wet	0.200		157	40-160			L-14	†
Isopropylbenzene (Cumene)	0.0213	0.0020	mg/Kg wet	0.0200		106	70-130				
p-Isopropyltoluene (p-Cymene)	0.0180	0.0020	mg/Kg wet	0.0200		90.0	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0213	0.0040	mg/Kg wet	0.0200		106	70-130				
Methylene Chloride	0.0201	0.010	mg/Kg wet	0.0200		100	70-130				
4-Methyl-2-pentanone (MIBK)	0.214	0.020	mg/Kg wet	0.200		107	40-160				†
Naphthalene	0.0185	0.0040	mg/Kg wet	0.0200		92.3	70-130				
n-Propylbenzene	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130				
Styrene	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130				
1,1,1,2-Tetrachloroethane	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
1,1,2,2-Tetrachloroethane	0.0196	0.0010	mg/Kg wet	0.0200		97.8	70-130				
Tetrachloroethylene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130				
Tetrahydrofuran	0.0175	0.010	mg/Kg wet	0.0200		87.3	70-130			R-05, V-16, V-20	
Toluene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130				
1,2,3-Trichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130				
1,2,4-Trichlorobenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
1,1,1-Trichloroethane	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130				
1,1,2-Trichloroethane	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130				
Trichloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.7	70-130				
Trichlorofluoromethane (Freon 11)	0.0167	0.010	mg/Kg wet	0.0200		83.3	70-130				
1,2,3-Trichloropropane	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130				
1,2,4-Trimethylbenzene	0.0175	0.0020	mg/Kg wet	0.0200		87.4	70-130				
1,3,5-Trimethylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130				
Vinyl Chloride	0.0165	0.010	mg/Kg wet	0.0200		82.3	70-130				
m+p Xylene	0.0390	0.0040	mg/Kg wet	0.0400		97.4	70-130				
o-Xylene	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0527*		mg/Kg wet	0.0500		105	70-130				
Surrogate: Toluene-d8	*0.0494*		mg/Kg wet	0.0500		98.7	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0511*		mg/Kg wet	0.0500		102	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B217803 - SW-846 5035													
LCS Dup (B217803-BSD1)				Prepared & Analyzed: 11/26/18									
Acetone	0.439	0.10	mg/Kg wet	0.200		**219**	*	40-160	**25.7**	*	20	L-02, R-05	†
tert-Amyl Methyl Ether (TAME)	0.0206	0.0010	mg/Kg wet	0.0200		103		70-130	0.388		20		
Benzene	0.0199	0.0020	mg/Kg wet	0.0200		99.6		70-130	4.20		20		
Bromobenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.5		70-130	1.11		20		
Bromochloromethane	0.0230	0.0020	mg/Kg wet	0.0200		115		70-130	2.73		20		
Bromodichloromethane	0.0202	0.0020	mg/Kg wet	0.0200		101		70-130	2.00		20		
Bromoform	0.0212	0.0020	mg/Kg wet	0.0200		106		70-130	5.73		20		
Bromomethane	0.0139	0.010	mg/Kg wet	0.0200		69.4		40-160	9.83		20	L-14, V-20, V-34	†
2-Butanone (MEK)	0.315	0.040	mg/Kg wet	0.200		158		40-160	**20.8**	*	20	L-14, R-05	†
n-Butylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		100		70-130	8.64		20		
sec-Butylbenzene	0.0204	0.0020	mg/Kg wet	0.0200		102		70-130	5.76		20		
tert-Butylbenzene	0.0198	0.0020	mg/Kg wet	0.0200		99.2		70-130	8.62		20		
tert-Butyl Ethyl Ether (TBEE)	0.0204	0.0010	mg/Kg wet	0.0200		102		70-130	0.588		20		
Carbon Disulfide	0.0198	0.0060	mg/Kg wet	0.0200		98.8		70-130	2.98		20		
Carbon Tetrachloride	0.0221	0.0020	mg/Kg wet	0.0200		111		70-130	1.09		20		
Chlorobenzene	0.0211	0.0020	mg/Kg wet	0.0200		106		70-130	6.15		20		
Chlorodibromomethane	0.0223	0.0010	mg/Kg wet	0.0200		111		70-130	0.538		20		
Chloroethane	0.0188	0.010	mg/Kg wet	0.0200		93.8		70-130	4.36		20		
Chloroform	0.0210	0.0040	mg/Kg wet	0.0200		105		70-130	6.79		20		
Chloromethane	0.0176	0.010	mg/Kg wet	0.0200		88.2		40-160	7.53		20		†
2-Chlorotoluene	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130	4.47		20		
4-Chlorotoluene	0.0207	0.0020	mg/Kg wet	0.0200		104		70-130	3.24		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0197	0.0020	mg/Kg wet	0.0200		98.7		70-130	5.42		20		
1,2-Dibromoethane (EDB)	0.0217	0.0010	mg/Kg wet	0.0200		108		70-130	0.555		20		
Dibromomethane	0.0218	0.0020	mg/Kg wet	0.0200		109		70-130	1.48		20		
1,2-Dichlorobenzene	0.0207	0.0020	mg/Kg wet	0.0200		103		70-130	3.84		20		
1,3-Dichlorobenzene	0.0209	0.0020	mg/Kg wet	0.0200		105		70-130	5.00		20		
1,4-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4		70-130	2.63		20		
Dichlorodifluoromethane (Freon 12)	0.0148	0.010	mg/Kg wet	0.0200		73.8		40-160	14.4		20		†
1,1-Dichloroethane	0.0208	0.0020	mg/Kg wet	0.0200		104		70-130	4.92		20		
1,2-Dichloroethane	0.0208	0.0020	mg/Kg wet	0.0200		104		70-130	0.482		20		
1,1-Dichloroethylene	0.0204	0.0040	mg/Kg wet	0.0200		102		70-130	8.78		20		
cis-1,2-Dichloroethylene	0.0197	0.0020	mg/Kg wet	0.0200		98.5		70-130	2.05		20		
trans-1,2-Dichloroethylene	0.0209	0.0020	mg/Kg wet	0.0200		104		70-130	5.91		20		
1,2-Dichloropropane	0.0203	0.0020	mg/Kg wet	0.0200		101		70-130	0.982		20		
1,3-Dichloropropane	0.0209	0.0010	mg/Kg wet	0.0200		104		70-130	5.51		20		
2,2-Dichloropropane	0.0205	0.0020	mg/Kg wet	0.0200		102		70-130	5.62		20		
1,1-Dichloropropene	0.0206	0.0020	mg/Kg wet	0.0200		103		70-130	1.17		20		
cis-1,3-Dichloropropene	0.0213	0.0010	mg/Kg wet	0.0200		106		70-130	3.15		20		
trans-1,3-Dichloropropene	0.0218	0.0010	mg/Kg wet	0.0200		109		70-130	4.22		20		
Diethyl Ether	0.0200	0.010	mg/Kg wet	0.0200		100		70-130	2.22		20		
Diisopropyl Ether (DIPE)	0.0209	0.0010	mg/Kg wet	0.0200		104		70-130	1.74		20		
1,4-Dioxane	0.191	0.10	mg/Kg wet	0.200		95.7		40-160	6.49		20	V-16, V-36	†
1,4-Dioxane (SIM)	0.192	0.040	mg/Kg wet	0.200		95.9		40-160	7.15		20	V-16, V-36	† ‡
Ethylbenzene	0.0196	0.0020	mg/Kg wet	0.0200		98.1		70-130	1.85		20		
Hexachlorobutadiene	0.0207	0.0020	mg/Kg wet	0.0200		103		70-130	5.98		20		
2-Hexanone (MBK)	0.261	0.020	mg/Kg wet	0.200		131		40-160	18.4		20	L-14	†
Isopropylbenzene (Cumene)	0.0216	0.0020	mg/Kg wet	0.0200		108		70-130	1.49		20		
p-Isopropyltoluene (p-Cymene)	0.0192	0.0020	mg/Kg wet	0.0200		96.0		70-130	6.45		20		
Methyl tert-Butyl Ether (MTBE)	0.0221	0.0040	mg/Kg wet	0.0200		110		70-130	3.60		20		
Methylene Chloride	0.0207	0.010	mg/Kg wet	0.0200		103		70-130	2.84		20		
4-Methyl-2-pentanone (MIBK)	0.212	0.020	mg/Kg wet	0.200		106		40-160	1.17		20		†

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes
Batch B217803 - SW-846 5035											
LCS Dup (B217803-BSD1)				Prepared & Analyzed: 11/26/18							
Naphthalene	0.0188	0.0040	mg/Kg wet	0.0200		94.0	70-130	1.83		20	
n-Propylbenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	5.85		20	
Styrene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	3.42		20	
1,1,1,2-Tetrachloroethane	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130	3.87		20	
1,1,2,2-Tetrachloroethane	0.0207	0.0010	mg/Kg wet	0.0200		104	70-130	5.86		20	
Tetrachloroethylene	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130	3.90		20	
Tetrahydrofuran	0.0226	0.010	mg/Kg wet	0.0200		113	70-130	**25.6**	*	20	V-16, V-20, R-05
Toluene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	2.52		20	
1,2,3-Trichlorobenzene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	5.97		20	
1,2,4-Trichlorobenzene	0.0225	0.0020	mg/Kg wet	0.0200		113	70-130	7.08		20	
1,1,1-Trichloroethane	0.0199	0.0020	mg/Kg wet	0.0200		99.3	70-130	2.96		20	
1,1,2-Trichloroethane	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130	7.64		20	
Trichloroethylene	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130	1.69		20	
Trichlorofluoromethane (Freon 11)	0.0180	0.010	mg/Kg wet	0.0200		89.8	70-130	7.51		20	
1,2,3-Trichloropropane	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	10.1		20	
1,2,4-Trimethylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130	11.7		20	
1,3,5-Trimethylbenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	3.10		20	
Vinyl Chloride	0.0171	0.010	mg/Kg wet	0.0200		85.7	70-130	4.05		20	
m+p Xylene	0.0393	0.0040	mg/Kg wet	0.0400		98.3	70-130	0.868		20	
o-Xylene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	4.79		20	
Surrogate: 1,2-Dichloroethane-d4	*0.0533*		mg/Kg wet	0.0500		107	70-130				
Surrogate: Toluene-d8	*0.0489*		mg/Kg wet	0.0500		97.9	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0510*		mg/Kg wet	0.0500		102	70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217777 - SW-846 3546										
Blank (B217777-BLK1)				Prepared: 11/24/18 Analyzed: 11/27/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-04
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217777 - SW-846 3546											
Blank (B217777-BLK1)				Prepared: 11/24/18 Analyzed: 11/27/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*4.91*		mg/Kg wet	6.67		73.6	30-130				
Surrogate: Phenol-d6	*5.09*		mg/Kg wet	6.67		76.4	30-130				
Surrogate: Nitrobenzene-d5	*2.51*		mg/Kg wet	3.33		75.4	30-130				
Surrogate: 2-Fluorobiphenyl	*2.06*		mg/Kg wet	3.33		61.8	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.29*		mg/Kg wet	6.67		79.3	30-130				
Surrogate: p-Terphenyl-d14	*2.72*		mg/Kg wet	3.33		81.6	30-130				
LCS (B217777-BS1)				Prepared: 11/24/18 Analyzed: 11/27/18							
Acenaphthene	1.02	0.17	mg/Kg wet	1.67		61.5	40-140				
Acenaphthylene	1.10	0.17	mg/Kg wet	1.67		66.3	40-140				
Acetophenone	1.02	0.34	mg/Kg wet	1.67		61.4	40-140				
Aniline	0.676	0.34	mg/Kg wet	1.67		40.5	40-140			V-04	
Anthracene	1.19	0.17	mg/Kg wet	1.67		71.6	40-140				
Benzo(a)anthracene	1.22	0.17	mg/Kg wet	1.67		73.1	40-140				
Benzo(a)pyrene	1.24	0.17	mg/Kg wet	1.67		74.1	40-140				
Benzo(b)fluoranthene	1.12	0.17	mg/Kg wet	1.67		67.3	40-140				
Benzo(g,h,i)perylene	1.29	0.17	mg/Kg wet	1.67		77.5	40-140				
Benzo(k)fluoranthene	1.19	0.17	mg/Kg wet	1.67		71.6	40-140				
Bis(2-chloroethoxy)methane	1.27	0.34	mg/Kg wet	1.67		76.2	40-140				
Bis(2-chloroethyl)ether	0.988	0.34	mg/Kg wet	1.67		59.3	40-140				
Bis(2-chloroisopropyl)ether	1.09	0.34	mg/Kg wet	1.67		65.5	40-140				
Bis(2-Ethylhexyl)phthalate	1.11	0.34	mg/Kg wet	1.67		66.8	40-140				
4-Bromophenylphenylether	1.35	0.34	mg/Kg wet	1.67		80.8	40-140				
Butylbenzylphthalate	1.13	0.34	mg/Kg wet	1.67		67.7	40-140				
4-Chloroaniline	0.645	0.66	mg/Kg wet	1.67		38.7	15-140			V-34	†
2-Chloronaphthalene	0.985	0.34	mg/Kg wet	1.67		59.1	40-140				
2-Chlorophenol	1.12	0.34	mg/Kg wet	1.67		67.1	30-130				
Chrysene	1.18	0.17	mg/Kg wet	1.67		70.7	40-140				
Dibenz(a,h)anthracene	1.17	0.17	mg/Kg wet	1.67		70.2	40-140				
Dibenzofuran	1.17	0.34	mg/Kg wet	1.67		70.3	40-140				
Di-n-butylphthalate	1.19	0.34	mg/Kg wet	1.67		71.4	40-140				
1,2-Dichlorobenzene	0.962	0.34	mg/Kg wet	1.67		57.7	40-140				
1,3-Dichlorobenzene	0.905	0.34	mg/Kg wet	1.67		54.3	40-140				
1,4-Dichlorobenzene	0.922	0.34	mg/Kg wet	1.67		55.3	40-140				
3,3-Dichlorobenzidine	0.952	0.17	mg/Kg wet	1.67		57.1	40-140				
2,4-Dichlorophenol	1.16	0.34	mg/Kg wet	1.67		69.9	30-130				
Diethylphthalate	1.15	0.34	mg/Kg wet	1.67		68.8	40-140				
2,4-Dimethylphenol	1.15	0.34	mg/Kg wet	1.67		68.7	30-130				
Dimethylphthalate	1.19	0.34	mg/Kg wet	1.67		71.5	40-140				
2,4-Dinitrophenol	0.907	0.66	mg/Kg wet	1.67		54.4	15-140				†
2,4-Dinitrotoluene	1.18	0.34	mg/Kg wet	1.67		70.7	40-140				
2,6-Dinitrotoluene	1.25	0.34	mg/Kg wet	1.67		74.9	40-140				
Di-n-octylphthalate	1.06	0.34	mg/Kg wet	1.67		63.4	40-140				
1,2-Diphenylhydrazine/Azobenzene	1.05	0.34	mg/Kg wet	1.67		62.8	40-140				
Fluoranthene	1.28	0.17	mg/Kg wet	1.67		76.9	40-140				
Fluorene	1.14	0.17	mg/Kg wet	1.67		68.7	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B217777 - SW-846 3546											
LCS (B217777-BS1)				Prepared: 11/24/18 Analyzed: 11/27/18							
Hexachlorobenzene	1.32	0.34	mg/Kg wet	1.67		79.4	40-140				
Hexachlorobutadiene	1.11	0.34	mg/Kg wet	1.67		66.6	40-140				
Hexachloroethane	0.894	0.34	mg/Kg wet	1.67		53.6	40-140				
Indeno(1,2,3-cd)pyrene	1.18	0.17	mg/Kg wet	1.67		71.0	40-140				
Isophorone	1.15	0.34	mg/Kg wet	1.67		69.1	40-140				
2-Methylnaphthalene	1.22	0.17	mg/Kg wet	1.67		73.3	40-140				
2-Methylphenol	1.14	0.34	mg/Kg wet	1.67		68.4	30-130				
3/4-Methylphenol	1.05	0.34	mg/Kg wet	1.67		63.0	30-130				
Naphthalene	1.07	0.17	mg/Kg wet	1.67		64.3	40-140				
Nitrobenzene	1.00	0.34	mg/Kg wet	1.67		60.2	40-140				
2-Nitrophenol	1.10	0.34	mg/Kg wet	1.67		66.1	30-130				
4-Nitrophenol	1.10	0.66	mg/Kg wet	1.67		65.8	15-140				†
Pentachlorophenol	0.914	0.34	mg/Kg wet	1.67		54.8	30-130				
Phenanthrene	1.19	0.17	mg/Kg wet	1.67		71.4	40-140				
Phenol	1.08	0.34	mg/Kg wet	1.67		64.6	15-140				†
Pyrene	1.15	0.17	mg/Kg wet	1.67		68.8	40-140				
Pyridine	0.638	0.34	mg/Kg wet	1.67		38.3	30-140				†
1,2,4-Trichlorobenzene	1.11	0.34	mg/Kg wet	1.67		66.5	40-140				
2,4,5-Trichlorophenol	1.18	0.34	mg/Kg wet	1.67		70.7	30-130				
2,4,6-Trichlorophenol	1.23	0.34	mg/Kg wet	1.67		73.9	30-130				
Surrogate: 2-Fluorophenol	*4.41*		mg/Kg wet	6.67		66.2	30-130				
Surrogate: Phenol-d6	*4.70*		mg/Kg wet	6.67		70.5	30-130				
Surrogate: Nitrobenzene-d5	*2.25*		mg/Kg wet	3.33		67.4	30-130				
Surrogate: 2-Fluorobiphenyl	*2.12*		mg/Kg wet	3.33		63.7	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.19*		mg/Kg wet	6.67		77.9	30-130				
Surrogate: p-Terphenyl-d14	*2.58*		mg/Kg wet	3.33		77.5	30-130				
LCS Dup (B217777-BSD1)				Prepared: 11/24/18 Analyzed: 11/27/18							
Acenaphthene	1.05	0.17	mg/Kg wet	1.67		62.7	40-140	2.03	30		
Acenaphthylene	1.16	0.17	mg/Kg wet	1.67		69.4	40-140	4.57	30		
Acetophenone	1.07	0.34	mg/Kg wet	1.67		64.0	40-140	4.18	30		
Aniline	0.781	0.34	mg/Kg wet	1.67		46.8	40-140	14.4	30	V-04	
Anthracene	1.26	0.17	mg/Kg wet	1.67		75.9	40-140	5.86	30		
Benzo(a)anthracene	1.28	0.17	mg/Kg wet	1.67		76.9	40-140	5.12	30		
Benzo(a)pyrene	1.32	0.17	mg/Kg wet	1.67		79.2	40-140	6.63	30		
Benzo(b)fluoranthene	1.21	0.17	mg/Kg wet	1.67		72.5	40-140	7.35	30		
Benzo(g,h,i)perylene	1.36	0.17	mg/Kg wet	1.67		81.7	40-140	5.20	30		
Benzo(k)fluoranthene	1.27	0.17	mg/Kg wet	1.67		76.1	40-140	6.15	30		
Bis(2-chloroethoxy)methane	1.33	0.34	mg/Kg wet	1.67		79.9	40-140	4.71	30		
Bis(2-chloroethyl)ether	1.02	0.34	mg/Kg wet	1.67		61.5	40-140	3.71	30		
Bis(2-chloroisopropyl)ether	1.11	0.34	mg/Kg wet	1.67		66.5	40-140	1.55	30		
Bis(2-Ethylhexyl)phthalate	1.17	0.34	mg/Kg wet	1.67		70.4	40-140	5.31	30		
4-Bromophenylphenylether	1.42	0.34	mg/Kg wet	1.67		85.0	40-140	5.02	30		
Butylbenzylphthalate	1.19	0.34	mg/Kg wet	1.67		71.4	40-140	5.32	30		
4-Chloroaniline	0.643	0.66	mg/Kg wet	1.67		38.6	15-140	0.362	30	V-34	†
2-Chloronaphthalene	1.10	0.34	mg/Kg wet	1.67		66.2	40-140	11.4	30		
2-Chlorophenol	1.18	0.34	mg/Kg wet	1.67		70.6	30-130	5.08	30		
Chrysene	1.25	0.17	mg/Kg wet	1.67		74.7	40-140	5.58	30		
Dibenz(a,h)anthracene	1.24	0.17	mg/Kg wet	1.67		74.3	40-140	5.70	30		
Dibenzofuran	1.23	0.34	mg/Kg wet	1.67		73.8	40-140	4.91	30		
Di-n-butylphthalate	1.27	0.34	mg/Kg wet	1.67		76.4	40-140	6.77	30		
1,2-Dichlorobenzene	0.976	0.34	mg/Kg wet	1.67		58.5	40-140	1.45	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217777 - SW-846 3546										
LCS Dup (B217777-BSD1)				Prepared: 11/24/18 Analyzed: 11/27/18						
1,3-Dichlorobenzene	0.919	0.34	mg/Kg wet	1.67		55.2	40-140	1.61	30	
1,4-Dichlorobenzene	0.936	0.34	mg/Kg wet	1.67		56.2	40-140	1.58	30	
3,3-Dichlorobenzidine	0.995	0.17	mg/Kg wet	1.67		59.7	40-140	4.42	30	
2,4-Dichlorophenol	1.23	0.34	mg/Kg wet	1.67		73.7	30-130	5.35	30	
Diethylphthalate	1.21	0.34	mg/Kg wet	1.67		72.7	40-140	5.54	30	
2,4-Dimethylphenol	1.19	0.34	mg/Kg wet	1.67		71.2	30-130	3.54	30	
Dimethylphthalate	1.24	0.34	mg/Kg wet	1.67		74.3	40-140	3.84	30	
2,4-Dinitrophenol	0.961	0.66	mg/Kg wet	1.67		57.7	15-140	5.82	30	†
2,4-Dinitrotoluene	1.25	0.34	mg/Kg wet	1.67		74.8	40-140	5.55	30	
2,6-Dinitrotoluene	1.30	0.34	mg/Kg wet	1.67		77.9	40-140	3.98	30	
Di-n-octylphthalate	1.13	0.34	mg/Kg wet	1.67		67.7	40-140	6.50	30	
1,2-Diphenylhydrazine/Azobenzene	1.11	0.34	mg/Kg wet	1.67		66.4	40-140	5.48	30	
Fluoranthene	1.35	0.17	mg/Kg wet	1.67		81.3	40-140	5.49	30	
Fluorene	1.20	0.17	mg/Kg wet	1.67		72.2	40-140	5.03	30	
Hexachlorobenzene	1.40	0.34	mg/Kg wet	1.67		83.8	40-140	5.32	30	
Hexachlorobutadiene	1.17	0.34	mg/Kg wet	1.67		70.4	40-140	5.66	30	
Hexachloroethane	0.907	0.34	mg/Kg wet	1.67		54.4	40-140	1.41	30	
Indeno(1,2,3-cd)pyrene	1.27	0.17	mg/Kg wet	1.67		76.3	40-140	7.11	30	
Isophorone	1.22	0.34	mg/Kg wet	1.67		73.4	40-140	6.04	30	
2-Methylnaphthalene	1.29	0.17	mg/Kg wet	1.67		77.3	40-140	5.23	30	
2-Methylphenol	1.20	0.34	mg/Kg wet	1.67		71.9	30-130	4.93	30	
3/4-Methylphenol	1.10	0.34	mg/Kg wet	1.67		65.9	30-130	4.53	30	
Naphthalene	1.13	0.17	mg/Kg wet	1.67		68.1	40-140	5.77	30	
Nitrobenzene	1.05	0.34	mg/Kg wet	1.67		62.9	40-140	4.29	30	
2-Nitrophenol	1.18	0.34	mg/Kg wet	1.67		70.5	30-130	6.53	30	
4-Nitrophenol	1.17	0.66	mg/Kg wet	1.67		70.1	15-140	6.45	30	†
Pentachlorophenol	0.959	0.34	mg/Kg wet	1.67		57.6	30-130	4.88	30	
Phenanthrene	1.26	0.17	mg/Kg wet	1.67		75.6	40-140	5.63	30	
Phenol	1.13	0.34	mg/Kg wet	1.67		67.6	15-140	4.54	30	†
Pyrene	1.21	0.17	mg/Kg wet	1.67		72.6	40-140	5.40	30	
Pyridine	0.649	0.34	mg/Kg wet	1.67		39.0	30-140	1.81	30	†
1,2,4-Trichlorobenzene	1.17	0.34	mg/Kg wet	1.67		70.1	40-140	5.21	30	
2,4,5-Trichlorophenol	1.24	0.34	mg/Kg wet	1.67		74.5	30-130	5.18	30	
2,4,6-Trichlorophenol	1.28	0.34	mg/Kg wet	1.67		76.9	30-130	4.01	30	
Surrogate: 2-Fluorophenol	*4.52*		mg/Kg wet	6.67		67.9	30-130			
Surrogate: Phenol-d6	*4.82*		mg/Kg wet	6.67		72.2	30-130			
Surrogate: Nitrobenzene-d5	*2.33*		mg/Kg wet	3.33		69.8	30-130			
Surrogate: 2-Fluorobiphenyl	*2.15*		mg/Kg wet	3.33		64.6	30-130			
Surrogate: 2,4,6-Tribromophenol	*5.31*		mg/Kg wet	6.67		79.7	30-130			
Surrogate: p-Terphenyl-d14	*2.66*		mg/Kg wet	3.33		79.9	30-130			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217863 - SW-846 3546										
Blank (B217863-BLK1)				Prepared: 11/26/18 Analyzed: 11/28/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.171*		mg/Kg wet	0.200		85.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.159*		mg/Kg wet	0.200		79.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.0773*		mg/Kg wet	0.200		38.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0735*		mg/Kg wet	0.200		36.8	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217863 - SW-846 3546										
LCS (B217863-BS1)				Prepared: 11/26/18 Analyzed: 11/28/18						
alpha-Chlordane	0.089	0.0050	mg/Kg wet	0.100		88.7	40-140			
alpha-Chlordane [2C]	0.082	0.0050	mg/Kg wet	0.100		81.6	40-140			
gamma-Chlordane	0.086	0.0050	mg/Kg wet	0.100		85.8	40-140			
gamma-Chlordane [2C]	0.081	0.0050	mg/Kg wet	0.100		80.8	40-140			
Alachlor	0.065	0.020	mg/Kg wet	0.100		64.5	40-140			
Alachlor [2C]	0.065	0.020	mg/Kg wet	0.100		64.5	40-140			
Aldrin	0.081	0.0050	mg/Kg wet	0.100		80.8	40-140			
Aldrin [2C]	0.073	0.0050	mg/Kg wet	0.100		73.1	40-140			
alpha-BHC	0.053	0.0050	mg/Kg wet	0.100		53.2	40-140			
alpha-BHC [2C]	0.052	0.0050	mg/Kg wet	0.100		51.8	40-140			
beta-BHC	0.062	0.0050	mg/Kg wet	0.100		62.3	40-140			
beta-BHC [2C]	0.059	0.0050	mg/Kg wet	0.100		59.3	40-140			
delta-BHC	0.066	0.0050	mg/Kg wet	0.100		66.0	40-140			
delta-BHC [2C]	0.064	0.0050	mg/Kg wet	0.100		63.7	40-140			
gamma-BHC (Lindane)	0.061	0.0020	mg/Kg wet	0.100		60.8	40-140			
gamma-BHC (Lindane) [2C]	0.057	0.0020	mg/Kg wet	0.100		56.6	40-140			
4,4'-DDD	0.10	0.0040	mg/Kg wet	0.100		99.6	40-140			
4,4'-DDD [2C]	0.086	0.0040	mg/Kg wet	0.100		86.3	40-140			
4,4'-DDE	0.098	0.0040	mg/Kg wet	0.100		97.6	40-140			
4,4'-DDE [2C]	0.085	0.0040	mg/Kg wet	0.100		85.2	40-140			
4,4'-DDT	0.10	0.0040	mg/Kg wet	0.100		101	40-140			
4,4'-DDT [2C]	0.090	0.0040	mg/Kg wet	0.100		89.5	40-140			
Dieldrin	0.093	0.0040	mg/Kg wet	0.100		92.6	40-140			
Dieldrin [2C]	0.079	0.0040	mg/Kg wet	0.100		79.2	40-140			
Endosulfan I	0.088	0.0050	mg/Kg wet	0.100		87.8	40-140			
Endosulfan I [2C]	0.080	0.0050	mg/Kg wet	0.100		79.9	40-140			
Endosulfan II	0.092	0.0080	mg/Kg wet	0.100		91.8	40-140			
Endosulfan II [2C]	0.084	0.0080	mg/Kg wet	0.100		84.3	40-140			
Endosulfan Sulfate	0.088	0.0080	mg/Kg wet	0.100		87.7	40-140			
Endosulfan Sulfate [2C]	0.081	0.0080	mg/Kg wet	0.100		80.9	40-140			
Endrin	0.093	0.0080	mg/Kg wet	0.100		93.1	40-140			
Endrin [2C]	0.084	0.0080	mg/Kg wet	0.100		84.2	40-140			
Endrin Aldehyde	0.092	0.0080	mg/Kg wet	0.100		91.6	40-140			
Endrin Aldehyde [2C]	0.085	0.0080	mg/Kg wet	0.100		85.3	40-140			
Endrin Ketone	0.093	0.0080	mg/Kg wet	0.100		92.9	40-140			
Endrin Ketone [2C]	0.087	0.0080	mg/Kg wet	0.100		86.6	40-140			
Heptachlor	0.059	0.0050	mg/Kg wet	0.100		59.4	40-140			
Heptachlor [2C]	0.069	0.0050	mg/Kg wet	0.100		68.8	40-140			
Heptachlor Epoxide	0.082	0.0050	mg/Kg wet	0.100		82.0	40-140			
Heptachlor Epoxide [2C]	0.076	0.0050	mg/Kg wet	0.100		75.5	40-140			
Hexachlorobenzene	0.058	0.0060	mg/Kg wet	0.100		57.8	40-140			
Hexachlorobenzene [2C]	0.055	0.0060	mg/Kg wet	0.100		54.5	40-140			
Methoxychlor	0.11	0.050	mg/Kg wet	0.100		107	40-140			
Methoxychlor [2C]	0.10	0.050	mg/Kg wet	0.100		102	40-140			
Surrogate: Decachlorobiphenyl	*0.176*		mg/Kg wet	0.200		88.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.163*		mg/Kg wet	0.200		81.7	30-150			
Surrogate: Tetrachloro-m-xylene	*0.106*		mg/Kg wet	0.200		53.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.101*		mg/Kg wet	0.200		50.7	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217863 - SW-846 3546										
LCS Dup (B217863-BSD1)				Prepared: 11/26/18 Analyzed: 11/28/18						
alpha-Chlordane	0.087	0.0050	mg/Kg wet	0.100		87.0	40-140	1.95	30	
alpha-Chlordane [2C]	0.079	0.0050	mg/Kg wet	0.100		79.5	40-140	2.69	30	
gamma-Chlordane	0.085	0.0050	mg/Kg wet	0.100		84.9	40-140	1.13	30	
gamma-Chlordane [2C]	0.079	0.0050	mg/Kg wet	0.100		79.3	40-140	1.85	30	
Alachlor	0.068	0.020	mg/Kg wet	0.100		68.0	40-140	5.27	30	
Alachlor [2C]	0.067	0.020	mg/Kg wet	0.100		66.8	40-140	3.45	30	
Aldrin	0.083	0.0050	mg/Kg wet	0.100		82.7	40-140	2.23	30	
Aldrin [2C]	0.074	0.0050	mg/Kg wet	0.100		73.9	40-140	1.09	30	
alpha-BHC	0.060	0.0050	mg/Kg wet	0.100		59.5	40-140	11.2	30	
alpha-BHC [2C]	0.057	0.0050	mg/Kg wet	0.100		57.3	40-140	10.1	30	
beta-BHC	0.069	0.0050	mg/Kg wet	0.100		68.8	40-140	9.90	30	
beta-BHC [2C]	0.065	0.0050	mg/Kg wet	0.100		64.6	40-140	8.59	30	
delta-BHC	0.070	0.0050	mg/Kg wet	0.100		70.0	40-140	5.85	30	
delta-BHC [2C]	0.067	0.0050	mg/Kg wet	0.100		67.0	40-140	5.08	30	
gamma-BHC (Lindane)	0.067	0.0020	mg/Kg wet	0.100		66.8	40-140	9.34	30	
gamma-BHC (Lindane) [2C]	0.062	0.0020	mg/Kg wet	0.100		61.6	40-140	8.61	30	
4,4'-DDD	0.094	0.0040	mg/Kg wet	0.100		94.2	40-140	5.57	30	
4,4'-DDD [2C]	0.082	0.0040	mg/Kg wet	0.100		81.8	40-140	5.29	30	
4,4'-DDE	0.094	0.0040	mg/Kg wet	0.100		93.5	40-140	4.32	30	
4,4'-DDE [2C]	0.081	0.0040	mg/Kg wet	0.100		81.4	40-140	4.48	30	
4,4'-DDT	0.096	0.0040	mg/Kg wet	0.100		95.7	40-140	5.61	30	
4,4'-DDT [2C]	0.084	0.0040	mg/Kg wet	0.100		84.4	40-140	5.88	30	
Dieldrin	0.090	0.0040	mg/Kg wet	0.100		89.7	40-140	3.19	30	
Dieldrin [2C]	0.076	0.0040	mg/Kg wet	0.100		76.5	40-140	3.51	30	
Endosulfan I	0.086	0.0050	mg/Kg wet	0.100		86.0	40-140	2.08	30	
Endosulfan I [2C]	0.078	0.0050	mg/Kg wet	0.100		77.8	40-140	2.66	30	
Endosulfan II	0.088	0.0080	mg/Kg wet	0.100		87.8	40-140	4.41	30	
Endosulfan II [2C]	0.081	0.0080	mg/Kg wet	0.100		80.6	40-140	4.38	30	
Endosulfan Sulfate	0.083	0.0080	mg/Kg wet	0.100		82.5	40-140	6.07	30	
Endosulfan Sulfate [2C]	0.078	0.0080	mg/Kg wet	0.100		77.6	40-140	4.21	30	
Endrin	0.090	0.0080	mg/Kg wet	0.100		89.7	40-140	3.73	30	
Endrin [2C]	0.081	0.0080	mg/Kg wet	0.100		80.8	40-140	4.01	30	
Endrin Aldehyde	0.094	0.0080	mg/Kg wet	0.100		93.8	40-140	2.39	30	
Endrin Aldehyde [2C]	0.087	0.0080	mg/Kg wet	0.100		86.6	40-140	1.52	30	
Endrin Ketone	0.088	0.0080	mg/Kg wet	0.100		88.4	40-140	4.97	30	
Endrin Ketone [2C]	0.083	0.0080	mg/Kg wet	0.100		82.9	40-140	4.27	30	
Heptachlor	0.062	0.0050	mg/Kg wet	0.100		62.0	40-140	4.27	30	
Heptachlor [2C]	0.071	0.0050	mg/Kg wet	0.100		70.7	40-140	2.76	30	
Heptachlor Epoxide	0.082	0.0050	mg/Kg wet	0.100		82.3	40-140	0.419	30	
Heptachlor Epoxide [2C]	0.075	0.0050	mg/Kg wet	0.100		75.0	40-140	0.695	30	
Hexachlorobenzene	0.063	0.0060	mg/Kg wet	0.100		63.4	40-140	9.17	30	
Hexachlorobenzene [2C]	0.059	0.0060	mg/Kg wet	0.100		59.1	40-140	8.09	30	
Methoxychlor	0.10	0.050	mg/Kg wet	0.100		101	40-140	5.62	30	
Methoxychlor [2C]	0.096	0.050	mg/Kg wet	0.100		96.3	40-140	6.11	30	
Surrogate: Decachlorobiphenyl	*0.173*		mg/Kg wet	0.200		86.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.161*		mg/Kg wet	0.200		80.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.145*		mg/Kg wet	0.200		72.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.134*		mg/Kg wet	0.200		67.2	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217863 - SW-846 3546										
Matrix Spike (B217863-MS1)	**Source: 18K0931-01**			Prepared: 11/26/18 Analyzed: 11/29/18						
Alachlor	0.057	0.023	mg/Kg dry	0.114	ND	49.9	30-150			
Alachlor [2C]	0.054	0.023	mg/Kg dry	0.114	ND	47.5	30-150			
Aldrin	0.082	0.0057	mg/Kg dry	0.114	ND	71.7	30-150			
Aldrin [2C]	0.073	0.0057	mg/Kg dry	0.114	ND	63.8	30-150			
alpha-BHC	0.043	0.0057	mg/Kg dry	0.114	ND	37.9	30-150			
alpha-BHC [2C]	0.042	0.0057	mg/Kg dry	0.114	ND	36.5	30-150			
beta-BHC	0.062	0.0057	mg/Kg dry	0.114	ND	54.1	30-150			
beta-BHC [2C]	0.058	0.0057	mg/Kg dry	0.114	ND	50.7	30-150			
delta-BHC	0.066	0.0057	mg/Kg dry	0.114	ND	58.3	30-150			
delta-BHC [2C]	0.063	0.0057	mg/Kg dry	0.114	ND	54.9	30-150			
gamma-BHC (Lindane)	0.054	0.0023	mg/Kg dry	0.114	ND	47.2	30-150			
gamma-BHC (Lindane) [2C]	0.050	0.0023	mg/Kg dry	0.114	ND	43.4	30-150			
4,4'-DDD	0.10	0.0046	mg/Kg dry	0.114	ND	90.0	30-150			
4,4'-DDD [2C]	0.092	0.0046	mg/Kg dry	0.114	ND	81.0	30-150			
4,4'-DDE	0.10	0.0046	mg/Kg dry	0.114	ND	91.0	30-150			
4,4'-DDE [2C]	0.094	0.0046	mg/Kg dry	0.114	ND	82.6	30-150			
4,4'-DDT	0.11	0.0046	mg/Kg dry	0.114	0.0078	92.2	30-150			
4,4'-DDT [2C]	0.098	0.0046	mg/Kg dry	0.114	0.0063	80.6	30-150			
Dieldrin	0.095	0.0046	mg/Kg dry	0.114	ND	83.0	30-150			
Dieldrin [2C]	0.082	0.0046	mg/Kg dry	0.114	ND	71.6	30-150			
Endosulfan I	0.092	0.0057	mg/Kg dry	0.114	ND	80.5	30-150			
Endosulfan I [2C]	0.082	0.0057	mg/Kg dry	0.114	ND	72.1	30-150			
Endosulfan II	0.096	0.0091	mg/Kg dry	0.114	ND	84.0	30-150			
Endosulfan II [2C]	0.093	0.0091	mg/Kg dry	0.114	ND	81.1	30-150			
Endosulfan Sulfate	0.076	0.0091	mg/Kg dry	0.114	ND	66.7	30-150			
Endosulfan Sulfate [2C]	0.080	0.0091	mg/Kg dry	0.114	ND	70.2	30-150			
Endrin	0.070	0.0091	mg/Kg dry	0.114	ND	61.7	30-150			
Endrin [2C]	0.063	0.0091	mg/Kg dry	0.114	ND	55.6	30-150			
Endrin Aldehyde	0.097	0.0091	mg/Kg dry	0.114	ND	85.3	30-150			
Endrin Aldehyde [2C]	0.10	0.0091	mg/Kg dry	0.114	ND	88.1	30-150			
Endrin Ketone	0.12	0.0091	mg/Kg dry	0.114	ND	108	30-150			
Endrin Ketone [2C]	0.12	0.0091	mg/Kg dry	0.114	ND	103	30-150			
Heptachlor	0.060	0.0057	mg/Kg dry	0.114	ND	52.7	30-150			
Heptachlor [2C]	0.067	0.0057	mg/Kg dry	0.114	ND	58.5	30-150			
Heptachlor Epoxide	0.084	0.0057	mg/Kg dry	0.114	ND	73.8	30-150			
Heptachlor Epoxide [2C]	0.076	0.0057	mg/Kg dry	0.114	ND	66.8	30-150			
Hexachlorobenzene	0.051	0.0068	mg/Kg dry	0.114	ND	44.7	30-150			
Hexachlorobenzene [2C]	0.047	0.0068	mg/Kg dry	0.114	ND	41.4	30-150			
Methoxychlor	0.11	0.057	mg/Kg dry	0.114	ND	96.5	30-150			
Methoxychlor [2C]	0.11	0.057	mg/Kg dry	0.114	ND	99.3	30-150			
Surrogate: Decachlorobiphenyl	*0.244*		mg/Kg dry	0.228		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.229*		mg/Kg dry	0.228		100	30-150			
Surrogate: Tetrachloro-m-xylene	*0.115*		mg/Kg dry	0.228		50.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.105*		mg/Kg dry	0.228		46.2	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B217863 - SW-846 3546											
Matrix Spike Dup (B217863-MSD1)	**Source: 18K0931-01**			Prepared: 11/26/18 Analyzed: 11/29/18							
Alachlor	0.059	0.023	mg/Kg dry	0.114	ND	51.5		30-150	3.19	30	
Alachlor [2C]	0.057	0.023	mg/Kg dry	0.114	ND	49.7		30-150	4.70	30	
Aldrin	0.071	0.0057	mg/Kg dry	0.114	ND	62.5		30-150	13.7	30	
Aldrin [2C]	0.064	0.0057	mg/Kg dry	0.114	ND	55.8		30-150	13.5	30	
alpha-BHC	0.035	0.0057	mg/Kg dry	0.114	ND	30.3		30-150	22.2	30	
alpha-BHC [2C]	0.034	0.0057	mg/Kg dry	0.114	ND	**29.9**	*	30-150	19.8	30	MS-22
beta-BHC	0.051	0.0057	mg/Kg dry	0.114	ND	45.1		30-150	18.1	30	
beta-BHC [2C]	0.048	0.0057	mg/Kg dry	0.114	ND	42.4		30-150	17.7	30	
delta-BHC	0.056	0.0057	mg/Kg dry	0.114	ND	49.5		30-150	16.4	30	
delta-BHC [2C]	0.054	0.0057	mg/Kg dry	0.114	ND	47.1		30-150	15.2	30	
gamma-BHC (Lindane)	0.044	0.0023	mg/Kg dry	0.114	ND	38.8		30-150	19.5	30	
gamma-BHC (Lindane) [2C]	0.041	0.0023	mg/Kg dry	0.114	ND	36.2		30-150	18.3	30	
4,4'-DDD	0.094	0.0046	mg/Kg dry	0.114	ND	82.2		30-150	9.08	30	
4,4'-DDD [2C]	0.085	0.0046	mg/Kg dry	0.114	ND	74.3		30-150	8.68	30	
4,4'-DDE	0.093	0.0046	mg/Kg dry	0.114	ND	81.9		30-150	10.5	30	
4,4'-DDE [2C]	0.085	0.0046	mg/Kg dry	0.114	ND	74.2		30-150	10.7	30	
4,4'-DDT	0.10	0.0046	mg/Kg dry	0.114	0.0078	81.5		30-150	11.5	30	
4,4'-DDT [2C]	0.088	0.0046	mg/Kg dry	0.114	0.0063	71.5		30-150	11.1	30	
Dieldrin	0.086	0.0046	mg/Kg dry	0.114	ND	75.6		30-150	9.30	30	
Dieldrin [2C]	0.075	0.0046	mg/Kg dry	0.114	ND	65.6		30-150	8.70	30	
Endosulfan I	0.082	0.0057	mg/Kg dry	0.114	ND	72.0		30-150	11.2	30	
Endosulfan I [2C]	0.074	0.0057	mg/Kg dry	0.114	ND	64.8		30-150	10.7	30	
Endosulfan II	0.087	0.0091	mg/Kg dry	0.114	ND	76.6		30-150	9.25	30	
Endosulfan II [2C]	0.084	0.0091	mg/Kg dry	0.114	ND	73.8		30-150	9.50	30	
Endosulfan Sulfate	0.077	0.0091	mg/Kg dry	0.114	ND	67.8		30-150	1.60	30	
Endosulfan Sulfate [2C]	0.074	0.0091	mg/Kg dry	0.114	ND	65.1		30-150	7.53	30	
Endrin	0.088	0.0091	mg/Kg dry	0.114	ND	77.5		30-150	22.8	30	
Endrin [2C]	0.080	0.0091	mg/Kg dry	0.114	ND	70.2		30-150	23.3	30	
Endrin Aldehyde	0.099	0.0091	mg/Kg dry	0.114	ND	86.7		30-150	1.59	30	
Endrin Aldehyde [2C]	0.10	0.0091	mg/Kg dry	0.114	ND	88.2		30-150	0.132	30	
Endrin Ketone	0.094	0.0091	mg/Kg dry	0.114	ND	82.0		30-150	27.6	30	
Endrin Ketone [2C]	0.091	0.0091	mg/Kg dry	0.114	ND	79.8		30-150	25.0	30	
Heptachlor	0.051	0.0057	mg/Kg dry	0.114	ND	44.9		30-150	15.9	30	
Heptachlor [2C]	0.058	0.0057	mg/Kg dry	0.114	ND	50.5		30-150	14.7	30	
Heptachlor Epoxide	0.074	0.0057	mg/Kg dry	0.114	ND	65.1		30-150	12.5	30	
Heptachlor Epoxide [2C]	0.067	0.0057	mg/Kg dry	0.114	ND	59.0		30-150	12.4	30	
Hexachlorobenzene	0.042	0.0068	mg/Kg dry	0.114	ND	37.2		30-150	18.2	30	
Hexachlorobenzene [2C]	0.040	0.0068	mg/Kg dry	0.114	ND	34.7		30-150	17.7	30	
Methoxychlor	0.10	0.057	mg/Kg dry	0.114	ND	88.0		30-150	9.23	30	
Methoxychlor [2C]	0.10	0.057	mg/Kg dry	0.114	ND	88.3		30-150	11.6	30	
Surrogate: Decachlorobiphenyl	*0.243*		mg/Kg dry	0.228		107		30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.230*		mg/Kg dry	0.228		101		30-150			
Surrogate: Tetrachloro-m-xylene	*0.110*		mg/Kg dry	0.228		48.3		30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.101*		mg/Kg dry	0.228		44.3		30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217862 - SW-846 3546										
Blank (B217862-BLK1)				Prepared: 11/26/18 Analyzed: 11/27/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.184*		mg/Kg wet	0.200		92.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.183*		mg/Kg wet	0.200		91.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.165*		mg/Kg wet	0.200		82.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.155*		mg/Kg wet	0.200		77.3	30-150			
LCS (B217862-BS1)				Prepared: 11/26/18 Analyzed: 11/27/18						
Aroclor-1016	0.16	0.020	mg/Kg wet	0.200		82.3	40-140			
Aroclor-1016 [2C]	0.16	0.020	mg/Kg wet	0.200		81.2	40-140			
Aroclor-1260	0.17	0.020	mg/Kg wet	0.200		86.1	40-140			
Aroclor-1260 [2C]	0.17	0.020	mg/Kg wet	0.200		86.7	40-140			
Surrogate: Decachlorobiphenyl	*0.190*		mg/Kg wet	0.200		95.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.190*		mg/Kg wet	0.200		94.8	30-150			
Surrogate: Tetrachloro-m-xylene	*0.169*		mg/Kg wet	0.200		84.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.159*		mg/Kg wet	0.200		79.4	30-150			
LCS Dup (B217862-BSD1)				Prepared: 11/26/18 Analyzed: 11/27/18						
Aroclor-1016	0.18	0.020	mg/Kg wet	0.200		90.1	40-140	8.97	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		88.8	40-140	8.98	30	
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		94.1	40-140	8.85	30	
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		94.9	40-140	9.10	30	
Surrogate: Decachlorobiphenyl	*0.206*		mg/Kg wet	0.200		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.205*		mg/Kg wet	0.200		102	30-150			
Surrogate: Tetrachloro-m-xylene	*0.184*		mg/Kg wet	0.200		92.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.174*		mg/Kg wet	0.200		87.2	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217799 - SW-846 8151										
Blank (B217799-BLK1)				Prepared: 11/26/18 Analyzed: 11/29/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*66.0*		µg/kg wet	95.2		69.3	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*63.3*		µg/kg wet	95.2		66.4	30-150			
LCS (B217799-BS1)				Prepared: 11/26/18 Analyzed: 11/29/18						
2,4-D	104	25	µg/kg wet	125		83.3	40-140			
2,4-D [2C]	108	25	µg/kg wet	125		86.1	40-140			
2,4-DB	107	25	µg/kg wet	125		85.7	40-140			
2,4-DB [2C]	105	25	µg/kg wet	125		83.8	40-140			
2,4,5-TP (Silvex)	10.7	2.5	µg/kg wet	12.5		85.4	40-140			
2,4,5-TP (Silvex) [2C]	11.0	2.5	µg/kg wet	12.5		88.1	40-140			
2,4,5-T	10.4	2.5	µg/kg wet	12.5		82.9	40-140			
2,4,5-T [2C]	11.6	2.5	µg/kg wet	12.5		93.1	40-140			
Dalapon	179	62	µg/kg wet	312		57.3	40-140			
Dalapon [2C]	174	62	µg/kg wet	312		55.7	40-140			
Dicamba	10.8	2.5	µg/kg wet	12.5		86.2	40-140			
Dicamba [2C]	10.5	2.5	µg/kg wet	12.5		83.7	40-140			
Dichloroprop	118	25	µg/kg wet	125		94.2	40-140			
Dichloroprop [2C]	108	25	µg/kg wet	125		86.7	40-140			
Dinoseb	13.5	12	µg/kg wet	62.5		21.6	0-42.4			
Dinoseb [2C]	13.8	12	µg/kg wet	62.5		22.1	0-41.1			
MCPA	10300	2500	µg/kg wet	12500		82.5	40-140			
MCPA [2C]	9370	2500	µg/kg wet	12500		74.9	40-140			
MCPP	13700	2500	µg/kg wet	12500		110	40-140			
MCPP [2C]	9600	2500	µg/kg wet	12500		76.8	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*80.7*		µg/kg wet	100		80.7	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*78.0*		µg/kg wet	100		78.0	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217799 - SW-846 8151										
LCS Dup (B217799-BSD1)				Prepared: 11/26/18 Analyzed: 11/29/18						
2,4-D	97.9	25	µg/kg wet	125		78.3	40-140	6.21	30	
2,4-D [2C]	101	25	µg/kg wet	125		80.6	40-140	6.57	30	
2,4-DB	100	25	µg/kg wet	125		80.3	40-140	6.49	30	
2,4-DB [2C]	101	25	µg/kg wet	125		80.8	40-140	3.67	30	
2,4,5-TP (Silvex)	10.3	2.5	µg/kg wet	12.5		82.5	40-140	3.50	30	
2,4,5-TP (Silvex) [2C]	10.5	2.5	µg/kg wet	12.5		83.8	40-140	4.97	30	
2,4,5-T	9.80	2.5	µg/kg wet	12.5		78.4	40-140	5.63	30	
2,4,5-T [2C]	10.7	2.5	µg/kg wet	12.5		85.6	40-140	8.40	30	
Dalapon	189	62	µg/kg wet	312		60.4	40-140	5.16	30	
Dalapon [2C]	185	62	µg/kg wet	312		59.2	40-140	6.16	30	
Dicamba	10.2	2.5	µg/kg wet	12.5		82.0	40-140	4.96	30	
Dicamba [2C]	9.73	2.5	µg/kg wet	12.5		77.8	40-140	7.32	30	
Dichloroprop	105	25	µg/kg wet	125		84.2	40-140	11.3	30	
Dichloroprop [2C]	103	25	µg/kg wet	125		82.0	40-140	5.55	30	
Dinoseb	13.3	12	µg/kg wet	62.5		21.3	0-42.4	1.47	30	
Dinoseb [2C]	13.8	12	µg/kg wet	62.5		22.1	0-41.1	0.259	30	
MCPA	9290	2500	µg/kg wet	12500		74.4	40-140	10.4	30	
MCPA [2C]	8810	2500	µg/kg wet	12500		70.5	40-140	6.11	30	
MCPP	12800	2500	µg/kg wet	12500		102	40-140	7.18	30	
MCPP [2C]	9130	2500	µg/kg wet	12500		73.0	40-140	5.06	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*77.5*		µg/kg wet	100		77.5	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*73.0*		µg/kg wet	100		73.0	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217782 - SW-846 3546										
Blank (B217782-BLK1)				Prepared: 11/24/18 Analyzed: 11/27/18						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*2.10*		mg/Kg wet	3.33		63.1	40-140			
LCS (B217782-BS1)				Prepared: 11/24/18 Analyzed: 11/27/18						
TPH (C9-C36)	25.4	8.3	mg/Kg wet	33.3		76.1	40-140			
Surrogate: 2-Fluorobiphenyl	*2.44*		mg/Kg wet	3.33		73.2	40-140			
LCS Dup (B217782-BSD1)				Prepared: 11/24/18 Analyzed: 11/27/18						
TPH (C9-C36)	23.6	8.3	mg/Kg wet	33.3		70.7	40-140	7.35	30	
Surrogate: 2-Fluorobiphenyl	*2.27*		mg/Kg wet	3.33		68.0	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217937 - SW-846 3050B										
Blank (B217937-BLK1)				Prepared: 11/27/18 Analyzed: 11/28/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B217937-BS1)				Prepared: 11/27/18 Analyzed: 11/28/18						
Antimony	60.3	4.9	mg/Kg wet	75.5		79.8	3.8-196			
Arsenic	155	4.9	mg/Kg wet	161		96.2	83.2-116.8			
Barium	266	4.9	mg/Kg wet	260		102	82.7-117.3			
Beryllium	95.2	0.49	mg/Kg wet	97.6		97.6	83.4-116.8			
Cadmium	210	0.49	mg/Kg wet	211		99.6	83.4-116.6			
Chromium	136	0.98	mg/Kg wet	136		99.9	82.4-117.6			
Lead	109	1.5	mg/Kg wet	111		98.5	83-117.1			
Nickel	95.6	0.98	mg/Kg wet	91.9		104	82.9-117.5			
Selenium	180	9.8	mg/Kg wet	191		94.4	79.6-120.9			
Silver	45.2	0.98	mg/Kg wet	43.3		104	79.9-119.9			
Thallium	166	4.9	mg/Kg wet	156		107	81.4-119.2			
Vanadium	51.5	2.0	mg/Kg wet	56.7		90.8	79-121.2			
Zinc	199	2.0	mg/Kg wet	199		99.8	81.4-119.1			
LCS Dup (B217937-BSD1)				Prepared: 11/27/18 Analyzed: 11/28/18						
Antimony	62.2	4.9	mg/Kg wet	75.5		82.3	3.8-196	3.12	30	
Arsenic	159	4.9	mg/Kg wet	161		99.0	83.2-116.8	2.81	30	
Barium	276	4.9	mg/Kg wet	260		106	82.7-117.3	3.66	30	
Beryllium	96.1	0.49	mg/Kg wet	97.6		98.4	83.4-116.8	0.876	30	
Cadmium	211	0.49	mg/Kg wet	211		99.8	83.4-116.6	0.220	30	
Chromium	140	0.98	mg/Kg wet	136		103	82.4-117.6	2.89	30	
Lead	113	1.5	mg/Kg wet	111		102	83-117.1	3.17	30	
Nickel	97.4	0.98	mg/Kg wet	91.9		106	82.9-117.5	1.82	30	
Selenium	188	9.8	mg/Kg wet	191		98.5	79.6-120.9	4.24	30	
Silver	46.8	0.98	mg/Kg wet	43.3		108	79.9-119.9	3.39	30	
Thallium	167	4.9	mg/Kg wet	156		107	81.4-119.2	0.382	30	
Vanadium	54.4	2.0	mg/Kg wet	56.7		96.0	79-121.2	5.52	30	
Zinc	204	2.0	mg/Kg wet	199		103	81.4-119.1	2.90	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B217937 - SW-846 3050B											
MRL Check (B217937-MRL1)				Prepared: 11/27/18 Analyzed: 11/29/18							
Lead	0.636	0.50	mg/Kg wet	0.499		**127**	*	80-120			M-10
Batch B217947 - SW-846 7471											
Blank (B217947-BLK1)				Prepared: 11/27/18 Analyzed: 11/28/18							
Mercury	ND	0.025	mg/Kg wet								
LCS (B217947-BS1)				Prepared: 11/27/18 Analyzed: 11/28/18							
Mercury	13.9	1.9	mg/Kg wet	11.5		121		71.6-127.8			
LCS Dup (B217947-BSD1)				Prepared: 11/27/18 Analyzed: 11/28/18							
Mercury	11.4	1.9	mg/Kg wet	11.5		99.2		71.6-127.8	19.9	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217703 - SW-846 9045C										
LCS (B217703-BS1)				Prepared & Analyzed: 11/20/18						
pH	6.01		pH Units	6.00		100	90-110			
Duplicate (B217703-DUP1)	**Source: 18K0931-01**			Prepared & Analyzed: 11/20/18						
pH	4.9		pH Units		4.8			0.453	5	H-03
Batch B217784 - SM21-22 2510B Modified										
Blank (B217784-BLK1)				Prepared & Analyzed: 11/26/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B217784-BS1)				Prepared & Analyzed: 11/26/18						
Specific conductance	200		µmhos/cm	192		106	90-110			
Batch B217892 - % Solids										
Duplicate (B217892-DUP1)	**Source: 18K0931-01**			Prepared: 11/26/18 Analyzed: 11/27/18						
% Solids	87.5		% Wt		87.7			0.272	20	
Batch B218163 - SW-846 9014										
Blank (B218163-BLK1)				Prepared: 11/29/18 Analyzed: 11/30/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B218163-BS1)				Prepared: 11/29/18 Analyzed: 11/30/18						
Reactive Cyanide	9.5	0.40	mg/Kg	10.0		95.4	83.6-111			
Batch B218234 - SW-846 9030A										
Blank (B218234-BLK1)				Prepared: 11/29/18 Analyzed: 11/30/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B218234-BS1)				Prepared: 11/29/18 Analyzed: 11/30/18						
Reactive Sulfide	13	2.0	mg/Kg	14.8		86.5	54.9-121			

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BREAKDOWN REPORT

Lab Sample ID: S029734-PEM1 **Analyzed:** 11/27/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.89
Endrin [1]	2.54

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.23
Endrin [2]	2.99

BREAKDOWN REPORT

Lab Sample ID: S029734-PEM2 **Analyzed:** 11/27/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.85
Endrin [1]	2.17

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.14
Endrin [2]	2.54

BREAKDOWN REPORT

Lab Sample ID: S029734-PEM3 **Analyzed:** 11/28/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	0.93
Endrin [1]	2.05

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BREAKDOWN REPORT

Lab Sample ID:	S029734-PEM3	Analyzed:	11/28/2018

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	1.17
Endrin [2]	2.41

BREAKDOWN REPORT

Lab Sample ID:	S029734-PEM5	Analyzed:	11/28/2018

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	2.24
Endrin [1]	1.74

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	2.78
Endrin [2]	1.99

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

B28

Lab Sample ID: 18K0931-01 Date(s) Analyzed: 11/28/2018 11/28/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDT	1	7.882	7.851	7.911	0.0078	
	2	7.878	7.848	7.908	0.0063	21.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS

Lab Sample ID: B217799-BS1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	15.679	0.000	0.000	10.4	
	2	15.213	0.000	0.000	11.6	14.8
2,4,5-TP (Silvex)	1	15.059	0.000	0.000	10.7	
	2	14.371	0.000	0.000	11.0	0.0
2,4-D	1	13.237	0.000	0.000	104	
	2	12.671	0.000	0.000	108	7.7
2,4-DB	1	16.754	0.000	0.000	107	
	2	16.297	0.000	0.000	105	4.7
Dalapon	1	4.404	0.000	0.000	179	
	2	3.874	0.000	0.000	174	3.4
Dicamba	1	11.158	0.000	0.000	10.8	
	2	10.551	0.000	0.000	10.5	4.7
Dichloroprop	1	12.736	0.000	0.000	118	
	2	12.017	0.000	0.000	108	10.5
Dinoseb	1	17.487	0.000	0.000	13.5	
	2	16.787	0.000	0.000	13.8	1.4
MCPA	1	11.965	0.000	0.000	10300	
	2	11.353	0.000	0.000	9370	6.5
MCPP	1	11.640	0.000	0.000	13700	
	2	10.885	0.000	0.000	9600	37.3

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS Dup

Lab Sample ID: B217799-BSD1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	15.679	0.000	0.000	9.80	
	2	15.215	0.000	0.000	10.7	8.8
2,4,5-TP (Silvex)	1	15.058	0.000	0.000	10.3	
	2	14.372	0.000	0.000	10.5	4.9
2,4-D	1	13.235	0.000	0.000	97.9	
	2	12.671	0.000	0.000	101	3.0
2,4-DB	1	16.753	0.000	0.000	100	
	2	16.298	0.000	0.000	101	1.0
Dalapon	1	4.403	0.000	0.000	189	
	2	3.873	0.000	0.000	185	2.7
Dicamba	1	11.159	0.000	0.000	10.2	
	2	10.552	0.000	0.000	9.73	2.7
Dichloroprop	1	12.735	0.000	0.000	105	
	2	12.017	0.000	0.000	103	6.6
Dinoseb	1	17.487	0.000	0.000	13.3	
	2	16.786	0.000	0.000	13.8	6.0
MCPA	1	11.963	0.000	0.000	9290	
	2	11.351	0.000	0.000	8810	5.4
MCPP	1	11.640	0.000	0.000	12800	
	2	10.884	0.000	0.000	9130	35.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B217862-BS1 Date(s) Analyzed: 11/27/2018 11/27/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.16	6.1
Aroclor-1260	1	0.000	0.000	0.000	0.17	
	2	0.000	0.000	0.000	0.17	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B217862-BSD1 Date(s) Analyzed: 11/27/2018 11/27/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.18	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.19	
	2	0.000	0.000	0.000	0.19	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B217863-BS1 Date(s) Analyzed: 11/28/2018 11/28/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.664	7.634	7.694	0.10	
	2	7.635	7.605	7.665	0.086	15.1
4,4'-DDE	1	7.203	7.173	7.233	0.098	
	2	7.191	7.161	7.221	0.085	14.2
4,4'-DDT	1	7.883	7.854	7.914	0.10	
	2	7.883	7.853	7.913	0.090	10.5
Alachlor	1	6.607	6.577	6.637	0.065	
	2	6.329	6.299	6.359	0.065	0.0
Aldrin	1	6.516	6.486	6.546	0.081	
	2	6.408	6.378	6.438	0.073	10.4
alpha-BHC	1	5.747	5.717	5.777	0.053	
	2	5.651	5.621	5.681	0.052	1.9
alpha-Chlordane	1	7.154	7.123	7.183	0.089	
	2	7.065	7.034	7.094	0.082	8.2
beta-BHC	1	6.020	5.989	6.049	0.062	
	2	5.936	5.903	5.963	0.059	5.0
delta-BHC	1	6.147	6.117	6.177	0.066	
	2	6.133	6.102	6.162	0.064	3.1
Dieldrin	1	7.444	7.414	7.474	0.093	
	2	7.314	7.283	7.343	0.079	16.3
Endosulfan I	1	7.262	7.232	7.292	0.088	
	2	7.107	7.077	7.137	0.080	9.5
Endosulfan II	1	7.800	7.770	7.830	0.092	
	2	7.710	7.679	7.739	0.084	9.1
Endosulfan Sulfate	1	8.407	8.377	8.437	0.088	
	2	8.173	8.143	8.203	0.081	8.3
Endrin	1	7.626	7.595	7.655	0.093	
	2	7.545	7.515	7.575	0.084	10.2
Endrin Aldehyde	1	8.112	8.082	8.142	0.092	
	2	7.971	7.941	8.001	0.085	7.9
Endrin Ketone	1	8.583	8.552	8.612	0.093	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B217863-BS1 Date(s) Analyzed: 11/28/2018 11/28/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.521	8.491	8.551	0.087	6.7
gamma-BHC (Lindane)	1	5.964	5.934	5.994	0.061	
	2	5.882	5.851	5.911	0.057	6.8
gamma-Chlordane	1	7.053	7.024	7.084	0.086	
	2	6.956	6.925	6.985	0.081	6.0
Heptachlor	1	6.298	6.268	6.328	0.059	
	2	6.182	6.152	6.212	0.069	15.6
Heptachlor Epoxide	1	6.962	6.932	6.992	0.082	
	2	6.816	6.786	6.846	0.076	7.6
Hexachlorobenzene	1	5.632	5.602	5.662	0.058	
	2	5.562	5.532	5.592	0.055	5.3
Methoxychlor	1	8.227	8.196	8.256	0.11	
	2	8.372	8.341	8.401	0.10	9.5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B217863-BSD1 Date(s) Analyzed: 11/28/2018 11/28/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.664	7.634	7.694	0.094	
	2	7.636	7.605	7.665	0.082	13.6
4,4'-DDE	1	7.203	7.173	7.233	0.094	
	2	7.191	7.161	7.221	0.081	14.9
4,4'-DDT	1	7.884	7.854	7.914	0.096	
	2	7.883	7.853	7.913	0.084	13.3
Alachlor	1	6.608	6.577	6.637	0.068	
	2	6.330	6.299	6.359	0.067	1.5
Aldrin	1	6.516	6.486	6.546	0.083	
	2	6.409	6.378	6.438	0.074	11.5
alpha-BHC	1	5.747	5.717	5.777	0.060	
	2	5.651	5.621	5.681	0.057	5.1
alpha-Chlordane	1	7.154	7.123	7.183	0.087	
	2	7.065	7.034	7.094	0.079	9.6
beta-BHC	1	6.020	5.989	6.049	0.069	
	2	5.936	5.903	5.963	0.065	6.0
delta-BHC	1	6.147	6.117	6.177	0.070	
	2	6.133	6.102	6.162	0.067	4.4
Dieldrin	1	7.444	7.414	7.474	0.090	
	2	7.314	7.283	7.343	0.076	16.9
Endosulfan I	1	7.262	7.232	7.292	0.086	
	2	7.107	7.077	7.137	0.078	9.8
Endosulfan II	1	7.800	7.770	7.830	0.088	
	2	7.710	7.679	7.739	0.081	8.3
Endosulfan Sulfate	1	8.407	8.377	8.437	0.083	
	2	8.173	8.143	8.203	0.078	6.2
Endrin	1	7.625	7.595	7.655	0.090	
	2	7.546	7.515	7.575	0.081	10.5
Endrin Aldehyde	1	8.113	8.082	8.142	0.094	
	2	7.971	7.941	8.001	0.087	7.7
Endrin Ketone	1	8.584	8.552	8.612	0.088	

con-test® ANALYTICAL LABORATORY
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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B217863-BSD1 Date(s) Analyzed: 11/28/2018 11/28/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	8.521	8.491	8.551	0.083	5.9
gamma-BHC (Lindane)	1	5.964	5.934	5.994	0.067	
	2	5.882	5.851	5.911	0.062	7.8
gamma-Chlordane	1	7.054	7.024	7.084	0.085	
	2	6.956	6.925	6.985	0.079	7.3
Heptachlor	1	6.298	6.268	6.328	0.062	
	2	6.182	6.152	6.212	0.071	13.5
Heptachlor Epoxide	1	6.962	6.932	6.992	0.082	
	2	6.816	6.786	6.846	0.075	8.9
Hexachlorobenzene	1	5.633	5.602	5.662	0.063	
	2	5.562	5.532	5.592	0.059	6.6
Methoxychlor	1	8.228	8.196	8.256	0.10	
	2	8.371	8.341	8.401	0.096	4.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

Matrix Spike

Lab Sample ID: B217863-MS1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.661	7.632	7.692	0.10	
	2	7.630	7.601	7.661	0.092	8.3
4,4'-DDE	1	7.200	7.170	7.230	0.10	
	2	7.186	7.157	7.217	0.094	6.2
4,4'-DDT	1	7.880	7.851	7.911	0.11	
	2	7.878	7.848	7.908	0.098	11.5
Alachlor	1	6.605	6.575	6.635	0.057	
	2	6.325	6.296	6.356	0.054	5.4
Aldrin	1	6.513	6.484	6.544	0.082	
	2	6.404	6.375	6.435	0.073	11.6
alpha-BHC	1	5.745	5.716	5.776	0.043	
	2	5.647	5.618	5.678	0.042	2.4
beta-BHC	1	6.017	5.988	6.048	0.062	
	2	5.932	5.901	5.961	0.058	6.7
delta-BHC	1	6.145	6.115	6.175	0.066	
	2	6.129	6.100	6.160	0.063	4.7
Dieldrin	1	7.441	7.411	7.471	0.095	
	2	7.308	7.279	7.339	0.082	14.7
Endosulfan I	1	7.258	7.229	7.289	0.092	
	2	7.101	7.073	7.133	0.082	11.5
Endosulfan II	1	7.796	7.767	7.827	0.096	
	2	7.704	7.675	7.735	0.093	3.2
Endosulfan Sulfate	1	8.403	8.374	8.434	0.076	
	2	8.168	8.139	8.199	0.080	5.1
Endrin	1	7.621	7.593	7.653	0.070	
	2	7.540	7.511	7.571	0.063	10.5
Endrin Aldehyde	1	8.110	8.080	8.140	0.097	
	2	7.965	7.937	7.997	0.10	3.1
Endrin Ketone	1	8.579	8.551	8.611	0.12	
	2	8.516	8.487	8.547	0.12	0.0
gamma-BHC (Lindane)	1	5.961	5.932	5.992	0.054	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

Matrix Spike

Lab Sample ID: B217863-MS1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	5.877	5.849	5.909	0.050	7.7
Heptachlor	1	6.295	6.266	6.326	0.060	
	2	6.178	6.149	6.209	0.067	11.0
Heptachlor Epoxide	1	6.958	6.929	6.989	0.084	
	2	6.811	6.783	6.843	0.076	10.0
Hexachlorobenzene	1	5.630	5.600	5.660	0.051	
	2	5.559	5.530	5.590	0.047	8.2
Methoxychlor	1	8.224	8.195	8.255	0.11	
	2	8.367	8.338	8.398	0.11	0.0

con-test® ANALYTICAL LABORATORY
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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

Matrix Spike Dup

Lab Sample ID: B217863-MSD1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.662	7.632	7.692	0.094	
	2	7.630	7.601	7.661	0.085	10.1
4,4'-DDE	1	7.200	7.170	7.230	0.093	
	2	7.186	7.157	7.217	0.085	9.0
4,4'-DDT	1	7.881	7.851	7.911	0.10	
	2	7.878	7.848	7.908	0.088	12.8
Alachlor	1	6.605	6.575	6.635	0.059	
	2	6.325	6.296	6.356	0.057	3.5
Aldrin	1	6.514	6.484	6.544	0.071	
	2	6.404	6.375	6.435	0.064	10.4
alpha-BHC	1	5.745	5.716	5.776	0.035	
	2	5.647	5.618	5.678	0.034	2.9
beta-BHC	1	6.018	5.988	6.048	0.051	
	2	5.933	5.901	5.961	0.048	6.1
delta-BHC	1	6.145	6.115	6.175	0.056	
	2	6.130	6.100	6.160	0.054	3.6
Dieldrin	1	7.441	7.411	7.471	0.086	
	2	7.308	7.279	7.339	0.075	13.7
Endosulfan I	1	7.259	7.229	7.289	0.082	
	2	7.102	7.073	7.133	0.074	10.3
Endosulfan II	1	7.798	7.767	7.827	0.087	
	2	7.704	7.675	7.735	0.084	3.5
Endosulfan Sulfate	1	8.405	8.374	8.434	0.077	
	2	8.169	8.139	8.199	0.074	4.0
Endrin	1	7.623	7.593	7.653	0.088	
	2	7.540	7.511	7.571	0.080	9.5
Endrin Aldehyde	1	8.109	8.080	8.140	0.099	
	2	7.965	7.937	7.997	0.10	1.0
Endrin Ketone	1	8.581	8.551	8.611	0.094	
	2	8.517	8.487	8.547	0.091	3.2
gamma-BHC (Lindane)	1	5.962	5.932	5.992	0.044	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

Matrix Spike Dup

Lab Sample ID: B217863-MSD1 Date(s) Analyzed: 11/29/2018 11/29/2018

Instrument ID (1): ECD2A Instrument ID (2): ECD2B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	5.878	5.849	5.909	0.041	7.1
Heptachlor	1	6.296	6.266	6.326	0.051	
	2	6.178	6.149	6.209	0.058	12.8
Heptachlor Epoxide	1	6.959	6.929	6.989	0.074	
	2	6.812	6.783	6.843	0.067	9.9
Hexachlorobenzene	1	5.630	5.600	5.660	0.042	
	2	5.559	5.530	5.590	0.040	7.2
Methoxychlor	1	8.225	8.195	8.255	0.10	
	2	8.367	8.338	8.398	0.10	0.0

con-test® ANALYTICAL LABORATORY
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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-03	Sample received after recommended holding time was exceeded.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
M-10	The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8081B in Water	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA
Endrin	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Water	
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Water	
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8151A in Water	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
Dinoseb	ME,NC,NH,CT,NY,VA
Dinoseb [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Water	
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH
SW-846 8270D in Water	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH

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CERTIFICATIONS

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Analyte	Certifications
SW-846 8270D in Water	
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

KKM 180931

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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
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Page 1 of 1

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841

Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: TOF

Requested Turnaround Time
7-Day ☑ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other: Limit Checl
CLP Like Data Pkg Required: ☐
Email To: pcornell@vhb.com; pmckinlay@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	[1]Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals										
	328	11/13	17:00	x	x	S	U	x	x	x	x	x	x										

ANALYSIS REQUESTED

# of Containers	3	3	3		9																		
[2] Preservation Code	I	I	I	I	M/O	I																	
[3] Container Code	A	A	A	A	V	A																	

Dissolved Metals Samples
O Field Filtered
O Lab to Filter

Orthophosphate Samples
O Field Filtered
O Lab to Filter

Comments:

Vials frozen on day of generation by 16:00

TCLP 20x Rule

Marks

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 11/20/18 13:45	
Received by: (signature)	Date/Time: 1345 11-20-18	
Relinquished by: (signature)	Date/Time: 1700 11-20-18	
Received by: (signature)	Date/Time: 23 11/20/18 1700	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☑ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) DI H2O

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By TS Date 11/20/2018 Time 1700

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.3

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? LUKE

Is there enough Volume? T

Is there Headspace where applicable? NA MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? _____

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	3
Meoh-	1	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-	2	Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18K0931
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18K0931-01

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 12/03/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

December 6, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18K1190

Enclosed are results of analyses for samples received by the laboratory on November 28, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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Table of Contents (continued)

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 12/6/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K1190

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB48	18K1190-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB40	18K1190-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

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Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 12/6/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18K1190

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB41	18K1190-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
SB42	18K1190-04	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 1030	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8260C	
				SW-846 8270D	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151, samples were derivatized on 11/30/18.

For method 8151, sample analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 8081B

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18K1190-04[SB42]

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41]

SW-846 8151A

Qualifications:

DL-03

Elevated reporting limit due to matrix.

Analyte & Samples(s) Qualified:

18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42]

SW-846 8260C

Qualifications:

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

Methylene Chloride
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

Tetrahydrofuran
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

Vinyl Chloride
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

Diisopropyl Ether (DIPE)
B218094-BSD1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

Acetone
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Chloromethane
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

Methylene Chloride
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

Tetrahydrofuran
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

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V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218094-BLK1, B218094-BS1, B218094-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Carbon Tetrachloride
B218094-BS1, B218094-BSD1

SW-846 8270D

Qualifications:

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:

Aniline
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218070-BLK1, B218070-BS1, B218070-BSD1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

1,2-Diphenylhydrazine/Azobenzen
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218070-BLK1, B218070-BS1, B218070-BSD1

Butylbenzylphthalate
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42]

Pyrene
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42]

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218070-BLK1, B218070-BS1, B218070-BSD1

SW-846 9045C

Qualifications:

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
18K1190-01[SB48], 18K1190-02[SB40], 18K1190-03[SB41], 18K1190-04[SB42], B218066-DUP1

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SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.065	mg/Kg dry	1	R-05	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Benzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Bromobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Bromochloromethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Bromodichloromethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Bromoform	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Bromomethane	ND	0.0065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
2-Butanone (MEK)	ND	0.026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
n-Butylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
sec-Butylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
tert-Butylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Carbon Disulfide	ND	0.0039	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Carbon Tetrachloride	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Chlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Chlorodibromomethane	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Chloroethane	ND	0.0065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Chloroform	ND	0.0026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Chloromethane	ND	0.0065	mg/Kg dry	1	V-05	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
2-Chlorotoluene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
4-Chlorotoluene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2-Dibromoethane (EDB)	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Dibromomethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2-Dichlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,3-Dichlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,4-Dichlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Dichlorodifluoromethane (Freon 12)	ND	0.0065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1-Dichloroethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2-Dichloroethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1-Dichloroethylene	ND	0.0026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
cis-1,2-Dichloroethylene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
trans-1,2-Dichloroethylene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2-Dichloropropane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,3-Dichloropropane	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
2,2-Dichloropropane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1-Dichloropropene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
cis-1,3-Dichloropropene	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
trans-1,3-Dichloropropene	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Diethyl Ether	ND	0.0065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Diisopropyl Ether (DIPE)	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,4-Dioxane	ND	0.065	mg/Kg dry	1	V-16	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Ethylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
2-Hexanone (MBK)	ND	0.013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Isopropylbenzene (Cumene)	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
p-Isopropyltoluene (p-Cymene)	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.0026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Methylene Chloride	ND	0.0065	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
4-Methyl-2-pentanone (MIBK)	ND	0.013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Naphthalene	ND	0.0026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
n-Propylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Styrene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1,1,2-Tetrachloroethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1,2,2-Tetrachloroethane	ND	0.00065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Tetrachloroethylene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Tetrahydrofuran	ND	0.0065	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Toluene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2,3-Trichlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2,4-Trichlorobenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1,1-Trichloroethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,1,2-Trichloroethane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Trichloroethylene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Trichlorofluoromethane (Freon 11)	ND	0.0065	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2,3-Trichloropropane	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,2,4-Trimethylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
1,3,5-Trimethylbenzene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
Vinyl Chloride	ND	0.0065	mg/Kg dry	1	L-04	SW-846 8260C	11/29/18	11/29/18 10:51	EEH
m+p Xylene	ND	0.0026	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH
o-Xylene	ND	0.0013	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 10:51	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	102	70-130		11/29/18 10:51
Toluene-d8	95.6	70-130		11/29/18 10:51
4-Bromofluorobenzene	102	70-130		11/29/18 10:51

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Acenaphthylene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Acetophenone	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Aniline	ND	0.44	mg/Kg dry	1	V-04	SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Anthracene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Benzo(a)anthracene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Benzo(a)pyrene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Benzo(b)fluoranthene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Benzo(g,h,i)perylene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Benzo(k)fluoranthene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Bis(2-chloroethoxy)methane	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Bis(2-chloroethyl)ether	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Bis(2-chloroisopropyl)ether	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Bis(2-Ethylhexyl)phthalate	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
4-Bromophenylphenylether	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Butylbenzylphthalate	ND	0.44	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 16:47	CDT
4-Chloroaniline	ND	0.85	mg/Kg dry	1	V-34	SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2-Chloronaphthalene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2-Chlorophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Chrysene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Dibenz(a,h)anthracene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Dibenzofuran	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Di-n-butylphthalate	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
1,2-Dichlorobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
1,3-Dichlorobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
1,4-Dichlorobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
3,3-Dichlorobenzidine	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4-Dichlorophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Diethylphthalate	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4-Dimethylphenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Dimethylphthalate	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4-Dinitrophenol	ND	0.85	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4-Dinitrotoluene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,6-Dinitrotoluene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Di-n-octylphthalate	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
1,2-Diphenylhydrazine/Azobenzene	ND	0.44	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Fluoranthene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Fluorene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Hexachlorobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Hexachlorobutadiene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Hexachloroethane	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Indeno(1,2,3-cd)pyrene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Isophorone	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2-Methylnaphthalene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
3/4-Methylphenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Naphthalene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Nitrobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2-Nitrophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
4-Nitrophenol	ND	0.85	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Pentachlorophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Phenanthrene	ND	0.22	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Phenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Pyrene	ND	0.22	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 16:47	CDT
Pyridine	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
1,2,4-Trichlorobenzene	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4,5-Trichlorophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT
2,4,6-Trichlorophenol	ND	0.44	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 16:47	CDT

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	62.5	30-130		12/3/18 16:47
Phenol-d6	66.0	30-130		12/3/18 16:47
Nitrobenzene-d5	67.7	30-130		12/3/18 16:47
2-Fluorobiphenyl	57.0	30-130		12/3/18 16:47
2,4,6-Tribromophenol	81.2	30-130		12/3/18 16:47
p-Terphenyl-d14	77.1	30-130		12/3/18 16:47

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Aldrin [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
alpha-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
beta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
delta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
gamma-BHC (Lindane) [1]	ND	0.0025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Chlordane [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
4,4'-DDD [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
4,4'-DDE [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
4,4'-DDT [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Dieldrin [1]	ND	0.0049	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endosulfan I [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endosulfan II [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endosulfan sulfate [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endrin [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endrin aldehyde [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Endrin ketone [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Heptachlor [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Heptachlor epoxide [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Hexachlorobenzene [1]	ND	0.0074	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Methoxychlor [1]	ND	0.062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 9:39	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	87.6	30-150		12/4/18 9:39
Decachlorobiphenyl [2]	84.5	30-150		12/4/18 9:39
Tetrachloro-m-xylene [1]	69.0	30-150		12/4/18 9:39
Tetrachloro-m-xylene [2]	76.2	30-150		12/4/18 9:39

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1221 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1232 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1242 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1248 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1254 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1260 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1262 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG
Aroclor-1268 [1]	ND	0.10	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:38	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	79.8	30-150		11/29/18 18:38
Decachlorobiphenyl [2]	81.3	30-150		11/29/18 18:38
Tetrachloro-m-xylene [1]	83.4	30-150		11/29/18 18:38
Tetrachloro-m-xylene [2]	86.3	30-150		11/29/18 18:38

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
2,4-DB [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
2,4,5-TP (Silvex) [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
2,4,5-T [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
Dalalpon [1]	ND	400	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
Dicamba [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
Dichloroprop [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
Dinoseb [1]	ND	80	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
MCPA [1]	ND	16000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG
MCPP [1]	ND	16000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:02	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	82.5	30-150		12/1/18 0:02
2,4-Dichlorophenylacetic acid [2]	105	30-150		12/1/18 0:02

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	29	11	mg/Kg dry	1		SW-846 8100 Modified	11/29/18	12/3/18 15:12	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	52.5	40-140				12/3/18 15:12	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.2	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Arsenic	4.2	2.2	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Barium	32	2.2	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Beryllium	0.42	0.22	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Cadmium	ND	0.22	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Chromium	13	0.43	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Lead	9.4	0.65	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Mercury	ND	0.032	mg/Kg dry	1		SW-846 7471B	12/5/18	12/6/18 12:12	AJL
Nickel	8.7	0.43	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Selenium	ND	4.3	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Silver	ND	0.43	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Thallium	ND	2.2	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Vanadium	13	0.87	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW
Zinc	17	0.87	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:15	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB48 | Sampled: 11/15/2018 09:00

Sample ID: 18K1190-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/30/18	11/30/18 16:35	LED
pH @19.2°C	5.2		pH Units	1	H-03	SW-846 9045C	11/28/18	11/28/18 20:30	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/30/18	12/3/18 11:00	LL
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/30/18	12/3/18 11:00	LL
Specific conductance	ND	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/30/18	11/30/18 14:30	EC
% Solids	77.3		% Wt	1		SM 2540G	12/5/18	12/6/18 11:36	KMG

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.061	mg/Kg dry	1	R-05	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Benzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Bromobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Bromochloromethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Bromodichloromethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Bromoform	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Bromomethane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
2-Butanone (MEK)	ND	0.024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
n-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
sec-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
tert-Butylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Carbon Disulfide	ND	0.0036	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Carbon Tetrachloride	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Chlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Chlorodibromomethane	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Chloroethane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Chloroform	ND	0.0024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Chloromethane	ND	0.0061	mg/Kg dry	1	V-05	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
2-Chlorotoluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
4-Chlorotoluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2-Dibromoethane (EDB)	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Dibromomethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,3-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,4-Dichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Dichlorodifluoromethane (Freon 12)	ND	0.0061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1-Dichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2-Dichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1-Dichloroethylene	ND	0.0024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
cis-1,2-Dichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
trans-1,2-Dichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,3-Dichloropropane	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
2,2-Dichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1-Dichloropropene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
cis-1,3-Dichloropropene	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
trans-1,3-Dichloropropene	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Diethyl Ether	ND	0.0061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Diisopropyl Ether (DIPE)	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,4-Dioxane	ND	0.061	mg/Kg dry	1	V-16	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Ethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
2-Hexanone (MBK)	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Isopropylbenzene (Cumene)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
p-Isopropyltoluene (p-Cymene)	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.0024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Methylene Chloride	ND	0.0061	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
4-Methyl-2-pentanone (MIBK)	ND	0.012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Naphthalene	ND	0.0024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
n-Propylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Styrene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1,1,2-Tetrachloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1,2,2-Tetrachloroethane	ND	0.00061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Tetrachloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Tetrahydrofuran	ND	0.0061	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Toluene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2,3-Trichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2,4-Trichlorobenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1,1-Trichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,1,2-Trichloroethane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Trichloroethylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Trichlorofluoromethane (Freon 11)	ND	0.0061	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2,3-Trichloropropane	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,2,4-Trimethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
1,3,5-Trimethylbenzene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
Vinyl Chloride	ND	0.0061	mg/Kg dry	1	L-04	SW-846 8260C	11/29/18	11/29/18 11:15	EEH
m+p Xylene	ND	0.0024	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH
o-Xylene	ND	0.0012	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:15	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	99.5	70-130		11/29/18 11:15
Toluene-d8	96.1	70-130		11/29/18 11:15
4-Bromofluorobenzene	103	70-130		11/29/18 11:15

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Acenaphthylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Acetophenone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Aniline	ND	0.41	mg/Kg dry	1	V-04	SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Benzo(a)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Benzo(a)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Benzo(b)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Benzo(g,h,i)perylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Benzo(k)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Bis(2-chloroethoxy)methane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Bis(2-chloroethyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Bis(2-chloroisopropyl)ether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Bis(2-Ethylhexyl)phthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
4-Bromophenylphenylether	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Butylbenzylphthalate	ND	0.41	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:10	CDT
4-Chloroaniline	ND	0.80	mg/Kg dry	1	V-34	SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2-Chloronaphthalene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2-Chlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Chrysene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Dibenzofuran	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Di-n-butylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
1,2-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
1,3-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
1,4-Dichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4-Dichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Diethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4-Dimethylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Dimethylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4-Dinitrophenol	ND	0.80	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,6-Dinitrotoluene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Di-n-octylphthalate	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
1,2-Diphenylhydrazine/Azobenzene	ND	0.41	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Hexachlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Hexachlorobutadiene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Hexachloroethane	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Indeno(1,2,3-cd)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Isophorone	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
3/4-Methylphenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Nitrobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2-Nitrophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
4-Nitrophenol	ND	0.80	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Pentachlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Phenanthrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Phenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Pyrene	ND	0.21	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:10	CDT
Pyridine	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
1,2,4-Trichlorobenzene	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4,5-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT
2,4,6-Trichlorophenol	ND	0.41	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:10	CDT

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	72.8	30-130		12/3/18 17:10
Phenol-d6	75.7	30-130		12/3/18 17:10
Nitrobenzene-d5	79.6	30-130		12/3/18 17:10
2-Fluorobiphenyl	70.4	30-130		12/3/18 17:10
2,4,6-Tribromophenol	90.8	30-130		12/3/18 17:10
p-Terphenyl-d14	92.2	30-130		12/3/18 17:10

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.024	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Aldrin [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
alpha-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
beta-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
delta-BHC [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
gamma-BHC (Lindane) [1]	ND	0.0024	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Chlordane [1]	ND	0.024	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
4,4'-DDD [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
4,4'-DDE [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
4,4'-DDT [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Dieldrin [1]	ND	0.0047	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endosulfan I [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endosulfan II [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endosulfan sulfate [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endrin [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endrin aldehyde [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Endrin ketone [1]	ND	0.0095	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Heptachlor [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Heptachlor epoxide [1]	ND	0.0059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Hexachlorobenzene [1]	ND	0.0071	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Methoxychlor [1]	ND	0.059	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:06	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.0	30-150		12/4/18 10:06
Decachlorobiphenyl [2]	73.7	30-150		12/4/18 10:06
Tetrachloro-m-xylene [1]	66.2	30-150		12/4/18 10:06
Tetrachloro-m-xylene [2]	70.6	30-150		12/4/18 10:06

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1221 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1232 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1242 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1248 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1254 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1260 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1262 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG
Aroclor-1268 [1]	ND	0.092	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 18:56	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	94.8	30-150		11/29/18 18:56
Decachlorobiphenyl [2]	98.1	30-150		11/29/18 18:56
Tetrachloro-m-xylene [1]	90.3	30-150		11/29/18 18:56
Tetrachloro-m-xylene [2]	93.2	30-150		11/29/18 18:56

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
2,4-DB [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
2,4,5-TP (Silvex) [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
2,4,5-T [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
Dalalpon [1]	ND	380	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
Dicamba [1]	ND	15	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
Dichloroprop [1]	ND	150	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
Dinoseb [1]	ND	76	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
MCPA [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG
MCPP [1]	ND	15000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 0:42	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	88.9	30-150		12/1/18 0:42
2,4-Dichlorophenylacetic acid [2]	94.5	30-150		12/1/18 0:42

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	29	10	mg/Kg dry	1		SW-846 8100 Modified	11/29/18	12/3/18 15:12	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	59.2	40-140				12/3/18 15:12	

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.0	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Arsenic	12	2.0	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Barium	23	2.0	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Beryllium	0.37	0.20	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Cadmium	0.45	0.20	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Chromium	11	0.40	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Lead	8.9	0.60	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Mercury	ND	0.030	mg/Kg dry	1		SW-846 7471B	12/5/18	12/6/18 12:14	AJL
Nickel	8.1	0.40	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Selenium	ND	4.0	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Silver	ND	0.40	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Thallium	ND	2.0	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Vanadium	15	0.80	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW
Zinc	18	0.80	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:20	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB40 | Sampled: 11/15/2018 10:30

Sample ID: 18K1190-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/30/18	11/30/18 16:35	LED
pH @19°C	5.0		pH Units	1	H-03	SW-846 9045C	11/28/18	11/28/18 20:30	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/30/18	12/3/18 11:00	LL
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	11/30/18	12/3/18 11:00	LL
Specific conductance	4.3	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/30/18	11/30/18 14:30	EC
% Solids	82.6		% Wt	1		SM 2540G	12/5/18	12/6/18 11:36	KMG

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.078	mg/Kg dry	1	R-05	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Bromomethane	ND	0.0078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
2-Butanone (MEK)	ND	0.031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Carbon Disulfide	ND	0.0047	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Chlorodibromomethane	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Chloroethane	ND	0.0078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Chloroform	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Chloromethane	ND	0.0078	mg/Kg dry	1	V-05	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2-Dibromoethane (EDB)	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Dichlorodifluoromethane (Freon 12)	ND	0.0078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1-Dichloroethylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,3-Dichloropropane	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
cis-1,3-Dichloropropene	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
trans-1,3-Dichloropropene	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Diethyl Ether	ND	0.0078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Diisopropyl Ether (DIPE)	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,4-Dioxane	ND	0.078	mg/Kg dry	1	V-16	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Methylene Chloride	ND	0.0078	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Naphthalene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1,2,2-Tetrachloroethane	ND	0.00078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Tetrahydrofuran	ND	0.0078	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2,3-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Trichlorofluoromethane (Freon 11)	ND	0.0078	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
Vinyl Chloride	ND	0.0078	mg/Kg dry	1	L-04	SW-846 8260C	11/29/18	11/29/18 11:40	EEH
m+p Xylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 11:40	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	101	70-130		11/29/18 11:40
Toluene-d8	96.7	70-130		11/29/18 11:40
4-Bromofluorobenzene	104	70-130		11/29/18 11:40

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Acenaphthylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Acetophenone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Aniline	ND	0.42	mg/Kg dry	1	V-04	SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Benzo(a)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Benzo(a)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Benzo(b)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Benzo(g,h,i)perylene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Benzo(k)fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Bis(2-chloroethoxy)methane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Bis(2-chloroethyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Bis(2-chloroisopropyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Bis(2-Ethylhexyl)phthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
4-Bromophenylphenylether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Butylbenzylphthalate	ND	0.42	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:34	CDT
4-Chloroaniline	ND	0.82	mg/Kg dry	1	V-34	SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2-Chloronaphthalene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2-Chlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Chrysene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Dibenzofuran	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Di-n-butylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
1,2-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
1,3-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
1,4-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4-Dichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Diethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4-Dimethylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Dimethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4-Dinitrophenol	ND	0.82	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,6-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Di-n-octylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
1,2-Diphenylhydrazine/Azobenzene	ND	0.42	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Fluoranthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Hexachlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Hexachlorobutadiene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Hexachloroethane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Indeno(1,2,3-cd)pyrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Isophorone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
3/4-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Nitrobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2-Nitrophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
4-Nitrophenol	ND	0.82	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Pentachlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Phenanthrene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Phenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Pyrene	ND	0.21	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 17:34	CDT
Pyridine	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
1,2,4-Trichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4,5-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT
2,4,6-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 17:34	CDT

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	66.2	30-130		12/3/18 17:34
Phenol-d6	73.3	30-130		12/3/18 17:34
Nitrobenzene-d5	73.0	30-130		12/3/18 17:34
2-Fluorobiphenyl	63.5	30-130		12/3/18 17:34
2,4,6-Tribromophenol	86.8	30-130		12/3/18 17:34
p-Terphenyl-d14	90.0	30-130		12/3/18 17:34

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Aldrin [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
alpha-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
beta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
delta-BHC [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
gamma-BHC (Lindane) [1]	ND	0.0025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Chlordane [1]	ND	0.025	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
4,4'-DDD [1]	ND	0.0050	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
4,4'-DDE [1]	ND	0.0050	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
4,4'-DDT [1]	ND	0.0050	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Dieldrin [1]	ND	0.0050	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endosulfan I [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endosulfan II [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endosulfan sulfate [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endrin [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endrin aldehyde [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Endrin ketone [1]	ND	0.0099	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Heptachlor [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Heptachlor epoxide [1]	ND	0.0062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Hexachlorobenzene [1]	ND	0.0074	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Methoxychlor [1]	ND	0.062	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG
Toxaphene [1]	ND	0.12	mg/Kg dry	1		SW-846 8081B	11/29/18	12/4/18 10:33	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	83.1	30-150		12/4/18 10:33
Decachlorobiphenyl [2]	80.9	30-150		12/4/18 10:33
Tetrachloro-m-xylene [1]	62.0	30-150		12/4/18 10:33
Tetrachloro-m-xylene [2]	68.3	30-150		12/4/18 10:33

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1221 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1232 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1242 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1248 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1254 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1260 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1262 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG
Aroclor-1268 [1]	ND	0.098	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:13	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	76.7	30-150		11/29/18 19:13
Decachlorobiphenyl [2]	80.1	30-150		11/29/18 19:13
Tetrachloro-m-xylene [1]	80.5	30-150		11/29/18 19:13
Tetrachloro-m-xylene [2]	83.4	30-150		11/29/18 19:13

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
2,4-DB [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
2,4,5-TP (Silvex) [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
2,4,5-T [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
Dalalpon [1]	ND	390	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
Dicamba [1]	ND	16	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
Dichloroprop [1]	ND	160	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
Dinoseb [1]	ND	78	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
MCPA [1]	ND	16000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG
MCPP [1]	ND	16000	µg/kg dry	5		SW-846 8151A	11/28/18	12/1/18 1:21	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	91.1	30-150		12/1/18 1:21
2,4-Dichlorophenylacetic acid [2]	104	30-150		12/1/18 1:21

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	47	10	mg/Kg dry	1		SW-846 8100 Modified	11/29/18	12/3/18 15:33	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	60.0	40-140				12/3/18 15:33	

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Arsenic	9.2	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Barium	19	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Beryllium	0.35	0.21	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Cadmium	0.35	0.21	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Chromium	10	0.42	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Lead	8.9	0.63	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Mercury	ND	0.033	mg/Kg dry	1		SW-846 7471B	12/5/18	12/6/18 12:16	AJL
Nickel	7.8	0.42	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Selenium	ND	4.2	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Silver	ND	0.42	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Thallium	ND	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Vanadium	13	0.84	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW
Zinc	14	0.84	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:51	QNW

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB41 | Sampled: 11/15/2018 11:30

Sample ID: 18K1190-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/30/18	11/30/18 16:35	LED
pH @19°C	5.2		pH Units	1	H-03	SW-846 9045C	11/28/18	11/28/18 20:30	LED
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	11/30/18	12/3/18 11:00	LL
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	11/30/18	12/3/18 11:00	LL
Specific conductance	3.6	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/30/18	11/30/18 14:30	EC
% Solids	79.9		% Wt	1		SM 2540G	12/5/18	12/6/18 11:36	KMG

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.35	0.074	mg/Kg dry	1	R-05	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Bromomethane	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
2-Butanone (MEK)	ND	0.030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Carbon Disulfide	ND	0.0045	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Chlorodibromomethane	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Chloroethane	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Chloroform	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Chloromethane	ND	0.0074	mg/Kg dry	1	V-05	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2-Dibromoethane (EDB)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Dichlorodifluoromethane (Freon 12)	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1-Dichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,3-Dichloropropane	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
cis-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
trans-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Diethyl Ether	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Diisopropyl Ether (DIPE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,4-Dioxane	ND	0.074	mg/Kg dry	1	V-16	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Methylene Chloride	ND	0.0074	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Naphthalene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1,2,2-Tetrachloroethane	ND	0.00074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Tetrahydrofuran	ND	0.0074	mg/Kg dry	1	L-04, V-05	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2,3-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Trichlorofluoromethane (Freon 11)	ND	0.0074	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
Vinyl Chloride	ND	0.0074	mg/Kg dry	1	L-04	SW-846 8260C	11/29/18	11/29/18 12:05	EEH
m+p Xylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C	11/29/18	11/29/18 12:05	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	105	70-130		11/29/18 12:05
Toluene-d8	91.7	70-130		11/29/18 12:05
4-Bromofluorobenzene	89.8	70-130		11/29/18 12:05

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Acenaphthylene	0.31	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Acetophenone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Aniline	ND	0.42	mg/Kg dry	1	V-04	SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Benzo(a)anthracene	0.95	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Benzo(a)pyrene	0.98	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Benzo(b)fluoranthene	1.5	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Benzo(g,h,i)perylene	0.69	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Benzo(k)fluoranthene	0.65	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Bis(2-chloroethoxy)methane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Bis(2-chloroethyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Bis(2-chloroisopropyl)ether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Bis(2-Ethylhexyl)phthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
4-Bromophenylphenylether	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Butylbenzylphthalate	ND	0.42	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 18:00	CDT
4-Chloroaniline	ND	0.82	mg/Kg dry	1	V-34	SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2-Chloronaphthalene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2-Chlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Chrysene	1.3	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Dibenz(a,h)anthracene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Dibenzofuran	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Di-n-butylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
1,2-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
1,3-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
1,4-Dichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
3,3-Dichlorobenzidine	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4-Dichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Diethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4-Dimethylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Dimethylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4-Dinitrophenol	ND	0.82	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,6-Dinitrotoluene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Di-n-octylphthalate	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
1,2-Diphenylhydrazine/Azobenzene	ND	0.42	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Fluoranthene	1.8	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Fluorene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Hexachlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Hexachlorobutadiene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Hexachloroethane	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Indeno(1,2,3-cd)pyrene	0.78	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Isophorone	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2-Methylnaphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
3/4-Methylphenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Naphthalene	ND	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Nitrobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2-Nitrophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
4-Nitrophenol	ND	0.82	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Pentachlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Phenanthrene	0.61	0.21	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Phenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Pyrene	2.0	0.21	mg/Kg dry	1	V-05	SW-846 8270D	11/29/18	12/3/18 18:00	CDT
Pyridine	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
1,2,4-Trichlorobenzene	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4,5-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT
2,4,6-Trichlorophenol	ND	0.42	mg/Kg dry	1		SW-846 8270D	11/29/18	12/3/18 18:00	CDT

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	62.8	30-130		12/3/18 18:00
Phenol-d6	68.3	30-130		12/3/18 18:00
Nitrobenzene-d5	69.4	30-130		12/3/18 18:00
2-Fluorobiphenyl	59.8	30-130		12/3/18 18:00
2,4,6-Tribromophenol	84.2	30-130		12/3/18 18:00
p-Terphenyl-d14	81.3	30-130		12/3/18 18:00

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Sample Flags: DL-03

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Alachlor [1]	ND	0.48	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Aldrin [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
alpha-BHC [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
beta-BHC [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
delta-BHC [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
gamma-BHC (Lindane) [1]	ND	0.048	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Chlordane [1]	ND	0.48	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
4,4'-DDD [1]	ND	0.095	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
4,4'-DDE [1]	ND	0.095	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
4,4'-DDT [2]	0.34	0.095	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Dieldrin [1]	ND	0.095	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endosulfan I [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endosulfan II [1]	ND	0.19	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endosulfan sulfate [1]	ND	0.19	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endrin [1]	ND	0.19	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endrin aldehyde [1]	ND	0.19	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Endrin ketone [1]	ND	0.19	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Heptachlor [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Heptachlor epoxide [1]	ND	0.12	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Hexachlorobenzene [1]	ND	0.14	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Methoxychlor [1]	ND	1.2	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG
Toxaphene [1]	ND	2.4	mg/Kg dry	20		SW-846 8081B	11/29/18	12/4/18 10:59	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	97.1	30-150		12/4/18 10:59
Decachlorobiphenyl [2]	103	30-150		12/4/18 10:59
Tetrachloro-m-xylene [1]	61.6	30-150		12/4/18 10:59
Tetrachloro-m-xylene [2]	76.1	30-150		12/4/18 10:59

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1221 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1232 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1242 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1248 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1254 [2]	0.23	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1260 [2]	0.18	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1262 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG
Aroclor-1268 [1]	ND	0.096	mg/Kg dry	4		SW-846 8082A	11/28/18	11/29/18 19:31	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	84.4	30-150		11/29/18 19:31
Decachlorobiphenyl [2]	93.7	30-150		11/29/18 19:31
Tetrachloro-m-xylene [1]	89.3	30-150		11/29/18 19:31
Tetrachloro-m-xylene [2]	90.4	30-150		11/29/18 19:31

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Sample Flags: DL-03

Herbicides by GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [1]	ND	310	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
2,4-DB [1]	ND	310	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
2,4,5-TP (Silvex) [1]	ND	31	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
2,4,5-T [1]	ND	31	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
Dalalpon [1]	ND	760	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
Dicamba [1]	ND	31	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
Dichloroprop [1]	ND	310	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
Dinoseb [1]	ND	150	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
MCPA [1]	ND	31000	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG
MCPP [1]	ND	31000	µg/kg dry	10		SW-846 8151A	11/28/18	12/1/18 2:01	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,4-Dichlorophenylacetic acid [1]	97.3	30-150		12/1/18 2:01
2,4-Dichlorophenylacetic acid [2]	104	30-150		12/1/18 2:01

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	1000	100	mg/Kg dry	10		SW-846 8100 Modified	11/29/18	12/3/18 20:15	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	71.8	40-140		12/3/18 20:15

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Arsenic	14	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Barium	57	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Beryllium	0.36	0.21	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Cadmium	0.68	0.21	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Chromium	20	0.41	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Lead	180	0.62	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Mercury	0.038	0.030	mg/Kg dry	1		SW-846 7471B	12/5/18	12/6/18 12:17	AJL
Nickel	15	0.41	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Selenium	ND	4.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Silver	ND	0.41	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Thallium	ND	2.1	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Vanadium	28	0.83	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW
Zinc	50	0.83	mg/Kg dry	1		SW-846 6010D	12/4/18	12/5/18 12:56	QNW

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Project Location: Sudbury, MA | Sample Description: | Work Order: 18K1190

Date Received: 11/28/2018

Field Sample #: SB42 | Sampled: 11/15/2018 14:00

Sample ID: 18K1190-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ignitability	Absent		present/absent	1		SW-846 1030	11/30/18	11/30/18 16:35	LED
pH @19°C	5.3		pH Units	1	H-03	SW-846 9045C	11/28/18	11/28/18 20:30	LED
Reactive Cyanide	ND	4.0	mg/Kg	1		SW-846 9014	12/1/18	12/3/18 11:00	LL
Reactive Sulfide	ND	20	mg/Kg	1		SW-846 9030A	12/1/18	12/3/18 11:00	LL
Specific conductance	8.1	2.0	µmhos/cm	1		SM21-22 2510B Modified	11/30/18	11/30/18 14:30	EC
% Solids	80.6		% Wt	1		SM 2540G	12/5/18	12/6/18 11:36	KMG

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18K1190-01 [SB48]	B218583	12/05/18
18K1190-02 [SB40]	B218583	12/05/18
18K1190-03 [SB41]	B218583	12/05/18
18K1190-04 [SB42]	B218583	12/05/18

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
18K1190-01 [SB48]	B218203	1.00	11/30/18
18K1190-02 [SB40]	B218203	1.00	11/30/18
18K1190-03 [SB41]	B218203	1.00	11/30/18
18K1190-04 [SB42]	B218203	1.00	11/30/18

SW-846 1030

Lab Number [Field ID]	Batch	Initial [g]	Date
18K1190-01 [SB48]	B218252	50.0	11/30/18
18K1190-02 [SB40]	B218252	50.0	11/30/18
18K1190-03 [SB41]	B218252	50.0	11/30/18
18K1190-04 [SB42]	B218252	50.0	11/30/18

Prep Method: SW-846 3050B-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218441	1.49	50.0	12/04/18
18K1190-02 [SB40]	B218441	1.51	50.0	12/04/18
18K1190-03 [SB41]	B218441	1.50	50.0	12/04/18
18K1190-04 [SB42]	B218441	1.50	50.0	12/04/18

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218536	0.598	50.0	12/05/18
18K1190-02 [SB40]	B218536	0.600	50.0	12/05/18
18K1190-03 [SB41]	B218536	0.574	50.0	12/05/18
18K1190-04 [SB42]	B218536	0.611	50.0	12/05/18

Prep Method: SW-846 3546-SW-846 8081B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218069	10.5	10.0	11/29/18
18K1190-02 [SB40]	B218069	10.2	10.0	11/29/18
18K1190-03 [SB41]	B218069	10.1	10.0	11/29/18
18K1190-04 [SB42]	B218069	10.4	10.0	11/29/18

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Sample Extraction Data

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218009	10.1	10.0	11/28/18
18K1190-02 [SB40]	B218009	10.5	10.0	11/28/18
18K1190-03 [SB41]	B218009	10.2	10.0	11/28/18
18K1190-04 [SB42]	B218009	10.3	10.0	11/28/18

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218071	30.3	1.00	11/29/18
18K1190-02 [SB40]	B218071	30.1	1.00	11/29/18
18K1190-03 [SB41]	B218071	30.1	1.00	11/29/18
18K1190-04 [SB42]	B218071	30.0	1.00	11/29/18

Prep Method: SW-846 8151-SW-846 8151A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B217974	20.3	5.00	11/28/18
18K1190-02 [SB40]	B217974	20.0	5.00	11/28/18
18K1190-03 [SB41]	B217974	20.0	5.00	11/28/18
18K1190-04 [SB42]	B217974	20.3	5.00	11/28/18

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218094	9.89	10.0	11/29/18
18K1190-02 [SB40]	B218094	9.97	10.0	11/29/18
18K1190-03 [SB41]	B218094	8.06	10.0	11/29/18
18K1190-04 [SB42]	B218094	8.36	10.0	11/29/18

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218070	30.3	1.00	11/29/18
18K1190-02 [SB40]	B218070	30.1	1.00	11/29/18
18K1190-03 [SB41]	B218070	30.1	1.00	11/29/18
18K1190-04 [SB42]	B218070	30.0	1.00	11/29/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218238	25.5	250	11/30/18
18K1190-02 [SB40]	B218238	25.7	250	11/30/18
18K1190-03 [SB41]	B218238	25.4	250	11/30/18

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-04 [SB42]	B218263	25.1	250	12/01/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-01 [SB48]	B218248	25.5	250	11/30/18
18K1190-02 [SB40]	B218248	25.7	250	11/30/18
18K1190-03 [SB41]	B218248	25.4	250	11/30/18

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18K1190-04 [SB42]	B218264	25.1	250	12/01/18

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
18K1190-01 [SB48]	B218066	20.0	11/28/18
18K1190-02 [SB40]	B218066	20.0	11/28/18
18K1190-03 [SB41]	B218066	20.0	11/28/18
18K1190-04 [SB42]	B218066	20.0	11/28/18

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218094 - SW-846 5035										
Blank (B218094-BLK1)				Prepared & Analyzed: 11/29/18						
Acetone	ND	0.10	mg/Kg wet							R-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							V-05
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							L-04, V-05
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B218094 - SW-846 5035											
Blank (B218094-BLK1)				Prepared & Analyzed: 11/29/18							
n-Propylbenzene	ND	0.0020	mg/Kg wet								
Styrene	ND	0.0020	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet								
Tetrachloroethylene	ND	0.0020	mg/Kg wet								
Tetrahydrofuran	ND	0.010	mg/Kg wet							L-04, V-05	
Toluene	ND	0.0020	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet							L-04	
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0509*		mg/Kg wet	0.0500		102	70-130				
Surrogate: Toluene-d8	*0.0482*		mg/Kg wet	0.0500		96.4	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0521*		mg/Kg wet	0.0500		104	70-130				
LCS (B218094-BS1)				Prepared & Analyzed: 11/29/18							
Acetone	0.244	0.10	mg/Kg wet	0.200		122	40-160			R-05	†
tert-Amyl Methyl Ether (TAME)	0.0177	0.0010	mg/Kg wet	0.0200		88.4	70-130				
Benzene	0.0173	0.0020	mg/Kg wet	0.0200		86.7	70-130				
Bromobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.7	70-130				
Bromochloromethane	0.0150	0.0020	mg/Kg wet	0.0200		74.8	70-130				
Bromodichloromethane	0.0191	0.0020	mg/Kg wet	0.0200		95.5	70-130				
Bromoform	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130				
Bromomethane	0.0114	0.010	mg/Kg wet	0.0200		57.2	40-160			L-14	†
2-Butanone (MEK)	0.199	0.040	mg/Kg wet	0.200		99.3	40-160				†
n-Butylbenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.7	70-130				
sec-Butylbenzene	0.0192	0.0020	mg/Kg wet	0.0200		96.1	70-130				
tert-Butylbenzene	0.0198	0.0020	mg/Kg wet	0.0200		99.2	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0163	0.0010	mg/Kg wet	0.0200		81.4	70-130				
Carbon Disulfide	0.0169	0.0060	mg/Kg wet	0.0200		84.7	70-130				
Carbon Tetrachloride	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130			V-20	
Chlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
Chlorodibromomethane	0.0217	0.0010	mg/Kg wet	0.0200		109	70-130				
Chloroethane	0.0157	0.010	mg/Kg wet	0.0200		78.6	70-130				
Chloroform	0.0196	0.0040	mg/Kg wet	0.0200		97.9	70-130				
Chloromethane	0.0109	0.010	mg/Kg wet	0.0200		54.5	40-160			V-05, L-14	†
2-Chlorotoluene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
4-Chlorotoluene	0.0215	0.0020	mg/Kg wet	0.0200		107	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0176	0.0020	mg/Kg wet	0.0200		88.1	70-130				
1,2-Dibromoethane (EDB)	0.0213	0.0010	mg/Kg wet	0.0200		106	70-130				
Dibromomethane	0.0180	0.0020	mg/Kg wet	0.0200		89.9	70-130				
1,2-Dichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130				
1,3-Dichlorobenzene	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130				
1,4-Dichlorobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.5	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B218094 - SW-846 5035												
LCS (B218094-BS1)				Prepared & Analyzed: 11/29/18								
Dichlorodifluoromethane (Freon 12)	0.0108	0.010	mg/Kg wet	0.0200		53.9		40-160			L-14	†
1,1-Dichloroethane	0.0167	0.0020	mg/Kg wet	0.0200		83.6		70-130				
1,2-Dichloroethane	0.0194	0.0020	mg/Kg wet	0.0200		97.1		70-130				
1,1-Dichloroethylene	0.0162	0.0040	mg/Kg wet	0.0200		80.8		70-130				
cis-1,2-Dichloroethylene	0.0173	0.0020	mg/Kg wet	0.0200		86.4		70-130				
trans-1,2-Dichloroethylene	0.0162	0.0020	mg/Kg wet	0.0200		81.0		70-130				
1,2-Dichloropropane	0.0153	0.0020	mg/Kg wet	0.0200		76.3		70-130				
1,3-Dichloropropane	0.0178	0.0010	mg/Kg wet	0.0200		89.2		70-130				
2,2-Dichloropropane	0.0212	0.0020	mg/Kg wet	0.0200		106		70-130				
1,1-Dichloropropene	0.0186	0.0020	mg/Kg wet	0.0200		93.1		70-130				
cis-1,3-Dichloropropene	0.0183	0.0010	mg/Kg wet	0.0200		91.4		70-130				
trans-1,3-Dichloropropene	0.0210	0.0010	mg/Kg wet	0.0200		105		70-130				
Diethyl Ether	0.0147	0.010	mg/Kg wet	0.0200		73.3		70-130				
Diisopropyl Ether (DIPE)	0.0141	0.0010	mg/Kg wet	0.0200		70.7		70-130				
1,4-Dioxane	0.161	0.10	mg/Kg wet	0.200		80.7		40-160			V-16	†
Ethylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4		70-130				
Hexachlorobutadiene	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130				
2-Hexanone (MBK)	0.169	0.020	mg/Kg wet	0.200		84.6		40-160				†
Isopropylbenzene (Cumene)	0.0214	0.0020	mg/Kg wet	0.0200		107		70-130				
p-Isopropyltoluene (p-Cymene)	0.0189	0.0020	mg/Kg wet	0.0200		94.4		70-130				
Methyl tert-Butyl Ether (MTBE)	0.0201	0.0040	mg/Kg wet	0.0200		101		70-130				
Methylene Chloride	0.0120	0.010	mg/Kg wet	0.0200		**59.9**	*	70-130			L-04, V-05	
4-Methyl-2-pentanone (MIBK)	0.150	0.020	mg/Kg wet	0.200		74.9		40-160				†
Naphthalene	0.0180	0.0040	mg/Kg wet	0.0200		90.2		70-130				
n-Propylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101		70-130				
Styrene	0.0203	0.0020	mg/Kg wet	0.0200		102		70-130				
1,1,1,2-Tetrachloroethane	0.0226	0.0020	mg/Kg wet	0.0200		113		70-130				
1,1,2,2-Tetrachloroethane	0.0186	0.0010	mg/Kg wet	0.0200		93.2		70-130				
Tetrachloroethylene	0.0197	0.0020	mg/Kg wet	0.0200		98.3		70-130				
Tetrahydrofuran	0.0129	0.010	mg/Kg wet	0.0200		**64.3**	*	70-130			L-04, V-05	
Toluene	0.0177	0.0020	mg/Kg wet	0.0200		88.4		70-130				
1,2,3-Trichlorobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.6		70-130				
1,2,4-Trichlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.3		70-130				
1,1,1-Trichloroethane	0.0199	0.0020	mg/Kg wet	0.0200		99.6		70-130				
1,1,2-Trichloroethane	0.0192	0.0020	mg/Kg wet	0.0200		96.2		70-130				
Trichloroethylene	0.0185	0.0020	mg/Kg wet	0.0200		92.7		70-130				
Trichlorofluoromethane (Freon 11)	0.0175	0.010	mg/Kg wet	0.0200		87.4		70-130				
1,2,3-Trichloropropane	0.0190	0.0020	mg/Kg wet	0.0200		94.9		70-130				
1,2,4-Trimethylbenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.4		70-130				
1,3,5-Trimethylbenzene	0.0211	0.0020	mg/Kg wet	0.0200		105		70-130				
Vinyl Chloride	0.0134	0.010	mg/Kg wet	0.0200		**67.0**	*	70-130			L-04	
m+p Xylene	0.0409	0.0040	mg/Kg wet	0.0400		102		70-130				
o-Xylene	0.0199	0.0020	mg/Kg wet	0.0200		99.4		70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0497*		mg/Kg wet	0.0500		99.4		70-130				
Surrogate: Toluene-d8	*0.0484*		mg/Kg wet	0.0500		96.8		70-130				
Surrogate: 4-Bromofluorobenzene	*0.0529*		mg/Kg wet	0.0500		106		70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B218094 - SW-846 5035													
LCS Dup (B218094-BSD1)				Prepared & Analyzed: 11/29/18									
Acetone	0.196	0.10	mg/Kg wet	0.200		98.1		40-160	**21.8**	*	20	R-05	†
tert-Amyl Methyl Ether (TAME)	0.0171	0.0010	mg/Kg wet	0.0200		85.3		70-130	3.65		20		
Benzene	0.0168	0.0020	mg/Kg wet	0.0200		84.1		70-130	3.14		20		
Bromobenzene	0.0177	0.0020	mg/Kg wet	0.0200		88.4		70-130	7.88		20		
Bromochloromethane	0.0155	0.0020	mg/Kg wet	0.0200		77.4		70-130	3.43		20		
Bromodichloromethane	0.0187	0.0020	mg/Kg wet	0.0200		93.3		70-130	2.33		20		
Bromoform	0.0199	0.0020	mg/Kg wet	0.0200		99.3		70-130	9.54		20		
Bromomethane	0.0120	0.010	mg/Kg wet	0.0200		59.8		40-160	4.43		20	L-14	†
2-Butanone (MEK)	0.186	0.040	mg/Kg wet	0.200		92.9		40-160	6.65		20		†
n-Butylbenzene	0.0172	0.0020	mg/Kg wet	0.0200		85.9		70-130	5.35		20		
sec-Butylbenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.2		70-130	4.11		20		
tert-Butylbenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.4		70-130	6.01		20		
tert-Butyl Ethyl Ether (TBEE)	0.0161	0.0010	mg/Kg wet	0.0200		80.7		70-130	0.864		20		
Carbon Disulfide	0.0173	0.0060	mg/Kg wet	0.0200		86.4		70-130	1.91		20		
Carbon Tetrachloride	0.0206	0.0020	mg/Kg wet	0.0200		103		70-130	4.57		20	V-20	
Chlorobenzene	0.0200	0.0020	mg/Kg wet	0.0200		100		70-130	3.97		20		
Chlorodibromomethane	0.0220	0.0010	mg/Kg wet	0.0200		110		70-130	1.10		20		
Chloroethane	0.0164	0.010	mg/Kg wet	0.0200		81.8		70-130	3.98		20		
Chloroform	0.0188	0.0040	mg/Kg wet	0.0200		93.8		70-130	4.29		20		
Chloromethane	0.0110	0.010	mg/Kg wet	0.0200		55.1		40-160	1.11		20	V-05, L-14	†
2-Chlorotoluene	0.0198	0.0020	mg/Kg wet	0.0200		99.2		70-130	2.90		20		
4-Chlorotoluene	0.0207	0.0020	mg/Kg wet	0.0200		104		70-130	3.61		20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0174	0.0020	mg/Kg wet	0.0200		87.1		70-130	1.10		20		
1,2-Dibromoethane (EDB)	0.0214	0.0010	mg/Kg wet	0.0200		107		70-130	0.422		20		
Dibromomethane	0.0186	0.0020	mg/Kg wet	0.0200		92.9		70-130	3.24		20		
1,2-Dichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.8		70-130	3.64		20		
1,3-Dichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.0		70-130	5.09		20		
1,4-Dichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.0		70-130	4.78		20		
Dichlorodifluoromethane (Freon 12)	0.0108	0.010	mg/Kg wet	0.0200		53.8		40-160	0.130		20	L-14	†
1,1-Dichloroethane	0.0166	0.0020	mg/Kg wet	0.0200		82.9		70-130	0.793		20		
1,2-Dichloroethane	0.0191	0.0020	mg/Kg wet	0.0200		95.5		70-130	1.71		20		
1,1-Dichloroethylene	0.0164	0.0040	mg/Kg wet	0.0200		82.2		70-130	1.62		20		
cis-1,2-Dichloroethylene	0.0172	0.0020	mg/Kg wet	0.0200		86.2		70-130	0.220		20		
trans-1,2-Dichloroethylene	0.0162	0.0020	mg/Kg wet	0.0200		81.2		70-130	0.283		20		
1,2-Dichloropropane	0.0160	0.0020	mg/Kg wet	0.0200		80.1		70-130	4.82		20		
1,3-Dichloropropane	0.0169	0.0010	mg/Kg wet	0.0200		84.6		70-130	5.22		20		
2,2-Dichloropropane	0.0202	0.0020	mg/Kg wet	0.0200		101		70-130	4.88		20		
1,1-Dichloropropene	0.0179	0.0020	mg/Kg wet	0.0200		89.3		70-130	4.20		20		
cis-1,3-Dichloropropene	0.0178	0.0010	mg/Kg wet	0.0200		88.9		70-130	2.77		20		
trans-1,3-Dichloropropene	0.0206	0.0010	mg/Kg wet	0.0200		103		70-130	1.83		20		
Diethyl Ether	0.0140	0.010	mg/Kg wet	0.0200		70.0		70-130	4.63		20		
Diisopropyl Ether (DIPE)	0.0139	0.0010	mg/Kg wet	0.0200		**69.3**	*	70-130	2.00		20	L-07	
1,4-Dioxane	0.193	0.10	mg/Kg wet	0.200		96.7		40-160	18.0		20	V-16	†
Ethylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.0		70-130	1.43		20		
Hexachlorobutadiene	0.0198	0.0020	mg/Kg wet	0.0200		99.1		70-130	1.40		20		
2-Hexanone (MBK)	0.166	0.020	mg/Kg wet	0.200		83.0		40-160	1.94		20		†
Isopropylbenzene (Cumene)	0.0211	0.0020	mg/Kg wet	0.0200		105		70-130	1.31		20		
p-Isopropyltoluene (p-Cymene)	0.0181	0.0020	mg/Kg wet	0.0200		90.5		70-130	4.21		20		
Methyl tert-Butyl Ether (MTBE)	0.0188	0.0040	mg/Kg wet	0.0200		94.1		70-130	6.86		20		
Methylene Chloride	0.0123	0.010	mg/Kg wet	0.0200		**61.7**	*	70-130	2.91		20	L-04, V-05	
4-Methyl-2-pentanone (MIBK)	0.149	0.020	mg/Kg wet	0.200		74.7		40-160	0.290		20		†
Naphthalene	0.0166	0.0040	mg/Kg wet	0.0200		83.2		70-130	8.13		20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B218094 - SW-846 5035											
LCS Dup (B218094-BSD1)				Prepared & Analyzed: 11/29/18							
n-Propylbenzene	0.0198	0.0020	mg/Kg wet	0.0200		98.8		70-130	1.89	20	
Styrene	0.0194	0.0020	mg/Kg wet	0.0200		97.0		70-130	4.62	20	
1,1,1,2-Tetrachloroethane	0.0211	0.0020	mg/Kg wet	0.0200		105		70-130	7.09	20	
1,1,2,2-Tetrachloroethane	0.0191	0.0010	mg/Kg wet	0.0200		95.3		70-130	2.16	20	
Tetrachloroethylene	0.0205	0.0020	mg/Kg wet	0.0200		102		70-130	4.09	20	
Tetrahydrofuran	0.0127	0.010	mg/Kg wet	0.0200		**63.3**	*	70-130	1.52	20	L-04, V-05
Toluene	0.0180	0.0020	mg/Kg wet	0.0200		90.0		70-130	1.83	20	
1,2,3-Trichlorobenzene	0.0176	0.0020	mg/Kg wet	0.0200		87.8		70-130	8.56	20	
1,2,4-Trichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.0		70-130	6.73	20	
1,1,1-Trichloroethane	0.0197	0.0020	mg/Kg wet	0.0200		98.3		70-130	1.36	20	
1,1,2-Trichloroethane	0.0201	0.0020	mg/Kg wet	0.0200		100		70-130	4.40	20	
Trichloroethylene	0.0190	0.0020	mg/Kg wet	0.0200		94.8		70-130	2.27	20	
Trichlorofluoromethane (Freon 11)	0.0169	0.010	mg/Kg wet	0.0200		84.4		70-130	3.55	20	
1,2,3-Trichloropropane	0.0166	0.0020	mg/Kg wet	0.0200		82.9		70-130	13.5	20	
1,2,4-Trimethylbenzene	0.0179	0.0020	mg/Kg wet	0.0200		89.4		70-130	4.38	20	
1,3,5-Trimethylbenzene	0.0209	0.0020	mg/Kg wet	0.0200		105		70-130	0.619	20	
Vinyl Chloride	0.0131	0.010	mg/Kg wet	0.0200		**65.4**	*	70-130	2.48	20	L-04
m+p Xylene	0.0396	0.0040	mg/Kg wet	0.0400		99.0		70-130	3.19	20	
o-Xylene	0.0195	0.0020	mg/Kg wet	0.0200		97.7		70-130	1.65	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0489*		mg/Kg wet	0.0500		97.9		70-130			
Surrogate: Toluene-d8	*0.0496*		mg/Kg wet	0.0500		99.2		70-130			
Surrogate: 4-Bromofluorobenzene	*0.0530*		mg/Kg wet	0.0500		106		70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218070 - SW-846 3546										
Blank (B218070-BLK1)				Prepared: 11/29/18 Analyzed: 11/30/18						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-04
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							V-05
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B218070 - SW-846 3546											
Blank (B218070-BLK1)				Prepared: 11/29/18 Analyzed: 11/30/18							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*4.56*		mg/Kg wet	6.67		68.4	30-130				
Surrogate: Phenol-d6	*4.84*		mg/Kg wet	6.67		72.5	30-130				
Surrogate: Nitrobenzene-d5	*2.33*		mg/Kg wet	3.33		69.9	30-130				
Surrogate: 2-Fluorobiphenyl	*2.04*		mg/Kg wet	3.33		61.3	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.28*		mg/Kg wet	6.67		79.3	30-130				
Surrogate: p-Terphenyl-d14	*2.66*		mg/Kg wet	3.33		79.9	30-130				
LCS (B218070-BS1)				Prepared: 11/29/18 Analyzed: 11/30/18							
Acenaphthene	1.08	0.17	mg/Kg wet	1.67		64.9	40-140				
Acenaphthylene	1.20	0.17	mg/Kg wet	1.67		72.1	40-140				
Acetophenone	1.21	0.34	mg/Kg wet	1.67		72.9	40-140				
Aniline	0.883	0.34	mg/Kg wet	1.67		53.0	40-140			V-04	
Anthracene	1.25	0.17	mg/Kg wet	1.67		74.9	40-140				
Benzo(a)anthracene	1.25	0.17	mg/Kg wet	1.67		74.8	40-140				
Benzo(a)pyrene	1.25	0.17	mg/Kg wet	1.67		75.1	40-140				
Benzo(b)fluoranthene	1.13	0.17	mg/Kg wet	1.67		67.8	40-140				
Benzo(g,h,i)perylene	1.31	0.17	mg/Kg wet	1.67		78.8	40-140				
Benzo(k)fluoranthene	1.21	0.17	mg/Kg wet	1.67		72.3	40-140				
Bis(2-chloroethoxy)methane	1.47	0.34	mg/Kg wet	1.67		88.3	40-140				
Bis(2-chloroethyl)ether	1.27	0.34	mg/Kg wet	1.67		76.1	40-140				
Bis(2-chloroisopropyl)ether	1.43	0.34	mg/Kg wet	1.67		85.6	40-140				
Bis(2-Ethylhexyl)phthalate	1.15	0.34	mg/Kg wet	1.67		68.9	40-140				
4-Bromophenylphenylether	1.40	0.34	mg/Kg wet	1.67		83.8	40-140				
Butylbenzylphthalate	1.15	0.34	mg/Kg wet	1.67		69.2	40-140				
4-Chloroaniline	0.610	0.66	mg/Kg wet	1.67		36.6	15-140			V-34	†
2-Chloronaphthalene	1.14	0.34	mg/Kg wet	1.67		68.3	40-140				
2-Chlorophenol	1.31	0.34	mg/Kg wet	1.67		78.7	30-130				
Chrysene	1.21	0.17	mg/Kg wet	1.67		72.8	40-140				
Dibenz(a,h)anthracene	1.20	0.17	mg/Kg wet	1.67		71.9	40-140				
Dibenzofuran	1.27	0.34	mg/Kg wet	1.67		76.2	40-140				
Di-n-butylphthalate	1.26	0.34	mg/Kg wet	1.67		75.5	40-140				
1,2-Dichlorobenzene	1.20	0.34	mg/Kg wet	1.67		72.2	40-140				
1,3-Dichlorobenzene	1.15	0.34	mg/Kg wet	1.67		68.7	40-140				
1,4-Dichlorobenzene	1.15	0.34	mg/Kg wet	1.67		69.2	40-140				
3,3-Dichlorobenzidine	0.833	0.17	mg/Kg wet	1.67		50.0	40-140				
2,4-Dichlorophenol	1.28	0.34	mg/Kg wet	1.67		76.9	30-130				
Diethylphthalate	1.23	0.34	mg/Kg wet	1.67		73.9	40-140				
2,4-Dimethylphenol	1.30	0.34	mg/Kg wet	1.67		78.3	30-130				
Dimethylphthalate	1.28	0.34	mg/Kg wet	1.67		76.7	40-140				
2,4-Dinitrophenol	1.12	0.66	mg/Kg wet	1.67		67.3	15-140				†
2,4-Dinitrotoluene	1.28	0.34	mg/Kg wet	1.67		76.8	40-140				
2,6-Dinitrotoluene	1.34	0.34	mg/Kg wet	1.67		80.5	40-140				
Di-n-octylphthalate	1.06	0.34	mg/Kg wet	1.67		63.8	40-140				
1,2-Diphenylhydrazine/Azobenzene	1.11	0.34	mg/Kg wet	1.67		66.8	40-140			V-05	
Fluoranthene	1.34	0.17	mg/Kg wet	1.67		80.7	40-140				
Fluorene	1.23	0.17	mg/Kg wet	1.67		73.5	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B218070 - SW-846 3546											
LCS (B218070-BS1)				Prepared: 11/29/18 Analyzed: 11/30/18							
Hexachlorobenzene	1.36	0.34	mg/Kg wet	1.67		81.8	40-140				
Hexachlorobutadiene	1.33	0.34	mg/Kg wet	1.67		79.6	40-140				
Hexachloroethane	1.14	0.34	mg/Kg wet	1.67		68.5	40-140				
Indeno(1,2,3-cd)pyrene	1.26	0.17	mg/Kg wet	1.67		75.7	40-140				
Isophorone	1.34	0.34	mg/Kg wet	1.67		80.7	40-140				
2-Methylnaphthalene	1.36	0.17	mg/Kg wet	1.67		81.5	40-140				
2-Methylphenol	1.30	0.34	mg/Kg wet	1.67		78.0	30-130				
3/4-Methylphenol	1.17	0.34	mg/Kg wet	1.67		70.0	30-130				
Naphthalene	1.26	0.17	mg/Kg wet	1.67		75.5	40-140				
Nitrobenzene	1.20	0.34	mg/Kg wet	1.67		72.2	40-140				
2-Nitrophenol	1.28	0.34	mg/Kg wet	1.67		76.9	30-130				
4-Nitrophenol	1.19	0.66	mg/Kg wet	1.67		71.2	15-140				†
Pentachlorophenol	1.04	0.34	mg/Kg wet	1.67		62.5	30-130				
Phenanthrene	1.24	0.17	mg/Kg wet	1.67		74.3	40-140				
Phenol	1.24	0.34	mg/Kg wet	1.67		74.6	15-140				†
Pyrene	1.14	0.17	mg/Kg wet	1.67		68.3	40-140				
Pyridine	0.827	0.34	mg/Kg wet	1.67		49.6	30-140				†
1,2,4-Trichlorobenzene	1.26	0.34	mg/Kg wet	1.67		75.9	40-140				
2,4,5-Trichlorophenol	1.24	0.34	mg/Kg wet	1.67		74.4	30-130				
2,4,6-Trichlorophenol	1.28	0.34	mg/Kg wet	1.67		76.8	30-130				
Surrogate: 2-Fluorophenol	*5.34*		mg/Kg wet	6.67		80.1	30-130				
Surrogate: Phenol-d6	*5.45*		mg/Kg wet	6.67		81.8	30-130				
Surrogate: Nitrobenzene-d5	*2.72*		mg/Kg wet	3.33		81.6	30-130				
Surrogate: 2-Fluorobiphenyl	*2.31*		mg/Kg wet	3.33		69.4	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.45*		mg/Kg wet	6.67		81.7	30-130				
Surrogate: p-Terphenyl-d14	*2.57*		mg/Kg wet	3.33		77.0	30-130				
LCS Dup (B218070-BSD1)				Prepared: 11/29/18 Analyzed: 11/30/18							
Acenaphthene	1.06	0.17	mg/Kg wet	1.67		63.5	40-140	2.09	30		
Acenaphthylene	1.17	0.17	mg/Kg wet	1.67		70.2	40-140	2.64	30		
Acetophenone	1.17	0.34	mg/Kg wet	1.67		69.9	40-140	4.12	30		
Aniline	0.839	0.34	mg/Kg wet	1.67		50.3	40-140	5.11	30	V-04	
Anthracene	1.22	0.17	mg/Kg wet	1.67		73.4	40-140	1.97	30		
Benzo(a)anthracene	1.20	0.17	mg/Kg wet	1.67		72.2	40-140	3.54	30		
Benzo(a)pyrene	1.22	0.17	mg/Kg wet	1.67		73.0	40-140	2.81	30		
Benzo(b)fluoranthene	1.08	0.17	mg/Kg wet	1.67		64.8	40-140	4.59	30		
Benzo(g,h,i)perylene	1.29	0.17	mg/Kg wet	1.67		77.3	40-140	1.85	30		
Benzo(k)fluoranthene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140	4.38	30		
Bis(2-chloroethoxy)methane	1.41	0.34	mg/Kg wet	1.67		84.5	40-140	4.47	30		
Bis(2-chloroethyl)ether	1.22	0.34	mg/Kg wet	1.67		73.1	40-140	4.05	30		
Bis(2-chloroisopropyl)ether	1.37	0.34	mg/Kg wet	1.67		82.4	40-140	3.76	30		
Bis(2-Ethylhexyl)phthalate	1.13	0.34	mg/Kg wet	1.67		67.5	40-140	2.05	30		
4-Bromophenylphenylether	1.31	0.34	mg/Kg wet	1.67		78.8	40-140	6.08	30		
Butylbenzylphthalate	1.12	0.34	mg/Kg wet	1.67		67.3	40-140	2.75	30		
4-Chloroaniline	0.575	0.66	mg/Kg wet	1.67		34.5	15-140	6.02	30	V-34	†
2-Chloronaphthalene	1.03	0.34	mg/Kg wet	1.67		62.0	40-140	9.67	30		
2-Chlorophenol	1.25	0.34	mg/Kg wet	1.67		75.1	30-130	4.68	30		
Chrysene	1.18	0.17	mg/Kg wet	1.67		70.7	40-140	2.93	30		
Dibenz(a,h)anthracene	1.16	0.17	mg/Kg wet	1.67		69.9	40-140	2.91	30		
Dibenzofuran	1.24	0.34	mg/Kg wet	1.67		74.2	40-140	2.66	30		
Di-n-butylphthalate	1.23	0.34	mg/Kg wet	1.67		74.1	40-140	1.87	30		
1,2-Dichlorobenzene	1.15	0.34	mg/Kg wet	1.67		69.2	40-140	4.30	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B218070 - SW-846 3546											
LCS Dup (B218070-BSD1)				Prepared: 11/29/18 Analyzed: 11/30/18							
1,3-Dichlorobenzene	1.11	0.34	mg/Kg wet	1.67		66.8	40-140	2.80	30		
1,4-Dichlorobenzene	1.12	0.34	mg/Kg wet	1.67		67.0	40-140	3.26	30		
3,3-Dichlorobenzidine	0.810	0.17	mg/Kg wet	1.67		48.6	40-140	2.80	30		
2,4-Dichlorophenol	1.23	0.34	mg/Kg wet	1.67		74.1	30-130	3.71	30		
Diethylphthalate	1.24	0.34	mg/Kg wet	1.67		74.6	40-140	0.969	30		
2,4-Dimethylphenol	1.26	0.34	mg/Kg wet	1.67		75.5	30-130	3.62	30		
Dimethylphthalate	1.27	0.34	mg/Kg wet	1.67		76.0	40-140	0.917	30		
2,4-Dinitrophenol	1.12	0.66	mg/Kg wet	1.67		67.4	15-140	0.178	30		†
2,4-Dinitrotoluene	1.30	0.34	mg/Kg wet	1.67		77.7	40-140	1.14	30		
2,6-Dinitrotoluene	1.34	0.34	mg/Kg wet	1.67		80.3	40-140	0.249	30		
Di-n-octylphthalate	1.03	0.34	mg/Kg wet	1.67		61.7	40-140	3.38	30		
1,2-Diphenylhydrazine/Azobenzene	1.06	0.34	mg/Kg wet	1.67		63.6	40-140	4.94	30	V-05	
Fluoranthene	1.32	0.17	mg/Kg wet	1.67		79.1	40-140	2.00	30		
Fluorene	1.21	0.17	mg/Kg wet	1.67		72.6	40-140	1.26	30		
Hexachlorobenzene	1.30	0.34	mg/Kg wet	1.67		78.2	40-140	4.55	30		
Hexachlorobutadiene	1.28	0.34	mg/Kg wet	1.67		76.8	40-140	3.55	30		
Hexachloroethane	1.09	0.34	mg/Kg wet	1.67		65.7	40-140	4.26	30		
Indeno(1,2,3-cd)pyrene	1.22	0.17	mg/Kg wet	1.67		73.5	40-140	3.03	30		
Isophorone	1.31	0.34	mg/Kg wet	1.67		78.7	40-140	2.53	30		
2-Methylnaphthalene	1.33	0.17	mg/Kg wet	1.67		79.6	40-140	2.33	30		
2-Methylphenol	1.28	0.34	mg/Kg wet	1.67		76.6	30-130	1.81	30		
3/4-Methylphenol	1.13	0.34	mg/Kg wet	1.67		68.0	30-130	2.96	30		
Naphthalene	1.21	0.17	mg/Kg wet	1.67		72.6	40-140	3.97	30		
Nitrobenzene	1.16	0.34	mg/Kg wet	1.67		69.8	40-140	3.41	30		
2-Nitrophenol	1.24	0.34	mg/Kg wet	1.67		74.3	30-130	3.54	30		
4-Nitrophenol	1.19	0.66	mg/Kg wet	1.67		71.6	15-140	0.672	30		†
Pentachlorophenol	1.00	0.34	mg/Kg wet	1.67		60.2	30-130	3.78	30		
Phenanthrene	1.20	0.17	mg/Kg wet	1.67		72.2	40-140	2.81	30		
Phenol	1.18	0.34	mg/Kg wet	1.67		70.6	15-140	5.51	30		†
Pyrene	1.11	0.17	mg/Kg wet	1.67		66.4	40-140	2.82	30		
Pyridine	0.808	0.34	mg/Kg wet	1.67		48.5	30-140	2.37	30		†
1,2,4-Trichlorobenzene	1.22	0.34	mg/Kg wet	1.67		73.4	40-140	3.30	30		
2,4,5-Trichlorophenol	1.25	0.34	mg/Kg wet	1.67		74.7	30-130	0.375	30		
2,4,6-Trichlorophenol	1.24	0.34	mg/Kg wet	1.67		74.1	30-130	3.58	30		
Surrogate: 2-Fluorophenol	*4.99*		mg/Kg wet	6.67		74.8	30-130				
Surrogate: Phenol-d6	*5.10*		mg/Kg wet	6.67		76.5	30-130				
Surrogate: Nitrobenzene-d5	*2.55*		mg/Kg wet	3.33		76.6	30-130				
Surrogate: 2-Fluorobiphenyl	*2.15*		mg/Kg wet	3.33		64.4	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.30*		mg/Kg wet	6.67		79.4	30-130				
Surrogate: p-Terphenyl-d14	*2.47*		mg/Kg wet	3.33		74.0	30-130				

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218069 - SW-846 3546										
Blank (B218069-BLK1)				Prepared: 11/29/18 Analyzed: 12/04/18						
alpha-Chlordane	ND	0.0050	mg/Kg wet							
alpha-Chlordane [2C]	ND	0.0050	mg/Kg wet							
gamma-Chlordane	ND	0.0050	mg/Kg wet							
gamma-Chlordane [2C]	ND	0.0050	mg/Kg wet							
Alachlor	ND	0.020	mg/Kg wet							
Alachlor [2C]	ND	0.020	mg/Kg wet							
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.163*		mg/Kg wet	0.200		81.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.156*		mg/Kg wet	0.200		78.0	30-150			
Surrogate: Tetrachloro-m-xylene	*0.120*		mg/Kg wet	0.200		60.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.144*		mg/Kg wet	0.200		71.8	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218069 - SW-846 3546										
LCS (B218069-BS1)				Prepared: 11/29/18 Analyzed: 12/04/18						
alpha-Chlordane	0.089	0.0050	mg/Kg wet	0.100		89.3	40-140			
alpha-Chlordane [2C]	0.089	0.0050	mg/Kg wet	0.100		88.6	40-140			
gamma-Chlordane	0.086	0.0050	mg/Kg wet	0.100		85.9	40-140			
gamma-Chlordane [2C]	0.088	0.0050	mg/Kg wet	0.100		88.2	40-140			
Alachlor	0.066	0.020	mg/Kg wet	0.100		66.0	40-140			
Alachlor [2C]	0.069	0.020	mg/Kg wet	0.100		69.5	40-140			
Aldrin	0.083	0.0050	mg/Kg wet	0.100		83.3	40-140			
Aldrin [2C]	0.081	0.0050	mg/Kg wet	0.100		81.0	40-140			
alpha-BHC	0.050	0.0050	mg/Kg wet	0.100		50.2	40-140			
alpha-BHC [2C]	0.053	0.0050	mg/Kg wet	0.100		52.5	40-140			
beta-BHC	0.071	0.0050	mg/Kg wet	0.100		70.6	40-140			
beta-BHC [2C]	0.071	0.0050	mg/Kg wet	0.100		70.6	40-140			
delta-BHC	0.072	0.0050	mg/Kg wet	0.100		72.4	40-140			
delta-BHC [2C]	0.075	0.0050	mg/Kg wet	0.100		75.2	40-140			
gamma-BHC (Lindane)	0.060	0.0020	mg/Kg wet	0.100		60.3	40-140			
gamma-BHC (Lindane) [2C]	0.061	0.0020	mg/Kg wet	0.100		60.6	40-140			
4,4'-DDD	0.099	0.0040	mg/Kg wet	0.100		99.1	40-140			
4,4'-DDD [2C]	0.094	0.0040	mg/Kg wet	0.100		93.7	40-140			
4,4'-DDE	0.099	0.0040	mg/Kg wet	0.100		99.4	40-140			
4,4'-DDE [2C]	0.095	0.0040	mg/Kg wet	0.100		95.0	40-140			
4,4'-DDT	0.096	0.0040	mg/Kg wet	0.100		95.7	40-140			
4,4'-DDT [2C]	0.090	0.0040	mg/Kg wet	0.100		89.7	40-140			
Dieldrin	0.089	0.0040	mg/Kg wet	0.100		89.2	40-140			
Dieldrin [2C]	0.086	0.0040	mg/Kg wet	0.100		85.7	40-140			
Endosulfan I	0.088	0.0050	mg/Kg wet	0.100		88.1	40-140			
Endosulfan I [2C]	0.086	0.0050	mg/Kg wet	0.100		86.2	40-140			
Endosulfan II	0.091	0.0080	mg/Kg wet	0.100		90.9	40-140			
Endosulfan II [2C]	0.090	0.0080	mg/Kg wet	0.100		89.8	40-140			
Endosulfan Sulfate	0.087	0.0080	mg/Kg wet	0.100		86.5	40-140			
Endosulfan Sulfate [2C]	0.088	0.0080	mg/Kg wet	0.100		87.9	40-140			
Endrin	0.092	0.0080	mg/Kg wet	0.100		91.7	40-140			
Endrin [2C]	0.090	0.0080	mg/Kg wet	0.100		89.6	40-140			
Endrin Aldehyde	0.091	0.0080	mg/Kg wet	0.100		90.9	40-140			
Endrin Aldehyde [2C]	0.089	0.0080	mg/Kg wet	0.100		88.8	40-140			
Endrin Ketone	0.094	0.0080	mg/Kg wet	0.100		93.5	40-140			
Endrin Ketone [2C]	0.091	0.0080	mg/Kg wet	0.100		91.2	40-140			
Heptachlor	0.058	0.0050	mg/Kg wet	0.100		58.0	40-140			
Heptachlor [2C]	0.074	0.0050	mg/Kg wet	0.100		74.5	40-140			
Heptachlor Epoxide	0.083	0.0050	mg/Kg wet	0.100		83.1	40-140			
Heptachlor Epoxide [2C]	0.082	0.0050	mg/Kg wet	0.100		82.3	40-140			
Hexachlorobenzene	0.083	0.0060	mg/Kg wet	0.100		83.0	40-140			
Hexachlorobenzene [2C]	0.086	0.0060	mg/Kg wet	0.100		86.2	40-140			
Methoxychlor	0.094	0.050	mg/Kg wet	0.100		93.7	40-140			
Methoxychlor [2C]	0.095	0.050	mg/Kg wet	0.100		95.0	40-140			
Surrogate: Decachlorobiphenyl	*0.178*		mg/Kg wet	0.200		88.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.171*		mg/Kg wet	0.200		85.7	30-150			
Surrogate: Tetrachloro-m-xylene	*0.149*		mg/Kg wet	0.200		74.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.159*		mg/Kg wet	0.200		79.3	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218069 - SW-846 3546										
LCS Dup (B218069-BSD1)				Prepared: 11/29/18 Analyzed: 12/04/18						
alpha-Chlordane	0.089	0.0050	mg/Kg wet	0.100		89.0	40-140	0.413	30	
alpha-Chlordane [2C]	0.089	0.0050	mg/Kg wet	0.100		89.1	40-140	0.644	30	
gamma-Chlordane	0.085	0.0050	mg/Kg wet	0.100		84.8	40-140	1.29	30	
gamma-Chlordane [2C]	0.088	0.0050	mg/Kg wet	0.100		87.9	40-140	0.300	30	
Alachlor	0.063	0.020	mg/Kg wet	0.100		62.6	40-140	5.35	30	
Alachlor [2C]	0.065	0.020	mg/Kg wet	0.100		65.4	40-140	6.00	30	
Aldrin	0.079	0.0050	mg/Kg wet	0.100		79.1	40-140	5.21	30	
Aldrin [2C]	0.078	0.0050	mg/Kg wet	0.100		78.3	40-140	3.47	30	
alpha-BHC	0.044	0.0050	mg/Kg wet	0.100		44.1	40-140	12.9	30	
alpha-BHC [2C]	0.047	0.0050	mg/Kg wet	0.100		46.8	40-140	11.5	30	
beta-BHC	0.060	0.0050	mg/Kg wet	0.100		60.2	40-140	15.8	30	
beta-BHC [2C]	0.063	0.0050	mg/Kg wet	0.100		63.1	40-140	11.2	30	
delta-BHC	0.064	0.0050	mg/Kg wet	0.100		64.1	40-140	12.2	30	
delta-BHC [2C]	0.068	0.0050	mg/Kg wet	0.100		67.6	40-140	10.6	30	
gamma-BHC (Lindane)	0.052	0.0020	mg/Kg wet	0.100		51.6	40-140	15.5	30	
gamma-BHC (Lindane) [2C]	0.053	0.0020	mg/Kg wet	0.100		52.9	40-140	13.6	30	
4,4'-DDD	0.10	0.0040	mg/Kg wet	0.100		103	40-140	3.73	30	
4,4'-DDD [2C]	0.098	0.0040	mg/Kg wet	0.100		98.3	40-140	4.75	30	
4,4'-DDE	0.10	0.0040	mg/Kg wet	0.100		101	40-140	2.04	30	
4,4'-DDE [2C]	0.10	0.0040	mg/Kg wet	0.100		100	40-140	5.63	30	
4,4'-DDT	0.090	0.0040	mg/Kg wet	0.100		89.5	40-140	6.65	30	
4,4'-DDT [2C]	0.095	0.0040	mg/Kg wet	0.100		95.0	40-140	5.72	30	
Dieldrin	0.090	0.0040	mg/Kg wet	0.100		89.6	40-140	0.372	30	
Dieldrin [2C]	0.087	0.0040	mg/Kg wet	0.100		86.9	40-140	1.38	30	
Endosulfan I	0.087	0.0050	mg/Kg wet	0.100		87.3	40-140	0.996	30	
Endosulfan I [2C]	0.086	0.0050	mg/Kg wet	0.100		86.4	40-140	0.178	30	
Endosulfan II	0.093	0.0080	mg/Kg wet	0.100		92.7	40-140	1.96	30	
Endosulfan II [2C]	0.091	0.0080	mg/Kg wet	0.100		91.4	40-140	1.73	30	
Endosulfan Sulfate	0.090	0.0080	mg/Kg wet	0.100		90.5	40-140	4.47	30	
Endosulfan Sulfate [2C]	0.092	0.0080	mg/Kg wet	0.100		91.6	40-140	4.08	30	
Endrin	0.092	0.0080	mg/Kg wet	0.100		92.4	40-140	0.799	30	
Endrin [2C]	0.091	0.0080	mg/Kg wet	0.100		91.0	40-140	1.56	30	
Endrin Aldehyde	0.099	0.0080	mg/Kg wet	0.100		98.9	40-140	8.43	30	
Endrin Aldehyde [2C]	0.096	0.0080	mg/Kg wet	0.100		96.2	40-140	7.90	30	
Endrin Ketone	0.098	0.0080	mg/Kg wet	0.100		97.6	40-140	4.28	30	
Endrin Ketone [2C]	0.096	0.0080	mg/Kg wet	0.100		95.9	40-140	5.07	30	
Heptachlor	0.052	0.0050	mg/Kg wet	0.100		52.0	40-140	10.8	30	
Heptachlor [2C]	0.068	0.0050	mg/Kg wet	0.100		67.9	40-140	9.22	30	
Heptachlor Epoxide	0.080	0.0050	mg/Kg wet	0.100		79.8	40-140	4.07	30	
Heptachlor Epoxide [2C]	0.080	0.0050	mg/Kg wet	0.100		80.1	40-140	2.72	30	
Hexachlorobenzene	0.083	0.0060	mg/Kg wet	0.100		83.2	40-140	0.242	30	
Hexachlorobenzene [2C]	0.087	0.0060	mg/Kg wet	0.100		86.6	40-140	0.508	30	
Methoxychlor	0.098	0.050	mg/Kg wet	0.100		98.3	40-140	4.78	30	
Methoxychlor [2C]	0.10	0.050	mg/Kg wet	0.100		101	40-140	6.43	30	
Surrogate: Decachlorobiphenyl	*0.187*		mg/Kg wet	0.200		93.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.180*		mg/Kg wet	0.200		90.2	30-150			
Surrogate: Tetrachloro-m-xylene	*0.132*		mg/Kg wet	0.200		65.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.156*		mg/Kg wet	0.200		77.8	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218009 - SW-846 3546										
Blank (B218009-BLK1)				Prepared: 11/28/18 Analyzed: 11/29/18						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.131*		mg/Kg wet	0.200		65.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.135*		mg/Kg wet	0.200		67.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.123*		mg/Kg wet	0.200		61.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.123*		mg/Kg wet	0.200		61.4	30-150			
LCS (B218009-BS1)				Prepared: 11/28/18 Analyzed: 11/29/18						
Aroclor-1016	0.13	0.020	mg/Kg wet	0.200		62.6	40-140			
Aroclor-1016 [2C]	0.13	0.020	mg/Kg wet	0.200		64.2	40-140			
Aroclor-1260	0.12	0.020	mg/Kg wet	0.200		61.0	40-140			
Aroclor-1260 [2C]	0.12	0.020	mg/Kg wet	0.200		62.3	40-140			
Surrogate: Decachlorobiphenyl	*0.136*		mg/Kg wet	0.200		68.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.142*		mg/Kg wet	0.200		71.1	30-150			
Surrogate: Tetrachloro-m-xylene	*0.132*		mg/Kg wet	0.200		65.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.132*		mg/Kg wet	0.200		66.2	30-150			
LCS Dup (B218009-BSD1)				Prepared: 11/28/18 Analyzed: 11/29/18						
Aroclor-1016	0.13	0.020	mg/Kg wet	0.200		67.3	40-140	7.17	30	
Aroclor-1016 [2C]	0.14	0.020	mg/Kg wet	0.200		69.3	40-140	7.60	30	
Aroclor-1260	0.13	0.020	mg/Kg wet	0.200		66.2	40-140	8.14	30	
Aroclor-1260 [2C]	0.14	0.020	mg/Kg wet	0.200		68.1	40-140	8.93	30	
Surrogate: Decachlorobiphenyl	*0.152*		mg/Kg wet	0.200		75.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.156*		mg/Kg wet	0.200		78.2	30-150			
Surrogate: Tetrachloro-m-xylene	*0.141*		mg/Kg wet	0.200		70.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.141*		mg/Kg wet	0.200		70.7	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217974 - SW-846 8151										
Blank (B217974-BLK1)				Prepared: 11/28/18 Analyzed: 11/29/18						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
Dinoseb	ND	12	µg/kg wet							
Dinoseb [2C]	ND	12	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*72.3*		µg/kg wet	95.2		75.9	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*69.3*		µg/kg wet	95.2		72.7	30-150			
LCS (B217974-BS1)				Prepared: 11/28/18 Analyzed: 11/29/18						
2,4-D	113	25	µg/kg wet	125		90.6	40-140			
2,4-D [2C]	116	25	µg/kg wet	125		92.6	40-140			
2,4-DB	116	25	µg/kg wet	125		92.9	40-140			
2,4-DB [2C]	115	25	µg/kg wet	125		92.2	40-140			
2,4,5-TP (Silvex)	11.8	2.5	µg/kg wet	12.5		94.0	40-140			
2,4,5-TP (Silvex) [2C]	12.0	2.5	µg/kg wet	12.5		95.7	40-140			
2,4,5-T	11.2	2.5	µg/kg wet	12.5		89.3	40-140			
2,4,5-T [2C]	12.3	2.5	µg/kg wet	12.5		98.4	40-140			
Dalapon	193	62	µg/kg wet	312		61.7	40-140			
Dalapon [2C]	191	62	µg/kg wet	312		61.1	40-140			
Dicamba	11.4	2.5	µg/kg wet	12.5		91.6	40-140			
Dicamba [2C]	11.1	2.5	µg/kg wet	12.5		89.1	40-140			
Dichloroprop	119	25	µg/kg wet	125		94.9	40-140			
Dichloroprop [2C]	117	25	µg/kg wet	125		93.6	40-140			
Dinoseb	15.4	12	µg/kg wet	62.5		24.6	0-42.4			
Dinoseb [2C]	16.0	12	µg/kg wet	62.5		25.5	0-41.1			
MCPA	10900	2500	µg/kg wet	12500		87.2	40-140			
MCPA [2C]	10000	2500	µg/kg wet	12500		80.3	40-140			
MCPP	14700	2500	µg/kg wet	12500		118	40-140			
MCPP [2C]	10400	2500	µg/kg wet	12500		83.2	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*86.8*		µg/kg wet	100		86.8	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*83.6*		µg/kg wet	100		83.6	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B217974 - SW-846 8151										
LCS Dup (B217974-BSD1)				Prepared: 11/28/18 Analyzed: 11/29/18						
2,4-D	102	25	µg/kg wet	125		81.5	40-140	10.6	30	
2,4-D [2C]	105	25	µg/kg wet	125		83.7	40-140	10.1	30	
2,4-DB	103	25	µg/kg wet	125		82.2	40-140	12.3	30	
2,4-DB [2C]	102	25	µg/kg wet	125		81.7	40-140	12.1	30	
2,4,5-TP (Silvex)	10.6	2.5	µg/kg wet	12.5		84.8	40-140	10.4	30	
2,4,5-TP (Silvex) [2C]	10.7	2.5	µg/kg wet	12.5		86.0	40-140	10.7	30	
2,4,5-T	10.0	2.5	µg/kg wet	12.5		80.0	40-140	11.0	30	
2,4,5-T [2C]	11.1	2.5	µg/kg wet	12.5		88.6	40-140	10.5	30	
Dalapon	170	62	µg/kg wet	312		54.5	40-140	12.5	30	
Dalapon [2C]	169	62	µg/kg wet	312		53.9	40-140	12.5	30	
Dicamba	10.4	2.5	µg/kg wet	12.5		82.8	40-140	10.0	30	
Dicamba [2C]	10.2	2.5	µg/kg wet	12.5		81.3	40-140	9.14	30	
Dichloroprop	106	25	µg/kg wet	125		84.8	40-140	11.2	30	
Dichloroprop [2C]	106	25	µg/kg wet	125		84.9	40-140	9.84	30	
Dinoseb	17.3	12	µg/kg wet	62.5		27.7	0-42.4	11.8	30	
Dinoseb [2C]	17.6	12	µg/kg wet	62.5		28.2	0-41.1	9.70	30	
MCPA	9580	2500	µg/kg wet	12500		76.6	40-140	12.9	30	
MCPA [2C]	9070	2500	µg/kg wet	12500		72.6	40-140	10.1	30	
MCPP	13400	2500	µg/kg wet	12500		107	40-140	9.18	30	
MCPP [2C]	9190	2500	µg/kg wet	12500		73.5	40-140	12.4	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*76.7*		µg/kg wet	100		76.7	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*75.6*		µg/kg wet	100		75.6	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218071 - SW-846 3546										
Blank (B218071-BLK1)				Prepared: 11/29/18 Analyzed: 11/30/18						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*2.17*		mg/Kg wet	3.33		65.0	40-140			
LCS (B218071-BS1)				Prepared: 11/29/18 Analyzed: 11/30/18						
TPH (C9-C36)	25.1	8.3	mg/Kg wet	33.3		75.3	40-140			
Surrogate: 2-Fluorobiphenyl	*2.41*		mg/Kg wet	3.33		72.3	40-140			
LCS Dup (B218071-BSD1)				Prepared: 11/29/18 Analyzed: 11/30/18						
TPH (C9-C36)	26.1	8.3	mg/Kg wet	33.3		78.3	40-140	3.96	30	
Surrogate: 2-Fluorobiphenyl	*2.47*		mg/Kg wet	3.33		74.0	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218441 - SW-846 3050B										
Blank (B218441-BLK1)				Prepared: 12/04/18 Analyzed: 12/05/18						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	1.7	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.17	mg/Kg wet							
Chromium	ND	0.33	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.33	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.67	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							
LCS (B218441-BS1)				Prepared: 12/04/18 Analyzed: 12/05/18						
Antimony	62.5	4.9	mg/Kg wet	75.5		82.8	3.8-196			
Arsenic	161	4.9	mg/Kg wet	161		99.7	83.2-116.8			
Barium	284	4.9	mg/Kg wet	260		109	82.7-117.3			
Beryllium	104	0.49	mg/Kg wet	97.6		107	83.4-116.8			
Cadmium	214	0.49	mg/Kg wet	211		102	83.4-116.6			
Chromium	142	0.98	mg/Kg wet	136		104	82.4-117.6			
Lead	110	1.5	mg/Kg wet	111		98.8	83-117.1			
Nickel	97.7	0.98	mg/Kg wet	91.9		106	82.9-117.5			
Selenium	187	9.8	mg/Kg wet	191		97.7	79.6-120.9			
Silver	47.3	0.98	mg/Kg wet	43.3		109	79.9-119.9			
Thallium	166	4.9	mg/Kg wet	156		107	81.4-119.2			
Vanadium	54.4	2.0	mg/Kg wet	56.7		95.9	79-121.2			
Zinc	205	2.0	mg/Kg wet	199		103	81.4-119.1			
LCS Dup (B218441-BSD1)				Prepared: 12/04/18 Analyzed: 12/05/18						
Antimony	63.1	5.0	mg/Kg wet	75.5		83.6	3.8-196	1.03	30	
Arsenic	157	5.0	mg/Kg wet	161		97.5	83.2-116.8	2.21	30	
Barium	275	5.0	mg/Kg wet	260		106	82.7-117.3	3.49	30	
Beryllium	102	0.50	mg/Kg wet	97.6		105	83.4-116.8	2.04	30	
Cadmium	210	0.50	mg/Kg wet	211		99.8	83.4-116.6	1.74	30	
Chromium	138	0.99	mg/Kg wet	136		102	82.4-117.6	2.52	30	
Lead	109	1.5	mg/Kg wet	111		98.3	83-117.1	0.504	30	
Nickel	95.4	0.99	mg/Kg wet	91.9		104	82.9-117.5	2.38	30	
Selenium	183	9.9	mg/Kg wet	191		95.9	79.6-120.9	1.90	30	
Silver	46.9	0.99	mg/Kg wet	43.3		108	79.9-119.9	0.740	30	
Thallium	163	5.0	mg/Kg wet	156		105	81.4-119.2	1.75	30	
Vanadium	52.8	2.0	mg/Kg wet	56.7		93.2	79-121.2	2.82	30	
Zinc	201	2.0	mg/Kg wet	199		101	81.4-119.1	2.10	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218441 - SW-846 3050B										
MRL Check (B218441-MRL1)				Prepared: 12/04/18 Analyzed: 12/05/18						
Lead	0.529	0.49	mg/Kg wet	0.493		107	80-120			
Batch B218536 - SW-846 7471										
Blank (B218536-BLK1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Mercury	ND	0.025	mg/Kg wet							
LCS (B218536-BS1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Mercury	14.3	1.9	mg/Kg wet	11.5		125	71.6-127.8			
LCS Dup (B218536-BSD1)				Prepared: 12/05/18 Analyzed: 12/06/18						
Mercury	11.8	1.9	mg/Kg wet	11.5		103	71.6-127.8	19.1	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218066 - SW-846 9045C										
LCS (B218066-BS1)				Prepared & Analyzed: 11/28/18						
pH	6.01		pH Units	6.00		100	90-110			
Duplicate (B218066-DUP1)	**Source: 18K1190-04**			Prepared & Analyzed: 11/28/18						
pH	5.4		pH Units		5.3			1.48	5	H-03
Batch B218203 - SM21-22 2510B Modified										
Blank (B218203-BLK1)				Prepared & Analyzed: 11/30/18						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B218203-BS1)				Prepared & Analyzed: 11/30/18						
Specific conductance	200		µmhos/cm	192		102	90-110			
Duplicate (B218203-DUP2)	**Source: 18K1190-01**			Prepared & Analyzed: 11/30/18						
Specific conductance	2.0	2.0	µmhos/cm		2.0			2.51	21	
Batch B218238 - SW-846 9014										
Blank (B218238-BLK1)				Prepared: 11/30/18 Analyzed: 12/03/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B218238-BS1)				Prepared: 11/30/18 Analyzed: 12/03/18						
Reactive Cyanide	11	0.40	mg/Kg	10.0		106	83.6-111			
Batch B218248 - SW-846 9030A										
Blank (B218248-BLK1)				Prepared: 11/30/18 Analyzed: 12/03/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B218248-BS1)				Prepared: 11/30/18 Analyzed: 12/03/18						
Reactive Sulfide	12	2.0	mg/Kg	14.8		83.8	54.9-121			
Batch B218263 - SW-846 9014										
Blank (B218263-BLK1)				Prepared: 12/01/18 Analyzed: 12/03/18						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B218263-BS1)				Prepared: 12/01/18 Analyzed: 12/03/18						
Reactive Cyanide	11	0.40	mg/Kg	10.0		106	83.6-111			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218264 - SW-846 9030A										
Blank (B218264-BLK1)				Prepared: 12/01/18 Analyzed: 12/03/18						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B218264-BS1)				Prepared: 12/01/18 Analyzed: 12/03/18						
Reactive Sulfide	12	2.0	mg/Kg	14.8		83.8	54.9-121			
Batch B218583 - % Solids										
Duplicate (B218583-DUP3)	**Source: 18K1190-01**			Prepared: 12/05/18 Analyzed: 12/06/18						
% Solids	78.8		% Wt		77.3			1.85	20	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

SB42

Lab Sample ID: 18K1190-04 Date(s) Analyzed: 12/04/2018 12/04/2018

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDT	1	7.811	-0.030	0.030	0.33	
	2	7.800	-0.030	0.030	0.34	3.0
Aroclor-1254	1	0.000	0.000	0.000	0.20	
	2	0.000	0.000	0.000	0.23	14.0
Aroclor-1260	1	0.000	0.000	0.000	0.18	
	2	0.000	0.000	0.000	0.18	0.0

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.

DL-03	Elevated reporting limit due to matrix.
H-03	Sample received after recommended holding time was exceeded.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1030 in Soil	
Ignitability	NY,NH,CT,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Alachlor	NC
Alachlor [2C]	NC
Aldrin	CT,NH,NY,ME,NC,VA
Aldrin [2C]	CT,NH,NY,ME,NC,VA
alpha-BHC	CT,NH,NY,ME,NC,VA
alpha-BHC [2C]	CT,NH,NY,ME,NC,VA
beta-BHC	CT,NH,NY,ME,NC,VA
beta-BHC [2C]	CT,NH,NY,ME,NC,VA
delta-BHC	CT,NH,NY,ME,NC,VA
delta-BHC [2C]	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane)	CT,NH,NY,ME,NC,VA
gamma-BHC (Lindane) [2C]	CT,NH,NY,ME,NC,VA
Chlordane	CT,NH,NY,ME,NC,VA
Chlordane [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDD	CT,NH,NY,ME,NC,VA
4,4'-DDD [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDE	CT,NH,NY,ME,NC,VA
4,4'-DDE [2C]	CT,NH,NY,ME,NC,VA
4,4'-DDT	CT,NH,NY,ME,NC,VA
4,4'-DDT [2C]	CT,NH,NY,ME,NC,VA
Dieldrin	CT,NH,NY,ME,NC,VA
Dieldrin [2C]	CT,NH,NY,ME,NC,VA
Endosulfan I	CT,NH,NY,ME,NC,VA
Endosulfan I [2C]	CT,NH,NY,ME,NC,VA
Endosulfan II	CT,NH,NY,ME,NC,VA
Endosulfan II [2C]	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate	CT,NH,NY,ME,NC,VA
Endosulfan Sulfate [2C]	CT,NH,NY,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin	CT,NH,NY,ME,NC,VA
Endrin [2C]	CT,NH,NY,ME,NC,VA
Endrin Aldehyde	CT,NH,NY,ME,NC,VA
Endrin Aldehyde [2C]	CT,NH,NY,ME,NC,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NH,NY,ME,NC,VA
Heptachlor [2C]	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide	CT,NH,NY,ME,NC,VA
Heptachlor Epoxide [2C]	CT,NH,NY,ME,NC,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NH,NY,ME,NC,VA
Methoxychlor [2C]	CT,NH,NY,ME,NC,VA
Toxaphene	CT,NH,NY,ME,NC,VA
Toxaphene [2C]	CT,NH,NY,ME,NC,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Soil	
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
Dinoseb	NY,ME,NC,NH,VA,CT
Dinoseb [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test ANALYTICAL LABORATORY
KKM
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

18K1190

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Company Name: VHB
Address: 101 Walnut Street, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Transmission Project
Project Location: Sudbury, Massachusetts
Project Number: 12970.03
Project Manager: Paige Cornell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: TJP

Requested Turnaround Time
7-Day [✓] 10-Day [ ]
Due Date:

Rush-Approval Required
1-Day [ ] 3-Day [ ]
2-Day [ ] 4-Day [ ]

Data Delivery
Format: PDF [✓] EXCEL [✓]
Other: Limit Checker
CLP Like Data Pkg Required: [ ]
Email To: pcornell@vhb.com; tylerphillips@vhb.com; fbevans@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Date	Time	Composite	Grab	[1]Matrix Code	Conc Code	Ignitability, pH, Reactivity	Conductivity	Pesticide/Herbicide	SVOCs, PCBs, TPH	VOCs	MCP 14 Metals						# of Containers
								1	1	1		3							[2] Preservation Code
								I	I	I	I	M/O	I						[3] Container Code
								A	A	A	A	V	A						
1	SB48	11/15/18	9:00	x	x	S	A/V	x	x	x	x	x	x						
2	SB40	11/15/18	10:30	x	x	S	A/V	x	x	x	x	x	x						
3	SB41	11/15/18	11:30	x	x	S	A/V	x	x	x	x	x	x						
4	SB42	11/15/18	14:00	x	x	S	A/V	x	x	x	x	x	x						

ANALYSIS REQUESTED

Dissolved Metals Samples
O Field Filtered
O Lab to Filter

Orthophosphate Samples
O Field Filtered
O Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) _DI H2O

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Thanks!

Vials frozen on day of generation by 16:00

TCLP 20x Rule

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
	11/27 1700
Received by: (signature)	Date/Time:
Paul Chatenay	11-28-18 1451
Relinquished by: (signature)	Date/Time:
Paul Chatenay	11-28-18 1545
Received by: (signature)	Date/Time:
	11/28/18 1600
Relinquished by: (signature)	Date/Time:
	11/28/18 1730
Received by: (signature)	Date/Time:
	11-28-18 1730

Detection Limit Requirements
MA
CT
Other:

Special Requirements
[✓] MA MCP Required
MCP Certification Form Required
[ ] CT RCP Required
RCP Certification Form Required
[ ] MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
[ ] Government [ ] Municipality [ ] MWRA [ ] WRTA
[ ] Federal [ ] 21 J [ ] School
[ ] City [ ] Brownfield [ ] MBTA

Other
[ ] Chromatogram
[ ] AIHA-LAP,LLC

PCB ONLY
[ ] Soxhlet
[ ] Non Soxhlet

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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By LR Date 11-28-18 Time 1730

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 5.1 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? * T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? T Who was notified? Luke

Is there enough Volume? T

Is there Headspace where applicable? T MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	12
Meoh-	4	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-	8	Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen: DI @ 11-28-18 1730	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

* Containers for sample SB40 labeled SB41, Identified by container Date/time

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18K1190
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18K1190-01 thru 18K1190-04

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Lisa Worthington Position: Project Manager

Printed Name: Lisa A. Worthington Date: 12/06/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

December 17, 2018

Paige Cornell
Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472

Project Location: Sudbury, MA
Client Job Number:
Project Number: 12970.03
Laboratory Work Order Number: 18L0240

Enclosed are results of analyses for samples received by the laboratory on December 6, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vanasse Hangen Brustlin, Inc.
101 Walnut Street
Watertown, MA 02472
ATTN: Paige Cornell

REPORT DATE: 12/17/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12970.03

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18L0240

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Sudbury, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW33	18L0240-01	Ground Water		SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	
MW35	18L0240-02	Ground Water		SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	
MW42	18L0240-03	Ground Water		SW-846 6020B	
				SW-846 7470A	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	

con-test® ANALYTICAL LABORATORY

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 6020, only a select list of metals was requested and reported.

SW-846 8082A

Qualifications:

H-01

Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.

Analyte & Samples(s) Qualified:

18L0240-01[MW33]

SW-846 8260C

Qualifications:

RL-07

Elevated reporting limit based on lowest point in calibration.
MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

Carbon Disulfide
18L0240-01[MW33], 18L0240-02[MW35], 18L0240-03[MW42]

Methylene Chloride
18L0240-01[MW33], 18L0240-02[MW35], 18L0240-03[MW42]

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Acetone
18L0240-01[MW33], 18L0240-02[MW35], 18L0240-03[MW42], B219108-BLK1, B219108-BS1, B219108-BSD1, S030354-CCV1

Dichlorodifluoromethane (Freon 1
18L0240-01[MW33], 18L0240-02[MW35], 18L0240-03[MW42], B219108-BLK1, B219108-BS1, B219108-BSD1, S030354-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
18L0240-01[MW33], 18L0240-02[MW35], 18L0240-03[MW42], B219108-BLK1, B219108-BS1, B219108-BSD1, S030354-CCV1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,1,1,2-Tetrachloroethane
B219108-BS1, B219108-BSD1, S030354-CCV1

Bromomethane
B219108-BS1, B219108-BSD1, S030354-CCV1

Hexachlorobutadiene
B219108-BS1, B219108-BSD1, S030354-CCV1

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW33 | Sampled: 12/5/2018 09:08

Sample ID: 18L0240-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	10	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:04	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Benzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Bromobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Bromochloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Bromodichloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Bromoform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Bromomethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
2-Butanone (MEK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
n-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
sec-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
tert-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Carbon Disulfide	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Carbon Tetrachloride	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Chlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Chlorodibromomethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Chloroethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Chloroform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Chloromethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
2-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
4-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2-Dibromoethane (EDB)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Dibromomethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,3-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,4-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
cis-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
trans-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,3-Dichloropropane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
2,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1-Dichloropropene	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
cis-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
trans-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Diethyl Ether	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Diisopropyl Ether (DIPE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,4-Dioxane	ND	50	µg/L	1	V-16	SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Ethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW33 | Sampled: 12/5/2018 09:08

Sample ID: 18L0240-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.60	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
2-Hexanone (MBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Isopropylbenzene (Cumene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Methylene Chloride	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:04	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Naphthalene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
n-Propylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Styrene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Tetrachloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Tetrahydrofuran	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Toluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2,4-Trichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1,1-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,1,2-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Trichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2,3-Trichloropropane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
Vinyl Chloride	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
m+p Xylene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH
o-Xylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:04	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	84.8	70-130		12/14/18 19:04
Toluene-d8	96.5	70-130		12/14/18 19:04
4-Bromofluorobenzene	97.6	70-130		12/14/18 19:04

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW33 | Sampled: 12/5/2018 09:08

Sample ID: 18L0240-01

Sample Matrix: Ground Water

Sample Flags: H-01

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1221 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1232 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1242 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1248 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1254 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1260 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1262 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB
Aroclor-1268 [1]	ND	0.19	µg/L	1		SW-846 8082A	12/13/18	12/14/18 21:23	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	68.6	30-150		12/14/18 21:23
Decachlorobiphenyl [2]	72.3	30-150		12/14/18 21:23
Tetrachloro-m-xylene [1]	81.5	30-150		12/14/18 21:23
Tetrachloro-m-xylene [2]	87.5	30-150		12/14/18 21:23

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW33 | Sampled: 12/5/2018 09:08

Sample ID: 18L0240-01

Sample Matrix: Ground Water

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	ND	0.19	mg/L	1		SW-846 8100 Modified	12/11/18	12/14/18 18:19	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	61.8	40-140					12/14/18 18:19

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW33 | Sampled: 12/5/2018 09:08

Sample ID: 18L0240-01

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	0.40	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Barium	16	10	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Cadmium	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Chromium	ND	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Lead	ND	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	12/11/18	12/12/18 13:06	AJL
Selenium	ND	5.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH
Silver	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 9:58	MJH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW35 | Sampled: 12/5/2018 10:40

Sample ID: 18L0240-02

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	10	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:30	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Benzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Bromobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Bromochloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Bromodichloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Bromoform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Bromomethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
2-Butanone (MEK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
n-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
sec-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
tert-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Carbon Disulfide	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Carbon Tetrachloride	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Chlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Chlorodibromomethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Chloroethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Chloroform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Chloromethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
2-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
4-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2-Dibromoethane (EDB)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Dibromomethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,3-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,4-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
cis-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
trans-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,3-Dichloropropane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
2,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1-Dichloropropene	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
cis-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
trans-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Diethyl Ether	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Diisopropyl Ether (DIPE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,4-Dioxane	ND	50	µg/L	1	V-16	SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Ethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW35 | Sampled: 12/5/2018 10:40

Sample ID: 18L0240-02

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.60	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
2-Hexanone (MBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Isopropylbenzene (Cumene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Methylene Chloride	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:30	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Naphthalene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
n-Propylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Styrene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Tetrachloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Tetrahydrofuran	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Toluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2,4-Trichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1,1-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,1,2-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Trichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2,3-Trichloropropane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
Vinyl Chloride	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
m+p Xylene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH
o-Xylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:30	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	85.8	70-130		12/14/18 19:30
Toluene-d8	95.1	70-130		12/14/18 19:30
4-Bromofluorobenzene	97.6	70-130		12/14/18 19:30

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW35 | Sampled: 12/5/2018 10:40

Sample ID: 18L0240-02

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:27	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	73.1	30-150		12/14/18 13:27
Decachlorobiphenyl [2]	73.4	30-150		12/14/18 13:27
Tetrachloro-m-xylene [1]	91.3	30-150		12/14/18 13:27
Tetrachloro-m-xylene [2]	92.8	30-150		12/14/18 13:27

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW35 | Sampled: 12/5/2018 10:40

Sample ID: 18L0240-02

Sample Matrix: Ground Water

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	ND	0.22	mg/L	1		SW-846 8100 Modified	12/11/18	12/14/18 18:36	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	69.8	40-140		12/14/18 18:36

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW35 | Sampled: 12/5/2018 10:40

Sample ID: 18L0240-02

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	0.40	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Barium	18	10	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Cadmium	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Chromium	1.0	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Lead	ND	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	12/11/18	12/12/18 13:12	AJL
Selenium	ND	5.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH
Silver	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:02	MJH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW42 | Sampled: 12/5/2018 12:32

Sample ID: 18L0240-03

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	10	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:57	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Benzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Bromobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Bromochloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Bromodichloromethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Bromoform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Bromomethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
2-Butanone (MEK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
n-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
sec-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
tert-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Carbon Disulfide	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Carbon Tetrachloride	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Chlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Chlorodibromomethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Chloroethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Chloroform	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Chloromethane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
2-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
4-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2-Dibromoethane (EDB)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Dibromomethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,3-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,4-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L	1	V-05	SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
cis-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
trans-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,3-Dichloropropane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
2,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1-Dichloropropene	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
cis-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
trans-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Diethyl Ether	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Diisopropyl Ether (DIPE)	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,4-Dioxane	ND	50	µg/L	1	V-16	SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Ethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW42 | Sampled: 12/5/2018 12:32

Sample ID: 18L0240-03

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.60	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
2-Hexanone (MBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Isopropylbenzene (Cumene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Methylene Chloride	ND	5.0	µg/L	1	RL-07	SW-846 8260C	12/13/18	12/14/18 19:57	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Naphthalene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
n-Propylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Styrene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Tetrachloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Tetrahydrofuran	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Toluene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2,4-Trichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1,1-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,1,2-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Trichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2,3-Trichloropropane	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
Vinyl Chloride	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
m+p Xylene	ND	2.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH
o-Xylene	ND	1.0	µg/L	1		SW-846 8260C	12/13/18	12/14/18 19:57	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	86.8	70-130		12/14/18 19:57
Toluene-d8	95.7	70-130		12/14/18 19:57
4-Bromofluorobenzene	96.5	70-130		12/14/18 19:57

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW42 | Sampled: 12/5/2018 12:32

Sample ID: 18L0240-03

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	12/11/18	12/14/18 13:45	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	75.7	30-150		12/14/18 13:45
Decachlorobiphenyl [2]	76.3	30-150		12/14/18 13:45
Tetrachloro-m-xylene [1]	90.4	30-150		12/14/18 13:45
Tetrachloro-m-xylene [2]	93.1	30-150		12/14/18 13:45

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW42 | Sampled: 12/5/2018 12:32

Sample ID: 18L0240-03

Sample Matrix: Ground Water

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	ND	0.19	mg/L	1		SW-846 8100 Modified	12/11/18	12/14/18 18:54	KLB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorobiphenyl	67.9	40-140		12/14/18 18:54

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Sudbury, MA | Sample Description: | Work Order: 18L0240

Date Received: 12/6/2018

Field Sample #: MW42 | Sampled: 12/5/2018 12:32

Sample ID: 18L0240-03

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	4.4	0.40	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Barium	87	10	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Cadmium	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Chromium	1.7	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Lead	1.0	1.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	12/11/18	12/12/18 13:13	AJL
Selenium	ND	5.0	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH
Silver	ND	0.50	µg/L	1		SW-846 6020B	12/11/18	12/12/18 10:05	MJH

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3005A Dissolved-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-01 [MW33]	B218945	50.0	50.0	12/11/18
18L0240-02 [MW35]	B218945	50.0	50.0	12/11/18
18L0240-03 [MW42]	B218945	50.0	50.0	12/11/18

Prep Method: SW-846 7470A Dissolved-SW-846 7470A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-01 [MW33]	B218973	6.00	6.00	12/11/18
18L0240-02 [MW35]	B218973	6.00	6.00	12/11/18
18L0240-03 [MW42]	B218973	6.00	6.00	12/11/18

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-02 [MW35]	B218987	1000	10.0	12/11/18
18L0240-03 [MW42]	B218987	1000	10.0	12/11/18

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-01 [MW33]	B219185	1030	10.0	12/13/18

Prep Method: SW-846 3510C-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-01 [MW33]	B218938	1040	1.00	12/11/18
18L0240-02 [MW35]	B218938	910	1.00	12/11/18
18L0240-03 [MW42]	B218938	1040	1.00	12/11/18

Prep Method: SW-846 5030B-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18L0240-01 [MW33]	B219108	5	5.00	12/13/18
18L0240-02 [MW35]	B219108	5	5.00	12/13/18
18L0240-03 [MW42]	B219108	5	5.00	12/13/18

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B219108 - SW-846 5030B										
Blank (B219108-BLK1)				Prepared: 12/13/18 Analyzed: 12/14/18						
Acetone	ND	10	µg/L							V-05
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	1.0	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	10	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							V-05
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	0.50	µg/L							
cis-1,3-Dichloropropene	ND	0.40	µg/L							
trans-1,3-Dichloropropene	ND	0.40	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B219108 - SW-846 5030B											
Blank (B219108-BLK1)				Prepared: 12/13/18 Analyzed: 12/14/18							
n-Propylbenzene	ND	1.0	µg/L								
Styrene	ND	1.0	µg/L								
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L								
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L								
Tetrachloroethylene	ND	1.0	µg/L								
Tetrahydrofuran	ND	2.0	µg/L								
Toluene	ND	1.0	µg/L								
1,2,3-Trichlorobenzene	ND	2.0	µg/L								
1,2,4-Trichlorobenzene	ND	1.0	µg/L								
1,1,1-Trichloroethane	ND	1.0	µg/L								
1,1,2-Trichloroethane	ND	1.0	µg/L								
Trichloroethylene	ND	1.0	µg/L								
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L								
1,2,3-Trichloropropane	ND	2.0	µg/L								
1,2,4-Trimethylbenzene	ND	1.0	µg/L								
1,3,5-Trimethylbenzene	ND	1.0	µg/L								
Vinyl Chloride	ND	2.0	µg/L								
m+p Xylene	ND	2.0	µg/L								
o-Xylene	ND	1.0	µg/L								
Surrogate: 1,2-Dichloroethane-d4	*21.2*		µg/L	25.0		85.0	70-130				
Surrogate: Toluene-d8	*24.0*		µg/L	25.0		95.9	70-130				
Surrogate: 4-Bromofluorobenzene	*24.4*		µg/L	25.0		97.7	70-130				
LCS (B219108-BS1)				Prepared: 12/13/18 Analyzed: 12/14/18							
Acetone	81.0	10	µg/L	100		81.0	40-160			V-05	†
tert-Amyl Methyl Ether (TAME)	9.04	0.50	µg/L	10.0		90.4	70-130				
Benzene	9.28	1.0	µg/L	10.0		92.8	70-130				
Bromobenzene	10.7	1.0	µg/L	10.0		107	70-130				
Bromochloromethane	9.45	1.0	µg/L	10.0		94.5	70-130				
Bromodichloromethane	9.46	1.0	µg/L	10.0		94.6	70-130				
Bromoform	11.0	1.0	µg/L	10.0		110	70-130				
Bromomethane	9.78	2.0	µg/L	10.0		97.8	40-160			V-20	†
2-Butanone (MEK)	79.5	10	µg/L	100		79.5	40-160				†
n-Butylbenzene	10.7	1.0	µg/L	10.0		107	70-130				
sec-Butylbenzene	10.8	1.0	µg/L	10.0		108	70-130				
tert-Butylbenzene	10.6	1.0	µg/L	10.0		106	70-130				
tert-Butyl Ethyl Ether (TBEE)	8.42	0.50	µg/L	10.0		84.2	70-130				
Carbon Disulfide	9.70	5.0	µg/L	10.0		97.0	70-130				
Carbon Tetrachloride	8.97	1.0	µg/L	10.0		89.7	70-130				
Chlorobenzene	11.1	1.0	µg/L	10.0		111	70-130				
Chlorodibromomethane	10.1	0.50	µg/L	10.0		101	70-130				
Chloroethane	8.30	2.0	µg/L	10.0		83.0	70-130				
Chloroform	9.38	2.0	µg/L	10.0		93.8	70-130				
Chloromethane	7.45	2.0	µg/L	10.0		74.5	40-160				†
2-Chlorotoluene	10.8	1.0	µg/L	10.0		108	70-130				
4-Chlorotoluene	10.6	1.0	µg/L	10.0		106	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	9.21	2.0	µg/L	10.0		92.1	70-130				
1,2-Dibromoethane (EDB)	10.4	0.50	µg/L	10.0		104	70-130				
Dibromomethane	10.0	1.0	µg/L	10.0		100	70-130				
1,2-Dichlorobenzene	11.2	1.0	µg/L	10.0		112	70-130				
1,3-Dichlorobenzene	11.4	1.0	µg/L	10.0		114	70-130				
1,4-Dichlorobenzene	10.5	1.0	µg/L	10.0		105	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B219108 - SW-846 5030B											
LCS (B219108-BS1)				Prepared: 12/13/18 Analyzed: 12/14/18							
Dichlorodifluoromethane (Freon 12)	7.21	2.0	µg/L	10.0		72.1	40-160			V-05	†
1,1-Dichloroethane	9.11	1.0	µg/L	10.0		91.1	70-130				
1,2-Dichloroethane	9.07	1.0	µg/L	10.0		90.7	70-130				
1,1-Dichloroethylene	8.53	1.0	µg/L	10.0		85.3	70-130				
cis-1,2-Dichloroethylene	8.71	1.0	µg/L	10.0		87.1	70-130				
trans-1,2-Dichloroethylene	8.64	1.0	µg/L	10.0		86.4	70-130				
1,2-Dichloropropane	9.82	1.0	µg/L	10.0		98.2	70-130				
1,3-Dichloropropane	9.18	0.50	µg/L	10.0		91.8	70-130				
2,2-Dichloropropane	10.5	1.0	µg/L	10.0		105	70-130				
1,1-Dichloropropene	8.68	0.50	µg/L	10.0		86.8	70-130				
cis-1,3-Dichloropropene	9.47	0.40	µg/L	10.0		94.7	70-130				
trans-1,3-Dichloropropene	9.84	0.40	µg/L	10.0		98.4	70-130				
Diethyl Ether	9.24	2.0	µg/L	10.0		92.4	70-130				
Diisopropyl Ether (DIPE)	8.39	0.50	µg/L	10.0		83.9	70-130				
1,4-Dioxane	107	50	µg/L	100		107	40-160			V-16	†
Ethylbenzene	11.3	1.0	µg/L	10.0		113	70-130				
Hexachlorobutadiene	12.6	0.60	µg/L	10.0		126	70-130			V-20	
2-Hexanone (MBK)	85.3	10	µg/L	100		85.3	40-160				†
Isopropylbenzene (Cumene)	11.6	1.0	µg/L	10.0		116	70-130				
p-Isopropyltoluene (p-Cymene)	10.8	1.0	µg/L	10.0		108	70-130				
Methyl tert-Butyl Ether (MTBE)	8.93	1.0	µg/L	10.0		89.3	70-130				
Methylene Chloride	7.63	5.0	µg/L	10.0		76.3	70-130				
4-Methyl-2-pentanone (MIBK)	86.2	10	µg/L	100		86.2	40-160				†
Naphthalene	10.0	2.0	µg/L	10.0		100	70-130				
n-Propylbenzene	10.6	1.0	µg/L	10.0		106	70-130				
Styrene	11.0	1.0	µg/L	10.0		110	70-130				
1,1,1,2-Tetrachloroethane	12.0	1.0	µg/L	10.0		120	70-130			V-20	
1,1,2,2-Tetrachloroethane	11.7	0.50	µg/L	10.0		117	70-130				
Tetrachloroethylene	11.3	1.0	µg/L	10.0		113	70-130				
Tetrahydrofuran	8.46	2.0	µg/L	10.0		84.6	70-130				
Toluene	10.0	1.0	µg/L	10.0		100	70-130				
1,2,3-Trichlorobenzene	10.8	2.0	µg/L	10.0		108	70-130				
1,2,4-Trichlorobenzene	10.4	1.0	µg/L	10.0		104	70-130				
1,1,1-Trichloroethane	9.55	1.0	µg/L	10.0		95.5	70-130				
1,1,2-Trichloroethane	10.7	1.0	µg/L	10.0		107	70-130				
Trichloroethylene	10.2	1.0	µg/L	10.0		102	70-130				
Trichlorofluoromethane (Freon 11)	8.46	2.0	µg/L	10.0		84.6	70-130				
1,2,3-Trichloropropane	9.91	2.0	µg/L	10.0		99.1	70-130				
1,2,4-Trimethylbenzene	9.65	1.0	µg/L	10.0		96.5	70-130				
1,3,5-Trimethylbenzene	10.7	1.0	µg/L	10.0		107	70-130				
Vinyl Chloride	7.68	2.0	µg/L	10.0		76.8	70-130				
m+p Xylene	21.6	2.0	µg/L	20.0		108	70-130				
o-Xylene	10.7	1.0	µg/L	10.0		107	70-130				
Surrogate: 1,2-Dichloroethane-d4	*21.0*		µg/L	25.0		84.2	70-130				
Surrogate: Toluene-d8	*24.3*		µg/L	25.0		97.2	70-130				
Surrogate: 4-Bromofluorobenzene	*25.5*		µg/L	25.0		102	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B219108 - SW-846 5030B											
LCS Dup (B219108-BSD1)				Prepared: 12/13/18 Analyzed: 12/14/18							
Acetone	74.4	10	µg/L	100		74.4	40-160	8.58	20	V-05	†
tert-Amyl Methyl Ether (TAME)	8.97	0.50	µg/L	10.0		89.7	70-130	0.777	20		
Benzene	8.62	1.0	µg/L	10.0		86.2	70-130	7.37	20		
Bromobenzene	10.0	1.0	µg/L	10.0		100	70-130	6.36	20		
Bromochloromethane	9.03	1.0	µg/L	10.0		90.3	70-130	4.55	20		
Bromodichloromethane	9.22	1.0	µg/L	10.0		92.2	70-130	2.57	20		
Bromoform	10.7	1.0	µg/L	10.0		107	70-130	2.12	20		
Bromomethane	11.4	2.0	µg/L	10.0		114	40-160	15.3	20	V-20	†
2-Butanone (MEK)	73.9	10	µg/L	100		73.9	40-160	7.32	20		†
n-Butylbenzene	9.79	1.0	µg/L	10.0		97.9	70-130	8.79	20		
sec-Butylbenzene	10.1	1.0	µg/L	10.0		101	70-130	7.26	20		
tert-Butylbenzene	10.3	1.0	µg/L	10.0		103	70-130	3.05	20		
tert-Butyl Ethyl Ether (TBEE)	8.13	0.50	µg/L	10.0		81.3	70-130	3.50	20		
Carbon Disulfide	8.57	5.0	µg/L	10.0		85.7	70-130	12.4	20		
Carbon Tetrachloride	8.47	1.0	µg/L	10.0		84.7	70-130	5.73	20		
Chlorobenzene	10.8	1.0	µg/L	10.0		108	70-130	2.66	20		
Chlorodibromomethane	9.86	0.50	µg/L	10.0		98.6	70-130	2.11	20		
Chloroethane	7.87	2.0	µg/L	10.0		78.7	70-130	5.32	20		
Chloroform	8.84	2.0	µg/L	10.0		88.4	70-130	5.93	20		
Chloromethane	7.08	2.0	µg/L	10.0		70.8	40-160	5.09	20		†
2-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130	6.40	20		
4-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130	4.91	20		
1,2-Dibromo-3-chloropropane (DBCP)	8.70	2.0	µg/L	10.0		87.0	70-130	5.70	20		
1,2-Dibromoethane (EDB)	10.1	0.50	µg/L	10.0		101	70-130	2.92	20		
Dibromomethane	9.88	1.0	µg/L	10.0		98.8	70-130	1.31	20		
1,2-Dichlorobenzene	10.5	1.0	µg/L	10.0		105	70-130	6.55	20		
1,3-Dichlorobenzene	10.9	1.0	µg/L	10.0		109	70-130	3.86	20		
1,4-Dichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.64	20		
Dichlorodifluoromethane (Freon 12)	6.51	2.0	µg/L	10.0		65.1	40-160	10.2	20	L-14, V-05	†
1,1-Dichloroethane	8.70	1.0	µg/L	10.0		87.0	70-130	4.60	20		
1,2-Dichloroethane	8.84	1.0	µg/L	10.0		88.4	70-130	2.57	20		
1,1-Dichloroethylene	8.15	1.0	µg/L	10.0		81.5	70-130	4.56	20		
cis-1,2-Dichloroethylene	8.20	1.0	µg/L	10.0		82.0	70-130	6.03	20		
trans-1,2-Dichloroethylene	8.47	1.0	µg/L	10.0		84.7	70-130	1.99	20		
1,2-Dichloropropane	9.26	1.0	µg/L	10.0		92.6	70-130	5.87	20		
1,3-Dichloropropane	9.10	0.50	µg/L	10.0		91.0	70-130	0.875	20		
2,2-Dichloropropane	9.42	1.0	µg/L	10.0		94.2	70-130	10.6	20		
1,1-Dichloropropene	8.21	0.50	µg/L	10.0		82.1	70-130	5.57	20		
cis-1,3-Dichloropropene	9.32	0.40	µg/L	10.0		93.2	70-130	1.60	20		
trans-1,3-Dichloropropene	9.72	0.40	µg/L	10.0		97.2	70-130	1.23	20		
Diethyl Ether	8.68	2.0	µg/L	10.0		86.8	70-130	6.25	20		
Diisopropyl Ether (DIPE)	8.18	0.50	µg/L	10.0		81.8	70-130	2.53	20		
1,4-Dioxane	92.1	50	µg/L	100		92.1	40-160	15.1	20	V-16	†
Ethylbenzene	10.6	1.0	µg/L	10.0		106	70-130	6.13	20		
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116	70-130	8.66	20	V-20	
2-Hexanone (MBK)	80.1	10	µg/L	100		80.1	40-160	6.36	20		†
Isopropylbenzene (Cumene)	10.9	1.0	µg/L	10.0		109	70-130	6.24	20		
p-Isopropyltoluene (p-Cymene)	10.1	1.0	µg/L	10.0		101	70-130	6.23	20		
Methyl tert-Butyl Ether (MTBE)	9.07	1.0	µg/L	10.0		90.7	70-130	1.56	20		
Methylene Chloride	7.22	5.0	µg/L	10.0		72.2	70-130	5.52	20		
4-Methyl-2-pentanone (MIBK)	82.2	10	µg/L	100		82.2	40-160	4.70	20		†
Naphthalene	9.55	2.0	µg/L	10.0		95.5	70-130	4.80	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B219108 - SW-846 5030B										
LCS Dup (B219108-BSD1)				Prepared: 12/13/18 Analyzed: 12/14/18						
n-Propylbenzene	9.89	1.0	µg/L	10.0		98.9	70-130	6.84	20	
Styrene	10.5	1.0	µg/L	10.0		105	70-130	5.30	20	
1,1,1,2-Tetrachloroethane	11.5	1.0	µg/L	10.0		115	70-130	4.60	20	V-20
1,1,2,2-Tetrachloroethane	11.1	0.50	µg/L	10.0		111	70-130	4.73	20	
Tetrachloroethylene	10.7	1.0	µg/L	10.0		107	70-130	4.99	20	
Tetrahydrofuran	8.20	2.0	µg/L	10.0		82.0	70-130	3.12	20	
Toluene	9.46	1.0	µg/L	10.0		94.6	70-130	6.05	20	
1,2,3-Trichlorobenzene	9.86	2.0	µg/L	10.0		98.6	70-130	9.10	20	
1,2,4-Trichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.55	20	
1,1,1-Trichloroethane	8.76	1.0	µg/L	10.0		87.6	70-130	8.63	20	
1,1,2-Trichloroethane	10.3	1.0	µg/L	10.0		103	70-130	4.09	20	
Trichloroethylene	9.56	1.0	µg/L	10.0		95.6	70-130	6.58	20	
Trichlorofluoromethane (Freon 11)	7.89	2.0	µg/L	10.0		78.9	70-130	6.97	20	
1,2,3-Trichloropropane	9.00	2.0	µg/L	10.0		90.0	70-130	9.62	20	
1,2,4-Trimethylbenzene	9.16	1.0	µg/L	10.0		91.6	70-130	5.21	20	
1,3,5-Trimethylbenzene	9.92	1.0	µg/L	10.0		99.2	70-130	7.75	20	
Vinyl Chloride	7.30	2.0	µg/L	10.0		73.0	70-130	5.07	20	
m+p Xylene	20.6	2.0	µg/L	20.0		103	70-130	4.69	20	
o-Xylene	10.2	1.0	µg/L	10.0		102	70-130	4.98	20	
Surrogate: 1,2-Dichloroethane-d4	*20.9*		µg/L	25.0		83.8	70-130			
Surrogate: Toluene-d8	*24.1*		µg/L	25.0		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	*25.2*		µg/L	25.0		101	70-130			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218987 - SW-846 3510C										
Blank (B218987-BLK1)				Prepared: 12/11/18 Analyzed: 12/14/18						
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	*1.79*		µg/L	2.00		89.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.93*		µg/L	2.00		96.5	30-150			
Surrogate: Tetrachloro-m-xylene	*1.51*		µg/L	2.00		75.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.60*		µg/L	2.00		80.0	30-150			
LCS (B218987-BS1)				Prepared: 12/11/18 Analyzed: 12/14/18						
Aroclor-1016	0.38	0.20	µg/L	0.500		75.3	40-140			
Aroclor-1016 [2C]	0.41	0.20	µg/L	0.500		82.1	40-140			
Aroclor-1260	0.41	0.20	µg/L	0.500		81.8	40-140			
Aroclor-1260 [2C]	0.46	0.20	µg/L	0.500		91.7	40-140			
Surrogate: Decachlorobiphenyl	*1.62*		µg/L	2.00		81.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.76*		µg/L	2.00		87.8	30-150			
Surrogate: Tetrachloro-m-xylene	*1.44*		µg/L	2.00		72.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.52*		µg/L	2.00		76.1	30-150			
LCS Dup (B218987-BSD1)				Prepared: 12/11/18 Analyzed: 12/14/18						
Aroclor-1016	0.40	0.20	µg/L	0.500		80.8	40-140	7.05	20	
Aroclor-1016 [2C]	0.45	0.20	µg/L	0.500		89.4	40-140	8.55	20	
Aroclor-1260	0.44	0.20	µg/L	0.500		88.6	40-140	7.96	20	
Aroclor-1260 [2C]	0.50	0.20	µg/L	0.500		100	40-140	8.94	20	
Surrogate: Decachlorobiphenyl	*1.82*		µg/L	2.00		91.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.98*		µg/L	2.00		99.0	30-150			
Surrogate: Tetrachloro-m-xylene	*1.45*		µg/L	2.00		72.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.54*		µg/L	2.00		76.9	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B219185 - SW-846 3510C										
Blank (B219185-BLK1)				Prepared: 12/13/18 Analyzed: 12/14/18						
Aroclor-1016	ND	0.040	µg/L							
Aroclor-1016 [2C]	ND	0.040	µg/L							
Aroclor-1221	ND	0.040	µg/L							
Aroclor-1221 [2C]	ND	0.040	µg/L							
Aroclor-1232	ND	0.040	µg/L							
Aroclor-1232 [2C]	ND	0.040	µg/L							
Aroclor-1242	ND	0.040	µg/L							
Aroclor-1242 [2C]	ND	0.040	µg/L							
Aroclor-1248	ND	0.040	µg/L							
Aroclor-1248 [2C]	ND	0.040	µg/L							
Aroclor-1254	ND	0.040	µg/L							
Aroclor-1254 [2C]	ND	0.040	µg/L							
Aroclor-1260	ND	0.040	µg/L							
Aroclor-1260 [2C]	ND	0.040	µg/L							
Aroclor-1262	ND	0.040	µg/L							
Aroclor-1262 [2C]	ND	0.040	µg/L							
Aroclor-1268	ND	0.040	µg/L							
Aroclor-1268 [2C]	ND	0.040	µg/L							
Surrogate: Decachlorobiphenyl	*1.88*		µg/L	2.00		94.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.55*		µg/L	2.00		77.7	30-150			
Surrogate: Tetrachloro-m-xylene	*1.64*		µg/L	2.00		82.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.47*		µg/L	2.00		73.4	30-150			
LCS (B219185-BS1)				Prepared: 12/13/18 Analyzed: 12/14/18						
Aroclor-1016	0.47	0.20	µg/L	0.500		94.4	40-140			
Aroclor-1016 [2C]	0.50	0.20	µg/L	0.500		99.4	40-140			
Aroclor-1260	0.47	0.20	µg/L	0.500		93.2	40-140			
Aroclor-1260 [2C]	0.48	0.20	µg/L	0.500		96.8	40-140			
Surrogate: Decachlorobiphenyl	*1.89*		µg/L	2.00		94.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.02*		µg/L	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	*1.67*		µg/L	2.00		83.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.82*		µg/L	2.00		90.8	30-150			
LCS Dup (B219185-BSD1)				Prepared: 12/13/18 Analyzed: 12/14/18						
Aroclor-1016	0.44	0.20	µg/L	0.500		88.1	40-140	6.85	20	
Aroclor-1016 [2C]	0.48	0.20	µg/L	0.500		96.7	40-140	2.68	20	
Aroclor-1260	0.45	0.20	µg/L	0.500		90.1	40-140	3.35	20	
Aroclor-1260 [2C]	0.49	0.20	µg/L	0.500		98.7	40-140	1.98	20	
Surrogate: Decachlorobiphenyl	*1.84*		µg/L	2.00		91.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.96*		µg/L	2.00		97.9	30-150			
Surrogate: Tetrachloro-m-xylene	*1.65*		µg/L	2.00		82.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.83*		µg/L	2.00		91.7	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218938 - SW-846 3510C										
Blank (B218938-BLK1)				Prepared: 12/11/18 Analyzed: 12/12/18						
TPH (C9-C36)	ND	0.20	mg/L							
Surrogate: 2-Fluorobiphenyl	*0.0758*		mg/L	0.100		75.8	40-140			
LCS (B218938-BS1)				Prepared: 12/11/18 Analyzed: 12/12/18						
TPH (C9-C36)	0.808	0.20	mg/L	1.00		80.8	40-140			
Surrogate: 2-Fluorobiphenyl	*0.0683*		mg/L	0.100		68.3	40-140			
LCS Dup (B218938-BSD1)				Prepared: 12/11/18 Analyzed: 12/12/18						
TPH (C9-C36)	0.936	0.20	mg/L	1.00		93.6	40-140	14.7	30	
Surrogate: 2-Fluorobiphenyl	*0.0753*		mg/L	0.100		75.3	40-140			

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QUALITY CONTROL

Metals Analyses (Dissolved) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B218945 - SW-846 3005A Dissolved										
Blank (B218945-BLK1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Arsenic	ND	0.40	µg/L							
Barium	ND	10	µg/L							
Cadmium	ND	0.50	µg/L							
Chromium	ND	1.0	µg/L							
Lead	ND	1.0	µg/L							
Selenium	ND	5.0	µg/L							
Silver	ND	0.50	µg/L							
LCS (B218945-BS1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Arsenic	499	4.0	µg/L	500		99.8	80-120			
Barium	498	100	µg/L	500		99.5	80-120			
Cadmium	505	5.0	µg/L	500		101	80-120			
Chromium	507	10	µg/L	500		101	80-120			
Lead	504	10	µg/L	500		101	80-120			
Selenium	494	50	µg/L	500		98.9	80-120			
Silver	491	5.0	µg/L	500		98.2	80-120			
LCS Dup (B218945-BSD1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Arsenic	498	4.0	µg/L	500		99.5	80-120	0.317	20	
Barium	498	100	µg/L	500		99.7	80-120	0.148	20	
Cadmium	501	5.0	µg/L	500		100	80-120	0.859	20	
Chromium	506	10	µg/L	500		101	80-120	0.198	20	
Lead	501	10	µg/L	500		100	80-120	0.536	20	
Selenium	502	50	µg/L	500		100	80-120	1.60	20	
Silver	493	5.0	µg/L	500		98.7	80-120	0.454	20	
Batch B218973 - SW-846 7470A Dissolved										
Blank (B218973-BLK1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Mercury	ND	0.00010	mg/L							
LCS (B218973-BS1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Mercury	0.00192	0.00010	mg/L	0.00200		95.9	80-120			
LCS Dup (B218973-BSD1)				Prepared: 12/11/18 Analyzed: 12/12/18						
Mercury	0.00196	0.00010	mg/L	0.00200		98.2	80-120	2.43	20	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B218987-BS1 Date(s) Analyzed: 12/14/2018 12/14/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.38	
	2	0.000	0.000	0.000	0.41	7.6
Aroclor-1260	1	0.000	0.000	0.000	0.41	
	2	0.000	0.000	0.000	0.46	11.5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B218987-BSD1 Date(s) Analyzed: 12/14/2018 12/14/2018

Instrument ID (1): ECD10 Instrument ID (2): ECD10

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.40	
	2	0.000	0.000	0.000	0.45	11.8
Aroclor-1260	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.50	12.8

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B219185-BS1 Date(s) Analyzed: 12/14/2018 12/14/2018

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.47	
	2	0.000	0.000	0.000	0.50	6.2
Aroclor-1260	1	0.000	0.000	0.000	0.47	
	2	0.000	0.000	0.000	0.48	2.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B219185-BSD1 Date(s) Analyzed: 12/14/2018 12/14/2018

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.44	
	2	0.000	0.000	0.000	0.48	8.7
Aroclor-1260	1	0.000	0.000	0.000	0.45	
	2	0.000	0.000	0.000	0.49	8.5

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-01	Recommended sample holding time was exceeded, but analysis was performed before 2X the allowable holding time.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
RL-07	Elevated reporting limit based on lowest point in calibration. MA CAM reporting limit not met.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6020B in Water	
Arsenic	CT,NH,NY,NC,ME,VA
Barium	MA,NY,CT,NC,NH,ME,VA
Cadmium	CT,NH,NY,NC,ME,VA
Chromium	CT,NH,NY,NC,ME,VA
Lead	CT,NH,NY,NC,ME,VA
Selenium	CT,NH,NY,NC,ME,VA
Silver	CT,NC,NH,NY,ME,VA
SW-846 7470A in Water	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA

con-test® ANALYTICAL LABORATORY
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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8082A in Water	
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8260C in Water	
Acetone	CT,NH,NY,ME
tert-Amyl Methyl Ether (TAME)	NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	NY,ME
sec-Butylbenzene	NY,ME
tert-Butylbenzene	NY,ME
tert-Butyl Ethyl Ether (TBEE)	NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	NY,ME
4-Chlorotoluene	NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Diisopropyl Ether (DIPE)	NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Water	
Isopropylbenzene (Cumene)	NY,ME
p-Isopropyltoluene (p-Cymene)	CT,NH,NY,ME
Methyl tert-Butyl Ether (MTBE)	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	NY,ME
1,3,5-Trimethylbenzene	NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test ANALYTICAL LABORATORY

18L0240

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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

KKM

Company Name: VHB
Address: 101 Walnut St, Watertown, MA
Phone: 617-607-1841
Project Name: Eversource Sudbury to Hudson
Project Location: Sudbury, MA
Project Number: 12990.03
Project Manager: Paige Connell
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: PEC

Turnaround Requirements: 7-Day [X] 10-Day [ ] Due Date:
Report Requirements: 1-Day [ ] 3-Day [ ] 2-Day [ ] 4-Day [ ]
Report Delivery: Format: PDF [X] EXCEL [X] Other:
CLP Like Data Pkg Required: [ ]
Email To: PConnell@vhb.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	RCRA 8 Metals	PCBs	TPH	VOCs	# of Containers
1	MW33	12/5 8	9:08			GW	U	X	X	X	X	
2	MW35		10:40					X	X	X	X	
3	MW42		12:32					X	X	X	X	

ANALYSIS REQUESTED

[2] Preservation Code
[3] Container Code

Filtration: [X] Field Filtered [ ] Lab to Filter

Preservation: [ ] Field Filtered [ ] Lab to Filter

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

	Date/Time
Relinquished by: (signature)	12/6/18
Received by: (signature)	12/6/18
Relinquished by: (signature)	12/6/18 2:25 pm
Received by: (signature) 3.1	12-6-18 1425
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Data Deliverable Requirements: MA [ ]
Special Requirements: [X] MA MCP Required; [ ] MCP Certification Form Required; [ ] CT RCP Required; [ ] RCP Certification Form Required; [ ] MA State DW Required
Site Info: PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity: [ ] Government [ ] Municipality [ ] MWRA [ ] WRTA [ ] Federal [ ] 21 J [ ] School [ ] City [ ] Brownfield [ ] MBTA

Other: [ ] Chromatogram [ ] AIHA-LAP, LLC

PCB ONLY: [ ] Soxhlet [ ] Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client VHB

Received By LR Date 12-6-18 Time 1425

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 3.1
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA
Was COC Relinquished ? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T
Are Sample labels filled out and legible? T
Are there Lab to Filters? F Who was notified? _____
Are there Rushes? F Who was notified? _____
Are there Short Holds? F Who was notified? _____
Is there enough Volume? T
Is there Headspace where applicable? F MS/MSD? F
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F T On COC? F
Do all samples have the proper pH? Acid TpHC2 Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	11	1 Liter Plastic		16 oz Amb.	
HCL-	17	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	3	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

received trip blanks, not on COC

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 18L0240
Project Location: Sudbury, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

18L0240-01 thru 18L0240-04

Matrices: Water

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B ( )	7010 Metals CAM III C ( )	MassDEP VPH CAM IV C ( )	8081 Pesticides CAM V B ( )	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A ( )	6020 Metals CAM III D (X)	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C ( )	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 12/17/18