Nunavut Baffin Region
2014 DEW Line Landfill Monitoring Program
FOX-M Hall Beach
Final Monitoring Report

Prepared for:

Public Works and Government Services Canada

Prepared by:

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AN ARCADIS COMPANY

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February 2015

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27 February 2015

Public Works and Government Services Canada
Western Region – Environmental Services
5th Floor, 10025 Jasper Avenue
ATB Financial Plaza North Tower
Edmonton, AB, T5J 1S6

Attention: Ms. Liana Smith
Project Manager

RE: Final Monitoring Report
Baffin Region Nunavut DEW LINE Landfill Monitoring Program
Fox-M Hall Beach, NU
DND Project #: DLCLFMP2 (QIKIQ14)

Dear Ms. Smith:

Please find enclosed the Final Monitoring Report for the 2014 Landfill Monitoring Program at the former FOX-M DEW Line site located at Hall Beach in Nunavut.

Regards,

SENES Consultants

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Environmental Engineer

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Senior Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
C.F. GRAVELLE
LICENSEE
NWT/NU

EXECUTIVE SUMMARY

SENES Consultants (SENES) was retained by Public Works and Government Services Canada (PWGSC) on behalf of the Department of National Defence (DND) to complete the 2014 landfill monitoring at the former FOX-M DEW Line Site. This site is located two kilometres south of the community of Hall Beach, on the east coast of the Melville Peninsula in Nunavut.

In 1989 the former DEW Line site was converted to a continuously staffed North Warning System (NWS) Long Range Radar station and Logistical Support Site and has operated in the vicinity of the DEW Line site since that time. Environmental cleanup, demolition, and remediation of the former DEW Line facilities were completed between 2003 and 2007. As part of the decommissioning works eight landfills were constructed namely:

- Tier II Disposal Facility;
- Non-Hazardous Waste Landfill;
- East Beach Landfill;
- G217 – West Landfill;
- Billboards Landfill;
- Hazmat Storage East Landfill;
- Communications Northwest Landfill; and
- Communications North Landfill.

The DEW Line landfill monitoring program is divided into three phases: Phase I (yearly for five years following the completion of remediation activities at the site), Phase II (years 7, 10, 15, and 25 following completion of remediation activities), and Phase III (to be determined when Phase II is completed). This 2014 monitoring event is the year 7 event as part of Phase II of the monitoring program.

The scope of monitoring work at each landfill noted above included:

- A visual inspection of the landfill;
- Collection of soil samples from each landfill;
- Collection of groundwater samples from each landfill where monitoring wells are present (Non-Hazardous Waste Landfill, Tier II Disposal Facility, East Beach Landfill); and
- Collection of thermal data from vertical thermistor installations at each landfill where vertical thermistors are present (Tier II Disposal Facility, East Beach Landfill).

The performance of each landfill was assessed using the results of this inspection and comparison of these results to those of previous monitoring events. Trends in physical changes

to the landfill observed during the visual inspection, and trends in concentrations of selected parameters in soil and groundwater over time were analyzed to determine if each landfill is performing as designed and what, if any remedial actions are required. DND provided landfill drawings from the 2012 landfill monitoring program for comparison of visual site conditions, and provided compiled soil and groundwater chemistry data from 2008 to the present for comparison and trend analysis.
Performance of each landfill was assessed and rated as acceptable, marginal, significant, or unacceptable. These ratings indicate the potential for failure of the landfill, with acceptable representing no failure potential, marginal representing low to moderate failure potential, significant representing imminent failure potential, and unacceptable representing failure of the landfill has already occurred.

The results of this monitoring program indicate that:

1. the performance of the Tier II Soil Disposal Facility is acceptable. Regular scheduled monitoring of this landfill should be continued. Monitoring well MW-4 at this Disposal Facility is open to precipitation due to heaving of the well installation. This well requires repair or replacement to provide representative groundwater data at its location.

2. the performance of the East Beach Landfill is acceptable. Two soil samples collected from the MW-22 and MW-25 soil sampling locations at this landfill exceeded the DEW Line Cleanup Tier I Criteria for lead. Results from past monitoring events have also reported lead concentrations in soil above the Tier I and Tier II DEW Line Cleanup Criteria. Future monitoring should assess whether these concentrations may have been caused by contaminant migration from the landfill. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

3. the performance of the Non-Hazardous Waste Landfill is acceptable. Regular scheduled monitoring of this landfill should be continued. Monitoring well MW-13 at this location contained 19 cm thickness of floating free petroleum product. This is most likely a result of a past spill(s) related to two aboveground fuel storage tanks and an associated above ground fuel line that is located south of the landfill. Though outside the purview of this monitoring assignment we recommend that further delineation work be completed to address this non-landfill related issue. No landfill related remedial work is required at this time however the results of subsequent investigation of the spill area may result in remedial works within the footprint of the landfill.

4. the performance of the G-217 West Landfill is acceptable. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

5. the performance of the Billboards Landfill is acceptable. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

6. the performance of the Hazmat Storage East landfill is acceptable. One soil sample collected at the HAZ-11 soil sampling location at this landfill exceeded the DEW Line Cleanup Tier II Criteria for PCBs. Additional soil samples should be collected in the vicinity of where this sample was collected to determine if this exceedance is a result of contaminant migration from the landfill. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

7. the performance of the Communications Northwest Landfill is acceptable. One soil sample collected at the CNW-16 soil sampling location at this landfill exceeded the DEW Line Cleanup Tier I Criteria for lead. This is the first monitoring result at this landfill with an exceedance of the DEW Line Cleanup criteria. Future monitoring should assess whether this may have been caused by contaminant migration from the landfill. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

8. the performance of the Communications North Landfill is acceptable. Regular scheduled monitoring of this landfill should be continued. No remedial work is required at this time.

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1.0 BACKGROUND

SENES Consultants (SENES) was retained by Public Works and Government Services Canada (PWGSC) on behalf of the Department of National Defence (DND) to complete landfill monitoring at the former FOX-M DEW Line Site.

The FOX-M DEW Line site is located on the eastern edge of the Melville Peninsula. The FOX-M site is located at 68^{o} 46' north latitude and 81^{o} 12' west longitude. It is located approximately 2 km south of the community of Hall Beach and is accessible via maintained roads. As part of the site decommissioning and remediation program completed between 2003 and 2008, eight landfills were constructed to manage the site derived wastes. These landfills are known as the:

- Tier II Disposal Facility;
- Non-Hazardous Waste Landfill;
- East Beach Landfill;
- G217 – West Landfill;
- Billboards Landfill;
- Hazmat Storage East Landfill;
- Communications Northwest Landfill; and
- Communications North Landfill.

The Key Plan for the FOX-M site and location of the landfills are provided on Figure 1.

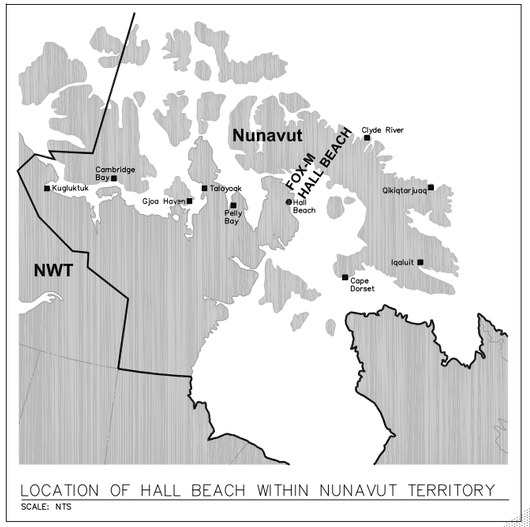
1.1 OBJECTIVE OF STUDY

The objective of this study was to collect and analyze post-closure landfill monitoring data for eight landfills located at the FOX-M DEW Line site located at Hall Beach, Nunavut.

1.2 SCOPE OF WORK

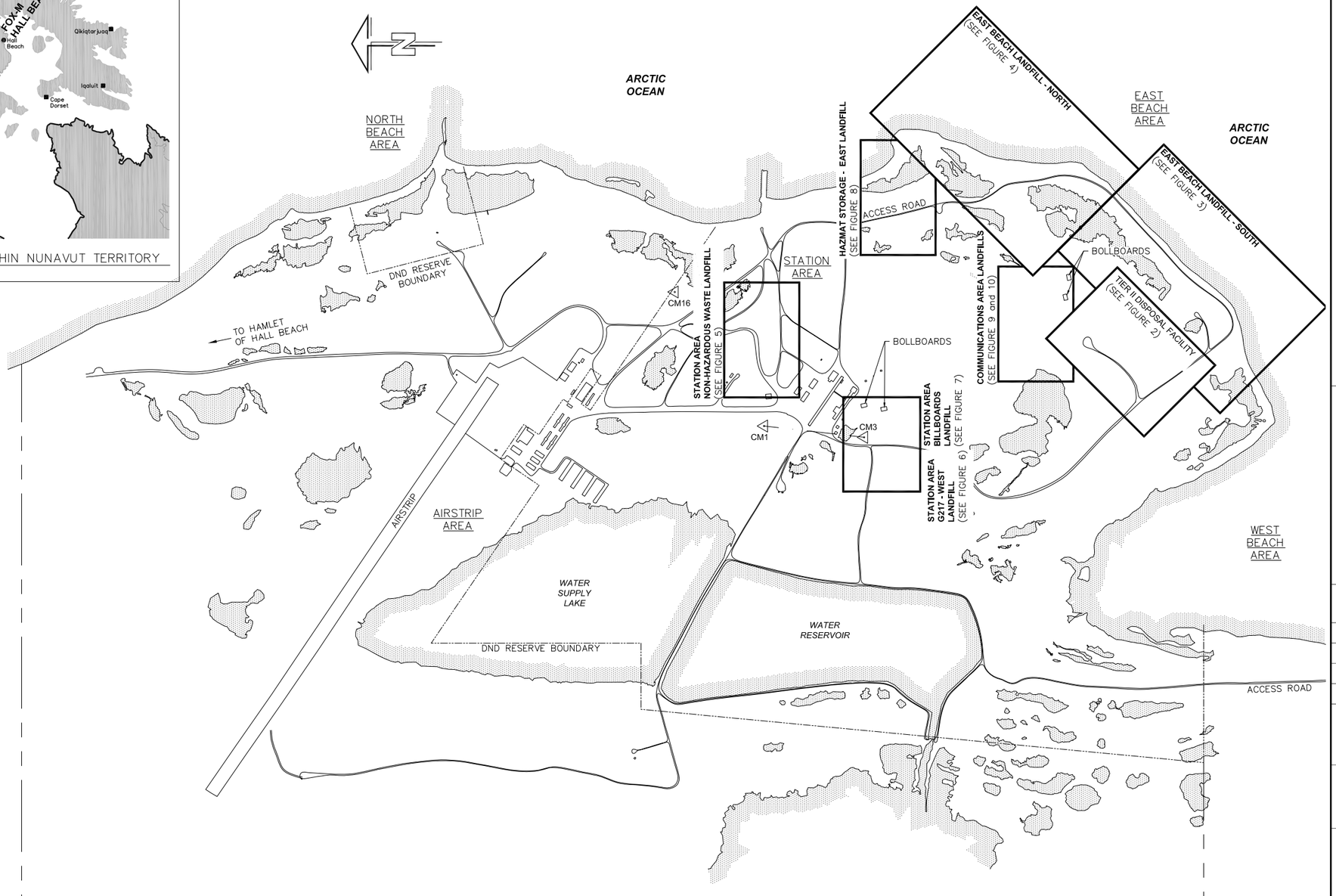
The scope of work for this project has been detailed in the *Terms of Reference* for DND Project # DLCLFMP2 (QIKIQ14), dated June 2014. The scope of work completed at each landfill includes:

- A visual inspection of the landfill;
- Collection of soil samples from specified locations at each landfill (see Table 2.1);
- Collection of groundwater samples from five monitoring wells at the Non-Hazardous Waste Landfill, from five monitoring wells at the Tier II Disposal Facility, and from twelve monitoring wells at the East Beach Landfill; and



LOCATION OF HALL BEACH WITHIN NUNAVUT TERRITORY

SCALE: NTS



SURVEY CONTROL MONUMENTS				
NO.	UTM COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM1	7 628 008.274	490 743.723	3.577	FOX-M BASELINE STA. 36+00
CM3	7 627 675.453	490 706.281	5.291	FOX-M BASELINE STA. 47+00
CM16	7 628 305.218	491 189.319	1.190	C.L.S. MONUMENT

LEGEND:

△ SURVEY CONTROL MONUMENT

APPROXIMATE LOCATION OF PROPERTY BOUNDARY

NOTES:

1. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.1, Dec. 2012

0 300 600 metres

SCALE 1:15,000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

SITE OVERVIEW

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1	
Date: FEB. 2015	Scale: 1:15000	Drawing No: FIGURE 1	

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-26-15 3:31:36 PM
Saved by: Izabela Zlba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 1 - Site Overview.dwg

- Collection of thermal data from five vertical thermistor installations at the Tier II Disposal Facility, and from six vertical thermistor locations at the East Beach Landfill.

1.3 SITE GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

The east coast of the Melville Peninsula is located within the Arctic Platform geological province. Bedrock in the area is composed of Paleozoic undivided carbonate and siliciclastic rocks. The Laurentide ice sheet was present in this area during the Pleistocene epoch. It is in an area of continuous permafrost with medium to high ground ice content characterized by abundance ice wedges and massive ice bodies. Local surficial geologic conditions were observed to generally consist of coarse soil deposits of marine origin.

Groundwater flow is seasonal, occurring mainly in the summer period of maximum active layer thaw. Groundwater is located at shallow depths and is highly affected by local permafrost conditions. Average annual precipitation in Hall Beach is 214.6 mm, of which over 55% consists of snow. Surface water in the area drains to the Foxe Basin east of the site. The local topography at the FOX-M landfill sites is very flat and close to sea level. Subsequently the local drainage is either to the Foxe Basin or to numerous small inland ponds that form in low-lying areas.

Based on the results of thermal data collected at the landfills, the maximum and minimum depths of active layer thaw in landfills at the FOX-M site for the 2013 calendar year were 1.2 m and 0.9 m, respectively.

1.4 SITE LAND-USE DESCRIPTION

The continuously staffed FOX-M North Warning System (NWS) Long Range Radar (LRR) station and Logistical Support Site (LSS) is located in the vicinity of the former DEW Line site. The area containing the landfills and FOX-M NWS station is approximately 2 km south of the community of Hall Beach. Aside from the station and community, the area consists of open tundra.

1.5 FIELD PROGRAM STAFF AND FIELD SCHEDULE

The DEW Line landfill monitoring program is divided into three phases: Phase I (yearly for five years following the completion of remediation activities at the site), Phase II (years 7, 10, 15, and 25 following completion of remediation activities), and Phase III (to be determined when Phase II is completed). This 2014 monitoring event is the year 7 event as part of Phase II of the monitoring program. The monitoring program for this site is detailed in Table 1.1.

The 2014 monitoring program was completed by Messrs. Jason Mauchan and Stephen Borcsok of SENES Consultants from 14-16 and 29 August 2014.

Table 1.1: Summary of Multi-Year Monitoring Program

No. of Years After Construction	Monitoring Event Number	Year
Prior to and during	Baseline	1997, 2000-2001, 2003-2007
1	1	2008
2	2	2009
3	3	2010
4	4	2011
5	5	2012
7	**6**	**2014**
10	7	2017
15	8	2022
25	9	2032

1.6 WEATHER CONDITIONS

Weather conditions during the site inspection are described below in Table 1.2.

Table 1.2: Weather Conditions by Site

Date	Weather Conditions	Landfills Monitored
14 August 2014	Partly cloudy, 15°C, wind from northwest	Non-Hazardous, Billboards, G-217 West
15 August 2014	Partly cloudy, 8°C, strong wind from north	Hazmat Storage East, Tier II, Communications North, Communications Northwest, East Beach
16 August 2014	Partly cloudy, 8 °C, wind from northwest	Tier II, East Beach
17 August 2014	Cloudy, 4 °C, calm	On hold in Hall Beach due to weather conditions
18 August 2014	Partly cloudy, 3 °C, light wind from north	On hold in Hall Beach due to weather conditions until afternoon
29 August 2014	Cloudy, Drizzle 4 °C, wind from east	Tier II, East Beach (thermistor data downloads)

1.7 PROJECT REFERENCES

"Terms of Reference. DEW Line Landfill Monitoring Program. DEW Line Sites Nunavut Baffin Region, DND Project #: DLCLFMP2 (QIKIQ14)." Prepared by Environmental Services, Public Works & Government Services Canada, Western Region, Edmonton, AB on behalf of The Department of National Defence of Canada, dated June 2014.

Figures from *"Final Report, Collection of Landfill Monitoring Data, FOX-M, Hall Beach, Nunavut"* Prepared for Defence Construction Canada by Biogenie, dated December 2012.

"Site Specific Health and Safety Plan for 2014 Nunavut Baffin Region DEW Line Landfill Monitoring Program, FOX-M Hall Beach, NU, FOX-4 Cape Hooper, NU, FOX-5 Broughton Island, NU. Prepared by SENES Consultants, dated July 2014.

"Logistics & Work Plan. Prepared for: 2014 Nunavut Baffin Region DEW Line Landfill Monitoring Program, FOX-M Hall Beach, NU, FOX-4 Cape Hooper, NU, FOX-5 Broughton Island, NU." Prepared by SENES Consultants, dated July 2014.

1.8 REPORT STRUCTURE

A general overview of the approach and methodology taken during the site inspection is provided in Section 2.0 while detailed results of the monitoring program for each of the eight landfills at FOX-M are presented in Sections 3.0 through 10.0.

2.0 APPROACH & METHODOLOGY (GENERAL)

2.1 SUMMARY OF WORK

2.1.1 Health and Safety

A Site Specific Health and Safety Plan was prepared for the 2014 site inspection by SENES Consultants and reviewed by PWGSC and DND prior to the commencement of field work. The field work component of this work was completed in accordance with this site specific health and safety plan. No health and safety incidents occurred during the site inspection.

2.1.2 Field Program

The scope of the monitoring program is shown in Table 2.1 below. The number of locations where monitoring was to take place are shown in parentheses.

Table 2.1: Summary of Monitoring Program/Requirements (by Landfill)

Landfill	Visual Inspection	Soil Monitoring*	Groundwater Monitoring	Temperature Monitoring Locations
Tier II Disposal Facility	√	√ (5)	√ (5)	√ (5)
East Beach Landfill	√	√ (12)	√ (12)	√ (6)
Non-Hazardous Waste Landfill	√	√ (5)	√ (5)	NA
G-217 West Landfill	√	√ (4)	NA	NA
Billboards Landfill	√	√ (4)	NA	NA
Hazmat Storage East Landfill	√	√ (4)	NA	NA
Communications Northwest Landfill	√	√ (4)	NA	NA
Communications North Landfill	√	√ (6)	NA	NA

* - two soil samples were collected at each monitoring location: one surface sample from 0-15 cm, and one subsurface sample from 40-50 cm

NA – Not applicable as there are no thermistors/monitoring wells installed at this location.

2.1.3 Visual Inspection

As part of the monitoring program a visual inspection of each landfill was to be conducted and a visual inspection checklist completed for each landfill site. Inspection information including Landfill Designation, Landfill Type, Date, Monitoring Event Number, Weather Conditions, and the Name of the Inspector was recorded for each landfill. The following information was recorded for each of the respective landfill locations:

- Settlement;
- Erosion;
- Lateral movement;
- Sloughing of slopes;
- Cracks;
- Frost action;
- Animal burrows;
- Vegetation re-establishment on surface;
- Vegetation stress;
- Staining;
- Seepage points or ponded water;
- Debris or liner exposure;
- Condition of monitoring points; and
- Other relevant observations.

The presence of the above conditions was recorded along with their location, dimensions, extent, and description.

Photographic records were taken to document the general condition of the landfill. All photographs were referenced to existing monuments, and include a visual reference to indicate the scale of the photograph. A detailed figure of each landfill showing the results of the inspection has been created.

Historical features and conditions have been noted during previous monitoring events. Existing features were compared to the features noted on the landfill drawings from the 2012 Biogenie Monitoring Report which were provided to SENES by DND. Comparative analysis of these features is included in this monitoring report.

2.1.4 Soil Sampling

Two soil samples were collected at each sampling location: one sample from 0-15 cm depth, and one sample from 40-50 cm depth. Samples were collected from test pits manually excavated

with hand tools (pick/shovel). Each soil sample was collected in one single use zip-top plastic bag and one 60 mL glass jar, which was filled with soil such that no headspace remained in the jar. Hand tools were rinsed with water between sampling locations. During sample collection, soil that had come into contact with the hand tools was discarded and not collected as part of each sample.

All soil sampling locations were backfilled after each monitoring event. All locations were photographed during sampling and after backfilling was completed, with these photographs included in the Photographic Records for the site.

Soil samples were analyzed for the following parameters:

- Petroleum Hydrocarbons (PHCs): F1-F4 fractions. (F1-F3 fractions were summed to obtain an analogous modified total petroleum hydrocarbons (TPH) concentration);
- Inorganic elements: arsenic, cadmium, chromium, cobalt, copper, lead, nickel, zinc, mercury; and
- Polychlorinated Biphenyls (PCBs – Total Aroclors).

Analyses were carried out by Maxxam Analytics, an ISO 17025 certified laboratory in Nepean, Ontario, and Calgary, Alberta. Duplicate sample analyses were carried out by AGAT Laboratories of Mississauga, Ontario, an ISO 17025 certified laboratory.

The results of the 2014 soil analyses were compared to the results from previous monitoring reports from 2008 to present which were provided by DND.

2.1.5 Groundwater Sampling

Groundwater samples were collected from each well where enough water was present to collect a sample. Wells were monitored to determine the water level and depth to bottom, and purged prior to sampling, with pH, conductivity, and temperature being measured during purging until values for these parameters have stabilized.

Wells were purged and sampled using new dedicated sampling equipment consisting of high density polyethylene (HDPE) tubing with an HDPE foot valve. No significant issues with turbidity were encountered during sampling. All tubing and foot valves were only used at one monitoring well location, and were removed from the site following sampling to prevent damage due to freezing.

Groundwater samples were analyzed for the following parameters. In cases where insufficient water was present, sampling was prioritized in the order presented below. Metals were not filtered.

- Petroleum Hydrocarbons (PHCs): F1-F4 fractions (F1-F3 fractions to be summed to obtain an analogous total petroleum hydrocarbons (TPH) concentration);
- Inorganic elements: arsenic, cadmium, chromium, cobalt, copper, lead, nickel, zinc, mercury; and
- Polychlorinated Biphenyls (PCBs – Total Aroclors).

Groundwater samples were collected in the following sampling containers:

- Metals – 120 mL plastic bottle preserved with nitric acid;
- Mercury – 100 mL clear glass bottle preserved with hydrochloric acid;
- PHC F1 fraction and BTEX – 3 x 40 mL clear glass vials;
- PHC F2-F4 fractions – 2 x 500 mL glass bottle preserved with sodium bisulphate;
- Polychlorinated Biphenyls – 500 mL glass bottle with no preservative;

Analyses were carried out by Maxxam Analytics, an ISO 17025 certified laboratory in Nepean, Ontario, and Calgary, Alberta. Duplicate sample analyses were carried out by AGAT Laboratories of Mississauga, Ontario, an ISO 17025 certified laboratory.

Soil and groundwater samples were kept cool and shipped in insulated coolers with ice or ice packs when possible. Samples were shipped under chain-of-custody protocols and coolers were sealed with custody seals by SENES staff prior to shipment. No issues with sample temperature were reported by the laboratories upon receipt of samples. Sample hold times were met for all samples.

2.1.6 Comparison of Soil and Groundwater Monitoring Data

Soil and groundwater monitoring data collected during the 2014 monitoring program has been compared to data collected during previous monitoring events, as well as background concentrations (soil only), baseline average concentrations (soil and groundwater), and DEW Line Cleanup Criteria (soil only).

Background chemical concentrations were determined from soil sampling conducted by Environmental Science Group (ESG) in 1984 and 1990, and represent soil chemical conditions in the area that have not been impacted by site activities.

Baseline average concentrations (BAC) represent existing soil and groundwater chemistry at the landfill areas prior to and during remediation.

The DEW Line Cleanup Criteria were developed as part of the DEW Line Cleanup Protocol to provide a consistent approach across all DEW Line sites that is generally protective of the Arctic ecosystem. The Cleanup Criteria differentiates between Tier I and Tier II soils. Soil containing parameters at concentrations above the Tier I Criteria but below the Tier II Criteria was acceptable for placement in a non-hazardous waste landfill, while soil containing parameters at concentrations above the Tier II Criteria are to be treated/disposed of in a manner that precludes contact with the Arctic ecosystem.

Comparison to background, baseline, and Tier I/II DEW Line Cleanup Criteria have been included in the summary chemical tables in this report. Parameter concentrations in soil exceeding background levels are not discussed in this report as their presence does not necessarily indicate that contaminant migration from a landfill was or is occurring. Concentrations above background levels may be as a result of site activities conducted prior to the construction of the landfill. However baseline concentrations account for site activities that occurred prior to and during construction of the landfill, and parameter concentrations above these levels may indicate contaminant migration is occurring.

2.1.7 Thermal Monitoring

Thermal monitoring and thermal data downloading was completed at the Tier II Disposal Facility and East Beach Landfill. No thermal monitoring was completed at the other landfills as they do not have thermistor installations. Monitoring consisted of the following steps:

- Inspection of the condition of thermistor installations, noting their condition, damage if applicable, and any specific repair requirements;
- Retrieval of ground temperature data from the thermistor installations using a personal computer equipped with the appropriate software (ProLog) to retrieve the data at each location (data was reviewed in the field to ensure completeness);
- Collection of manual readings of Thermistors using ProLog software;
- Measurement of the distance of each thermistor cable above the ground;
- Replacement of batteries (following retrieval of ground temperature data) in dataloggers. The following batteries are required for each datalogger:
    - 1 Ultra-Logger Lithium Battery – 5.2 amp 12 volt, Lakewood model identification ULB-15;
    - 1 Ultra-Logger Lithium Battery – 9 volt, Lakewood model identification ULB-1; and

- Resetting datalogger memory to zero and restarting readings. The system was monitored using the personal computer to ensure that the dataloggers were functioning and temperatures were being recorded.

Following the site inspection, the downloaded data was forwarded to DND to be analyzed by Tetra Tech EBA. The results of these analyses have been summarized in this report.

2.2 FIELD NOTES AND DATA

Field notes for each landfill monitored as part of this program are included in Appendix B. The checklist templates were included in the Terms of Reference for the program and copies were provided by DND staff prior to use during the monitoring program.

2.3 QA/QC

Intra-laboratory comparison of soil and groundwater analytical results has been completed by Maxxam Analytics as part of their standard internal QA/QC procedures, and are provided in the Certificates of Analysis in Appendix A. Blind duplicates were collected for approximately 10% of the soil and groundwater samples collected, and were submitted to a second laboratory, AGAT Laboratories of Mississauga, Ontario, an ISO 17025 certified laboratory, for inter-laboratory comparison of results. Each duplicate sample was also sent to the ESG Ops Centre in Kingston, Ontario for archiving.

The relative percent difference (RPD) was calculated for the analytical results of duplicate samples submitted for inter-laboratory comparison. The RPD is calculated to assess the precision of duplicate measurements. RPD values under 30% are considered acceptable levels of precision for this program as specified in the Terms of Reference for the program. A discussion of the results for duplicate samples and RPD values are provided with the analytical results for each landfill.

3.0 TIER II DISPOSAL FACILITY

3.1 LANDFILL DESCRIPTION

The Tier II Disposal Facility is located approximately 800 m south of the main station area, west of the East Beach Landfill. This landfill was constructed for the disposal of Tier II soil generated during remediation, particularly soil generated during excavation at the East Beach Landfill. A detailed drawing of this landfill is provided in Figure 2. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 2A. The historical chemical results for groundwater samples collected at this landfill are shown in plan on Figure 2B.

3.2 SUMMARY OF WORK CONDUCTED

3.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the visual inspection work plan.

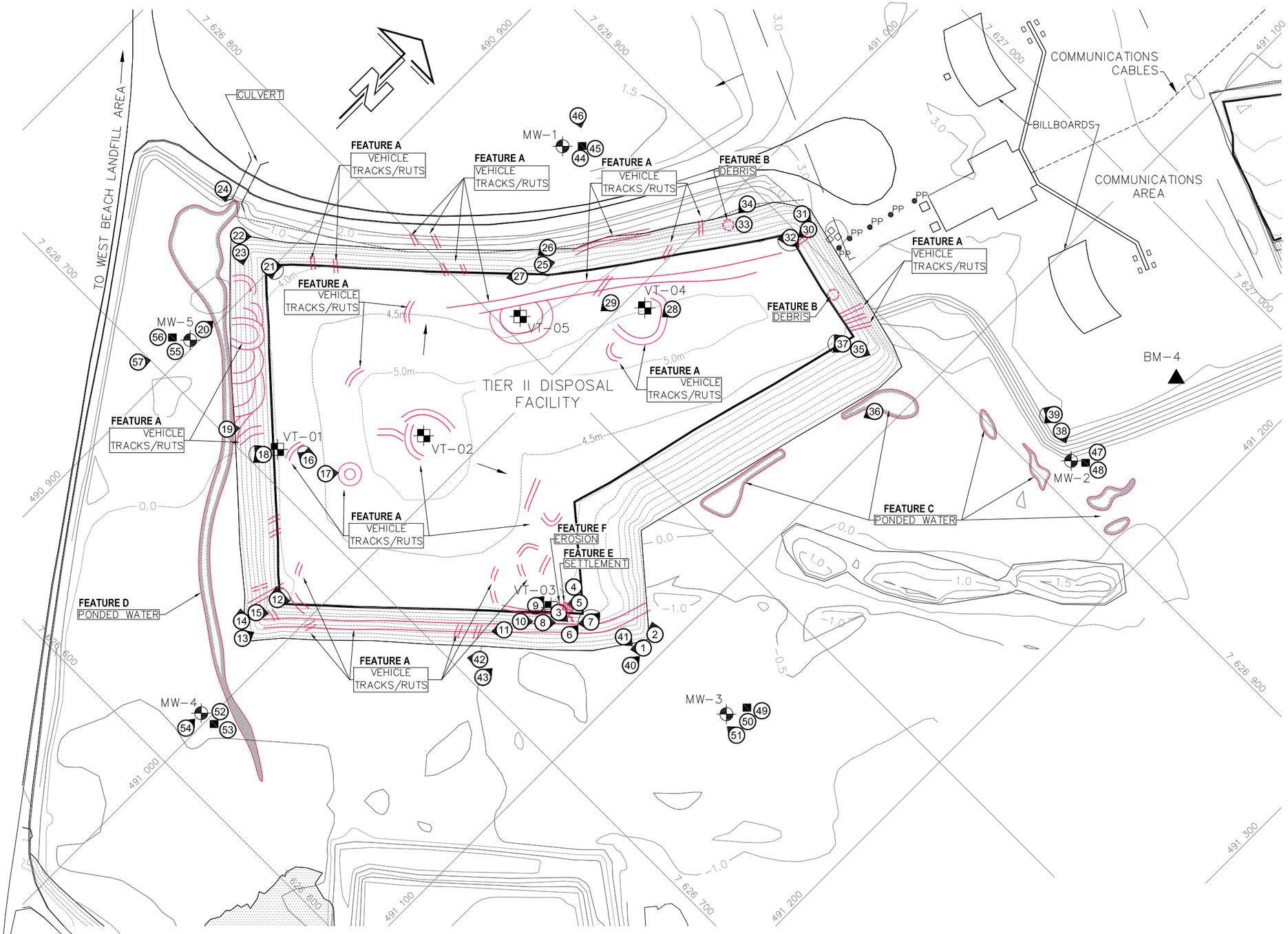
3.2.2 Soil Sampling

Soil samples were collected at five (5) locations as shown on Figure 2. Surface and subsurface samples were collected at each location. There were no deviations from the soil sampling work plan. One duplicate soil sample was collected from subsurface soil at sample location MW-1. Soil sampling completed at the landfill is summarized in Table 3.1.

Table 3.1: Summary of Work Conducted by Soil Sampling Location (Tier II Disposal Facility)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-T2-MW-1	√	√ D
FM-T2-MW-2	√	√
FM-T2-MW-3	√	√
FM-T2-MW-4	√	√
FM-T2-MW-5	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected



PLOT: March-02-15 9:46:04 AM

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Sheet Size: 11 x 17 (432mm x 279mm)

SENES FILE NO.: 350600-515-1 FOX-M_Fig 2 - Tier II Disposal Facility.dwg

LEGEND:

- PERMANENT BENCHMARK
- PP — POWER
- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOVATION
- 10 — PHOTOGRAPH VIEWPOINT
- 1.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- EROSION CHANNEL
- VEHICLE TRACKS/RUTS
- AREA OF SETTLEMENT
- PONDED WATER
- EXPOSED DEBRIS

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 15, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.8, Dec. 2012

0 10 20 metres

SCALE 1:500

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

TIER II DISPOSAL FACILITY

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1	
Date: FEB. 2015	Scale: 1:500	Drawing No: FIGURE 2	

Sheet Size: 11 x 17 (432mm x 279mm)
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SENES FILE NO.: 350600-515-1 FOX-M_Fig 2 - Tier II Disposal Facility.dwg

MW-5 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.2	4.0	4.0	4.5	5.2	30
Ni	**8.0**	**14**	**13**	**11**	**27**	**12**
Co	<5.0	**6.0**	3.0	<5.0	3.1	3
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	3.0	4.0	<10	6.3	4.0
Zn	<15	13	13	17	14	19
Cr	<20	**22**	18	<20	11	17
As	0.5	<1.0	2.0	**2.5**	**2.7**	1.5
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.10	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	14	**40**	20	11	30	15

MW-5 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	<3.0	6.0	4.0	3.3	6.3	5.8
Ni	6.7	**19**	**11**	**8.1**	**23**	**8**
Co	<5.0	**9.0**	3.0	<5.0	4.1	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	4.0	3.0	<10	3.4	2.5
Zn	<15	15	12	16	21	14
Cr	<20	**25**	14	<20	**20**	12
As	0.5	2.0	<1.0	1.9	1.3	1.5
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	**62**	20	11	**55**	15

MW-1 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.8	**9.0**	4.0	**6.7**	5.8	4.8
Ni	6.6	**17**	**12**	7.2	**23**	**8**
Co	<5.0	**12**	2.0	<5.0	3.5	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	8.0	3.0	<10	5.7	4.1
Zn	<15	**22**	8	<15	18	11
Cr	<20	**24**	16	<20	14	10
As	1.0	2.0	2.0	2.2	**2.7**	2.0
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	30	20	17	21	15

MW-1 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	<3.0	**8.0**	4.0	3.4	5.9	4.75
Ni	5.2	**14**	**11**	6.8	**24**	**9.6**
Co	<5.0	**8.0**	2.0	<5.0	4.1	2.35
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.5
Pb	<10	4.0	3.0	<10	5.0	3
Zn	<15	10	9	18	16	12.5
Cr	<20	**22**	13	<20	15	13.5
As	0.8	2.0	2.0	**6.5**	**2.9**	**4.1**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	30	20	11	15	35

MW-2 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	4.5	6.0	**7.0**	4.7	**11**	5.8
Ni	7.2	**14**	**13**	7.4	**27**	**9**
Co	<5.0	**7.0**	3.0	<5.0	4.1	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	8.0	7.0	<10	**21**	7.9
Zn	<15	**25**	15	16	**26**	**37**
Cr	<20	**23**	16	<20	20	12
As	1.2	2.0	1.0	**2.4**	2.3	2.1
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	21	30	20	16	**68**	28

MW-2 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	**14**	**9.0**	5.0	5.5	6.5	5.6
Ni	6.7	**16**	**15**	7.5	**24**	**8**
Co	<5.0	**10**	3.0	<5.0	3.2	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	7.0	4.0	<10	5.0	6.3
Zn	<15	14	15	<15	21	**140**
Cr	<20	**26**	19	<20	13	10
As	0.7	3.0	<1.0	1.7	1.3	<1.0
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	17	30	20	27	**72**	15

MW-4 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.8	4.0	6.0	4.0	6.1	3.8
Ni	6.8	**10**	**13**	7.3	**19**	7
Co	<5.0	**5.0**	3.0	<5.0	3.1	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	3.0	4.0	<10	5.7	3.3
Zn	<15	10	13	<15	**25**	11
Cr	<20	15	17	<20	13	11
As	<0.20	1.0	1.0	**2.5**	1.4	1.5
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	**80**	20	13	**253**	15

MW-4 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	2.3	4.0	4.0	3.7	4.6	3
Ni	<5.0	**11**	**9.0**	6.7	**19**	6
Co	<5.0	4.0	2.0	<5.0	2.9	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	2.0	2.0	<10	3.4	2.3
Zn	<15	10	8	<15	14	9
Cr	<20	18	10	<20	14	9
As	0.9	2.0	1.0	**2.6**	1.3	1.8
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	20	**52**	20	15	**45**	15

MW-3 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.8	**7.0**	5.0	5.0	**6.7**	5.7
Ni	7.0	**17**	**14**	**10**	**25**	**11**
Co	<5.0	**7.0**	3.0	<5.0	3.4	3
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	6.0	5.0	<10	6.0	6.2
Zn	**23**	**170**	12	<15	18	17
Cr	<20	**29**	18	<20	12	13
As	<0.20	2.0	2.0	**4.9**	2.0	**3.7**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	30	20	11	**106**	15

MW-3 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	**7.6**	6.0	5.0	5.3	**7.3**	5.8
Ni	7.5	**14**	**13**	**10**	**27**	**11**
Co	<5.0	**5.0**	3.0	<5.0	4.3	3
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	3.0	4.0	<10	5.2	3.8
Zn	<15	12	9	16	19	16
Cr	<20	19	15	<20	**20**	15
As	1.2	2.0	<1.0	**4.1**	**3.4**	**2.9**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.10	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	23	30	20	11	**42**	15

LEGEND:

- PERMANENT BENCHMARK
- PP — POWER
- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOVATION
- 1.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	6.6	N/A	100
Ni	8.0	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	10	200	500
Zn	22	N/A	500
Cr	20	N/A	250
As	2.4	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.0030	1	5
Modified TPH - (Total C6-C34)	40	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.8, Dec. 2012

0 10 20 metres

SCALE 1:500

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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
TIER II DISPOSAL FACILITY

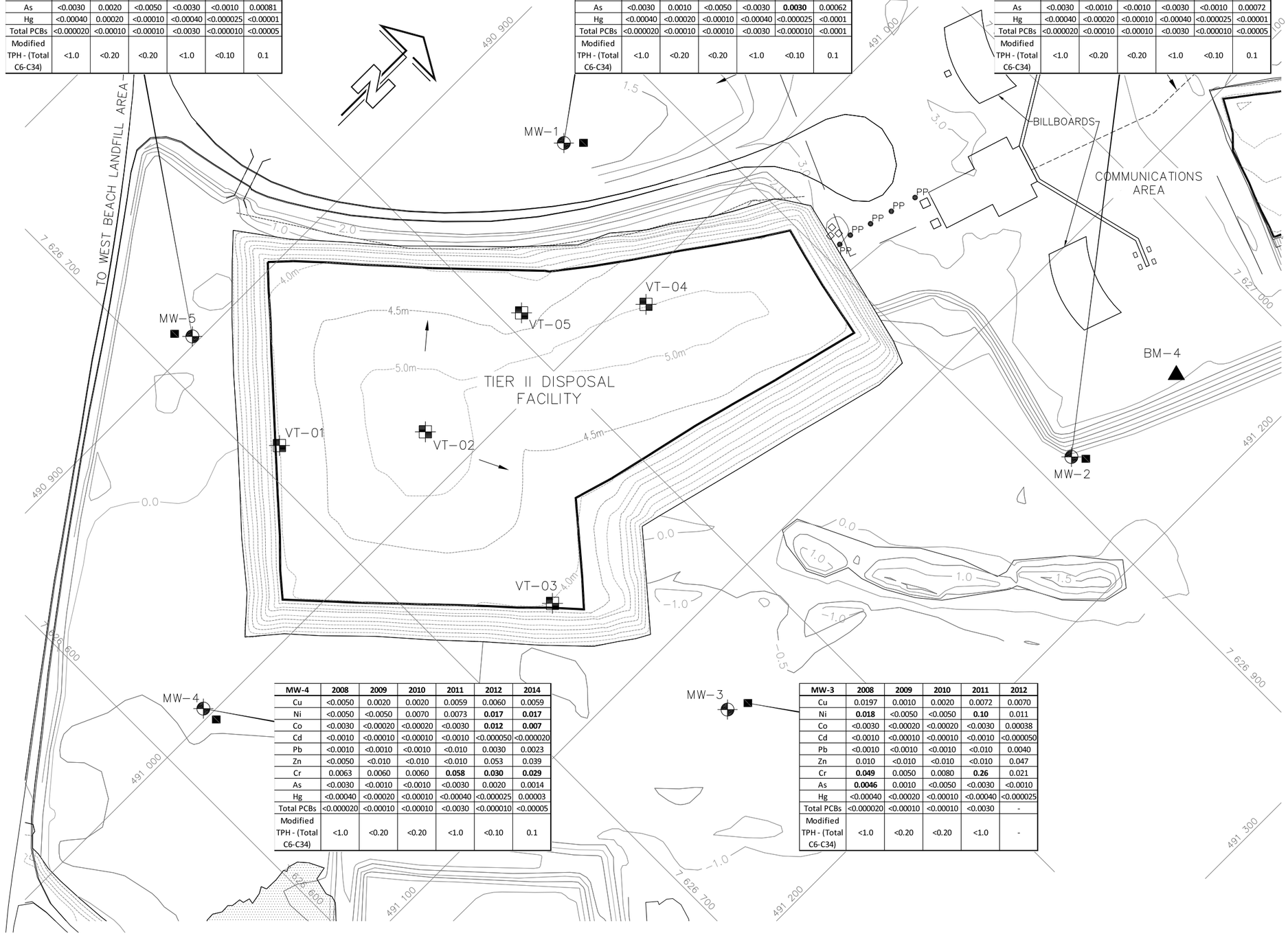
SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:500	Drawing No: FIGURE 2A

MW-5	2008	2009	2010	2011	2012	2014
Cu	0.0052	0.0030	0.0030	0.0056	0.0050	0.0011
Ni	0.0082	**0.021**	**0.026**	**0.017**	0.0090	0.0041
Co	<0.0030	0.00040	0.00060	<0.0030	<0.0010	<0.00030
Cd	<0.0010	<0.00010	<0.00010	<0.0010	<0.000050	<0.000020
Pb	<0.0010	<0.0010	<0.0010	<0.010	<0.0010	<0.00020
Zn	<0.0050	<0.010	<0.010	<0.010	0.010	0.0086
Cr	**0.097**	<0.0050	0.026	**0.22**	**0.035**	0.0056
As	<0.0030	0.0020	<0.0050	<0.0030	<0.0010	0.00081
Hg	<0.00040	0.00020	<0.00010	<0.00040	<0.000025	<0.00001
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.00005
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	<0.10	0.1

MW-1	2008	2009	2010	2011	2012	2014
Cu	<0.0050	<0.0010	0.0020	<0.0050	0.010	0.00065
Ni	<0.0050	<0.0050	0.0060	**0.015**	**0.017**	0.003
Co	<0.0030	<0.00020	0.0014	<0.0030	0.0020	<0.001
Cd	<0.0010	<0.00010	<0.00010	<0.0010	<0.000050	<0.002
Pb	<0.0010	<0.0010	<0.0010	<0.010	0.0030	<0.002
Zn	0.043	<0.010	<0.010	<0.010	0.052	<0.005
Cr	<0.0050	0.0030	0.0090	**0.058**	0.018	0.0025
As	<0.0030	0.0010	<0.0050	<0.0030	**0.0030**	0.00062
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025	<0.0001
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.0001
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	<0.10	0.1

MW-2	2008	2009	2010	2011	2012	2014
Cu	<0.0050	0.0010	0.0010	<0.0050	0.0040	0.0025
Ni	<0.0050	<0.0050	<0.0050	**0.018**	**0.015**	0.0046
Co	<0.0030	0.00030	<0.00020	<0.0030	<0.0010	0.00054
Cd	<0.0010	0.00010	0.00010	<0.0010	<0.000050	<0.000020
Pb	<0.0010	<0.0010	<0.0010	<0.010	<0.0010	0.0011
Zn	0.14	0.090	0.040	**0.24**	**0.75**	**0.73**
Cr	<0.0050	0.0020	0.0030	**0.056**	0.012	0.0065
As	<0.0030	<0.0010	<0.0010	<0.0030	<0.0010	0.00072
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025	<0.00001
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.00005
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	<0.10	0.1



MW-4	2008	2009	2010	2011	2012	2014
Cu	<0.0050	0.0020	0.0020	0.0059	0.0060	0.0059
Ni	<0.0050	<0.0050	0.0070	0.0073	**0.017**	**0.017**
Co	<0.0030	<0.00020	<0.00020	<0.0030	**0.012**	**0.007**
Cd	<0.0010	<0.00010	<0.00010	<0.0010	<0.000050	<0.000020
Pb	<0.0010	<0.0010	<0.0010	<0.010	0.0030	0.0023
Zn	<0.0050	<0.010	<0.010	<0.010	0.053	0.039
Cr	0.0063	0.0060	0.0060	**0.058**	**0.030**	**0.029**
As	<0.0030	<0.0010	<0.0010	<0.0030	0.0020	0.0014
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025	0.00003
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.00005
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	<0.10	0.1

MW-3	2008	2009	2010	2011	2012
Cu	0.0197	0.0010	0.0020	0.0072	0.0070
Ni	**0.018**	<0.0050	<0.0050	**0.10**	0.011
Co	<0.0030	<0.00020	<0.00020	<0.0030	0.00038
Cd	<0.0010	<0.00010	<0.00010	<0.0010	<0.000050
Pb	<0.0010	<0.0010	<0.0010	<0.010	0.0040
Zn	0.010	<0.010	<0.010	<0.010	0.047
Cr	**0.049**	0.0050	0.0080	**0.26**	0.021
As	**0.0046**	0.0010	<0.0050	<0.0030	<0.0010
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	-
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	-

LEGEND:

- PERMANENT BENCHMARK
- PP — POWER
- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOVATION
- 1.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration
Cu	0.010
Ni	0.013
Co	0.0030
Cd	0.0010
Pb	0.010
Zn	0.19
Cr	0.026
As	0.0030
Hg	0.00040
Total PCB	0.000020
Modified TPH - (Total C6-C34)	1.00

All Concentrations in mg/L

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.8, Dec. 2012

0 10 20 metres

SCALE 1:500

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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

TIER II DISPOSAL FACILITY

GROUNDWATER CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:500	Drawing No: FIGURE 2B

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-26-15 3:30:27 PM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 2 - Tier II Disposal Facilty.dwg

3.2.3 Groundwater Sampling

Groundwater monitoring was completed at five monitoring wells as shown on Figure 2. Inspection of the groundwater monitoring wells and groundwater sampling at the Tier II Disposal Facility was generally completed as per the work plan. Sampling at MW-3 was only completed for PHC fraction F1 due to limited groundwater volume in the well. Monitoring well MW-4 was noted to be open to the atmosphere and as such results may be compromised by potential intrusion of precipitation or other foreign materials into the well. One duplicate groundwater sample was collected from MW-1. Groundwater sampling work completed at this landfill is summarized in Table 3.2.

Table 3.2: Summary of Work Conducted by Groundwater Sampling Location (Tier II Disposal Facility)

Location	Visual Inspection/ Groundwater Monitoring	Sample collected for PCB analysis	Sample collected for metals analysis	Sample collected for PHCs F1-F4 analysis
FM-T2-MW-1	√	√[D]	√[D]	√[D]
FM-T2-MW-2	√	√	√	√
FM-T2-MW-3	√	X[I]	X[I]	√[F1]
FM-T2-MW-4	√	√	√	√
FM-T2-MW-5	√	√	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected
N – no water in well (well was dry)
I – insufficient water in well to collect sample
F1 – sample only collected for F1 fraction

3.2.4 Thermal Monitoring

Thermal monitoring was successfully completed at the five vertical thermistor locations at the Tier II Disposal Facility. A summary of thermistor work completed at this landfill is provided in Table 3.3.

Table 3.3: Summary of Work Conducted by Thermistor Location (Tier II Disposal Facility)

Location	Realtime Data	Data Downloaded	Batteries Replaced
FM-TII-VT-1	√	√	√
FM-TII-VT-2	√	√	√
FM-TII-VT-3	√	√	√

FM-TII-VT-4	√	√	√
FM-TII-VT-5	√	√	√

3.3 RESULTS OF THE MONITORING PROGRAM

3.3.1 Visual Inspection

The visual inspection at the Tier II Disposal Facility was completed on 16 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 3.4.

3.3.1.1 Stability Assessment

The preliminary stability assessment completed during the site inspection is provided in Table 3.5.

3.3.1.2 Photographic Records

The photograph log for the site is provided in Table 3.6.

3.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 3.7 below for each category observed.

TABLE 3.4 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Tier II Disposal Facility
DATE OF INSPECTION: 16 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 3.4 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	Northeast of thermistor VT-03 (Feature E)	0.3m	0.3m	0.1m	<1%	Small Depression	P-4	
Erosion	YES	Northeast of thermistor VT-03 (Feature F)	1m	0.1m	0.1m	<1%	Erosion Channel	P-8	
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	At bottom of landfill berms				<1%	Small shrubs	P-13, P-23	
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	N end of landfill on berms (Feature B)				<1%	Metal, wood Debris	P-32.1, P-33,	
Presence/Condition – Monitoring Instruments	YES	Five vertical thermistors and five monitoring wells as per drawing					Thermistors, Monitoring Wells	P-5, P-16.2, P-26, P-28, P-35, P-46, P-51, P-54,	
Features of Note.	YES	Vehicle tracks/ruts in numerous places on berms and cap (Feature A), ponded water east and west of landfill (Feature C, D)				10% affected by vehicle tracks	Vehicle Tracks, Ponded Water	P-6, P-10, P-11, P-12.2, P-13, P-15, P-16.1, P-17, P-19, P-20, P-21.2, P-24, P-25, P-28, P-36	

Table 3.5: Preliminary Stability Assessment - FOX-M Tier II Disposal Facility

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	Acceptable	Occasional
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Tier II Disposal Facility (see Figure 2)

Photo 1 (FOX-M TII P-1 sw.jpg)	Photo 2 (FOX-M TII P-2 nw.jpg)
Description: View southwest along eastern extents of landfill toward VT-03.	Description: View looking up the slope at the eastern corner of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 3 (FOX-M TII P-3.jpg)	Photo 4 (FOX-M TII P-4.jpg)
Description: View looking down the slope adjacent to VT-03.	Description: Small area of settlement in surface material of the landfill cap near VT-03. **(FEATURE E)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 4 (FOX-M TII P-5 sw.jpg)	Photo 6 (FOX-M TII P-6 north.jpg)
Description: View along top of slope toward VT-03.	Description: View up the slope toward VT-03. Vehicle tracks/ruts observed on the slope. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 7.1 (FOX-M TII P-7 nw.jpg)	Photo 7.2 (FOX-M TII P-7 west.jpg)
Description: View northwest from eastern corner across landfill cap. Photo taken from near VT-03.	Description: View west across landfill cap. VT-03 in the foreground.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 8 (FOX-M TII P-8 ne.jpg)	Photo 9 (FOX-M TII P-9 north.jpg)
Description: View along the slope next to VT-03. Vehicle tracks/ruts observed on the slope and adjacent to VT-03. Small erosion channel to right of VT-03. **(FEATURE F)**	Description: View of VT-03 from the top of the ridge.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 10 (FOX-M TII P-10 ne.jpg)	Photo 11 (FOX-M TII P-11 sw.jpg)
Description: View along slope of vehicle tracks/ruts near VT-03. **(FEATURE A)**	Description: View southwest along slope near VT-03. Vehicle ruts observed on the slope. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 12.1 (FOX-M TII P-12 ne.jpg)	Photo 12.2 (FOX-M TII P-12 nw.jpg)
Description: View northeast along top of slope from the southeastern corner.	Description: View northwest along top of slope from the southeastern corner. Vehicle tracks/ruts observed. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 13 (FOX-M TII P-13 ne.jpg)	Photo 14 (FOX-M TII P-14 nw.jpg)
Description: View up the slope at the southeastern corner. Vehicle tracks/ruts observed on the slope. Vegetation observed on bottom of landfill slope. **(FEATURE A)**	Description: View northwest along toe of southwestern slope.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 15 (FOX-M TII P-15 ne.jpg)	Photo 16.1 (FOX-M TII P-16.1.jpg)
Description: View northeast along slope from southern corner. Vehicle tracks/ruts observed on slope. **(FEATURE A)**	Description: View toward VT-01. Vehicle tracks/ruts observed on landfill cap. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 16.2 (FOX-M TII P-16.2.jpg)	Photo 17 (FOX-M TII P-17 ne.jpg)
Description: View toward VT-01 and western corner of landfill.	Description: Vehicle tracks/ruts observed. View northeast across landfill cap. Photo taken from near VT-01. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 18.1 (FOX-M TII P-18 se.jpg)	Photo 18.2 (FOX-M TII P-18 sw.jpg)
Description: View down the slope adjacent to VT-01.	Description: View down the slope from adjacent to VT-01.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 19 (FOX-M TII P-19 ne.jpg)	Photo 20 (FOX-M TII P-20 north.jpg)
Description: View up the slope toward VT-01. Vehicle tracks/ruts observed on the southern slope near MW-05. **(FEATURE A)**	Description: View north toward western corner of landfill. Vehicle tracks/ruts observed on slope. Photo taken from near MW-05. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 21.1 (FOX-M TII P-21 east.jpg)	Photo 21.2 (FOX-M TII P-21 ne.jpg)
Description: View east across landfill cap from the western corner. VT-03 seen in the distance.	Description: View northeast along top of slope from the western corner of the landfill. Vehicle tracks/ruts observed on the slope. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 21.3 (FOX-M TII P-21 se.jpg)	Photo 22 (FOX-M TII P-22 ne.jpg)
Description: View along southwestern top of slope toward VT-01.	Description: View north along the Tier II Disposal Facility toward the billboards.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 23 (FOX-M TII P-23 se.jpg)	Photo 24 (FOX-M TII P-24.jpg)
Description: View along southwestern edge of the landfill. Vegetation visible at bottom of landfill slopes.	Description: View of culvert and ponded water at southwestern corner of the landfill. Photo taken from the access road. **(FEATURE D)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 25 (FOX-M TII P-25 ne.jpg)	Photo 26 (FOX-M TII P-26 south.jpg)
Description: View along western slope. Vehicle tracks/ruts observed on the slope.	Description: View up the slope toward VT-05.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 27 (FOX-M TII P-27 sw.jpg)	Photo 28 (FOX-M TII P-28 south.jpg)
Description: View along top of ridge from near VT-05. Vehicle tracks/ruts observed.	Description: View of vehicle tracks/ruts surrounding VT-04.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 29 (FOX-M TII P-29 south.jpg)	Photo 30 (FOX-M TII P-30.jpg)
Description: Vehicle tracks/ruts on the landfill cap. VT-05 is seen on the right hand side of the photo.	Description: Photo taken at northeastern corner. Field book located in a vehicle track/rut. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 31 (FOX-M TII P-31.jpg)	Photo 32.1 (FOX-M TII P-32 se.jpg)
Description: The surface material of the landfill cover	Description: View southeast along northern extents of landfill. Minor wooden debris was noted. **(FEATURE B)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 32.2 (FOX-M TII P-32 sw.jpg)	Photo 33 (FOX-M TII P-33.jpg)
Description: View southwest along the western top of slope.	Description: Small pieces of metal debris observed near northwestern corner of landfill. **(FEATURE B)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 34 (FOX-M TII P-34 south.jpg)	Photo 35 (FOX-M TII P-35 east.jpg)
Description: View up the slope of vehicle tracks/ruts. VT-04 seen in the distance.	Description: View downslope toward MW-2.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 36 (FOX-M TII P-36 south.jpg)	Photo 37.1 (FOX-M TII P-37 south.jpg)
Description: View over ponded water near northeastern corner of landfill. **(FEATURE C)**	Description: View along eastern extents of landfill. VT-03 seen in the distance.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 37.2(FOX-M TII P-37 west.jpg)	Photo 38 (FOX-M TII P-38.jpg)
Description: Vehicle tracks/ruts observed on northern slope. **(FEATURE A)**	Description: View from adjacent to billboards, downslope toward MW-2
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 39.1 (FOX-M TII P-39 south.jpg)	Photo 39.2 (FOX-M TII P-39 west.jpg)
Description: View from adjacent to billboards toward the Tier II Disposal Facility.	Description: View from adjacent to billboards toward the northern part of the Tier II Disposal Facility.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 40 (FOX-M TII P-40 north.jpg)	Photo 41 (FOX-M TII P-41 east.jpg)
Description: View towards billboards over the eastern corner of the Tier II Disposal Facility.	Description: View toward MW-3 from the eastern corner of the Tier II Disposal Facility.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 42 (FOX-M TII P-42 sw.jpg)	Photo 43 (FOX-M TII P-43 north.jpg)
Description: View southwest along eastern toe.	Description: View north along eastern toe. VT-03 seen at the top of the slope.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 44 (FOX-M TII P-44.jpg)	Photo 45 (FOX-M TII P-45.jpg)
Description: Soil sample collection of FM-TII-MW-1.	Description: After sample collection and backfill of FM-TII-MW-1.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 46 (FOX-M TII P-46 se.jpg)	Photo 47 (FOX-M TII P-47.jpg)
Description: View toward MW-1 and across the road, the Tier II Disposal Facility.	Description: Collecting soil sample FM-TII-MW-2.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 48 (FOX-M TII P-48.jpg)	Photo 49 (FOX-M TII P-49.jpg)
Description: After sample collection and backfill of FM-TII-MW-2.	Description: Soil sample collection of FM-TII-MW-3.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 50 (FOX-M TII P-50.jpg)	Photo 51 (FOX-M TII P-51 west.jpg)
Description: After sample collection and backfill of FM-TII-MW-3.	Description: View toward MW-3 and the Tier II Disposal Facility.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 52 (FOX-M TII P-52.jpg)	Photo 53 (FOX-M TII P-53.jpg)
Description: Soil sample collection of FM-TII-MW-4.	Description: After sample collection of FM-TII-MW-4.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 54 (FOX-M TII P-54 north.jpg)	Photo 55 (FOX-M TII P-55.jpg)
Description: View toward MW-4 and the Tier II Disposal Facility.	Description: Soil sample collection of FM-TII-MW-5.
Date: August 15, 2014	Date: August 15, 2014

TABLE 3.6: LANDFILL VISUAL INSPECTION PHOTO LOG (TIER II DISPOSAL FACILITY)

Photo 56 (FOX-M TII P-56.jpg)	Photo 57 (FOX-M TII P-57 north.jpg)
Description: After collection and backfill of FM-TII-MW-5.	Description: View toward MW-5 and the Tier II Disposal Facility.
Date: August 15, 2014	Date: August 15, 2014

Table 3.7: Visual Inspection Trends (Tier II Disposal Facility)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	A small area of settlement was observed at one location on the landfill cap near VT-03 on the 2012 drawing.	Minor settlement was observed at one location on the landfill cap near VT-03. (Feature E)	Settlement is present in one area but is minor and not worsening.
Erosion	An erosion channel was identified on the 2012 drawing along the base of the north side of the west landfill berm.	A small erosion channel was observed at one location on the landfill cap near VT-03. (Feature F) The previously identified erosion channel was not observed.	Erosion is present in one area but is minor and not worsening.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation	Vegetation was not noted on the 2012 landfill drawing.	Sparse vegetation was observed on the outer edges of the landfill.	Vegetation is slowly establishing itself on the landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	No active seepage points observed.	None observed at this landfill.
Debris Exposed	Two areas of debris were noted on the 2012 landfill drawing. The size or type of debris is not apparent from the drawing.	Small metal debris was observed at two locations on the berms on the north end of the landfill. (Feature B)	Debris exposure is limited to small pieces of debris that do not originate within the landfill.
Presence/Condition of Monitoring Instruments	Five vertical thermistor installations and five monitoring well installations were identified on the 2012 landfill drawing.	Five vertical thermistor installations and five monitoring well installations were observed at the landfill. These monitoring installations were found to be in good condition, with the exception of MW-4, where the standpipe of the well has heaved up so that its top is higher than that of the surrounding casing.	Monitoring instruments are generally remaining in good condition with the exception of MW-4.
Other Features of Note	Vehicle tracks are identified in numerous areas on the landfill berms and cap.	Vehicle tracks are present throughout the berms and on the landfill cap. (Feature A) Ponded water located on east and southwest sides of landfill. (Feature C, D)	Vehicles continue to drive over and around the landfill, however it does not appear to be having a negative affect on the landfill performance.

3.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Tier II Disposal Facility indicates that conditions remain very similar. A number of new vehicle tracks are present. No other significant changes were observed. Based on these visual inspection results, the performance of the landfill is acceptable.

3.3.2 Soil Sampling

Soil sampling at the Tier II Disposal Facility was completed on 15 August 2014. As previously reported a total of eleven samples including one duplicate sample were procured from five locations as shown in plan on Figure 2.

3.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the Tier II Disposal Facility are presented in Table 3.8.

A duplicate soil sample was collected from surficial soils at sample location MW-1 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample results were above 30% for one of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

3.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Tier II Disposal Facility is provided in Table 3.9. The discussion includes a comparison of results from upgradient (MW-1) and downgradient (MW-2, MW-3, MW-4, MW-5) soil sampling locations to the baseline average concentrations (BAC) that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage.

TABLE 3.8

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT TIER II DISPOSAL FACILITY

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-T2-MW-1-S 15-Aug-14 0-15cm	FM-T2-MW-1-D 15-Aug-14 40-50cm	FM-T2-MW-1-D (DUP) 15-Aug-14 40-50cm	FM-T2-MW-1-D (AVG) 15-Aug-14 40-50cm	FM-T2-MW-2-S 15-Aug-14 0-15cm	FM-T2-MW-2-D 15-Aug-14 40-50cm	FM-T2-MW-3-S 15-Aug-14 0-15cm	FM-T2-MW-3-D 15-Aug-14 40-50cm	FM-T2-MW-4-S 15-Aug-14 0-15cm	FM-T2-MW-4-D 15-Aug-14 40-50cm	FM-T2-MW-5-S 15-Aug-14 0-15cm	FM-T2-MW-5-D 15-Aug-14 40-50cm
Copper	**6.3**	**6.6**	-	**100**	4.8	4.5	5	4.75	5.8	5.6	5.7	5.8	3.8	3	**30+**	5.8
Nickel	**5.0**	**8.0**	-	**100**	**8.3+**	**8.2+**	**11+**	**9.6+**	**9+**	**7.8**	**11+**	**11+**	**7.2**	**5.6**	**12+**	**8.4+**
Cobalt	**5.0**	**5.0**	-	**50**	2.0	2.0	2.7	2.35	2.2	1.8	2.9	2.7	1.8	1.5	2.8	2.2
Cadmium	**1.0**	**1.0**	-	**5**	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Lead	**10**	**10**	**200**	**500**	4.1	3.0	3.0	3.0	7.9	6.3	6.2	3.8	3.3	2.3	4.0	2.5
Zinc	**15**	**22**	-	**500**	11	12	13	12.5	**37+**	**140+**	**17**	**16**	11	8.5	**19**	14
Chromium	**20**	**20**	-	**250**	9.6	12	15	13.5	12	10	13	15	11	9.1	17	12
Arsenic	**1.0**	**2.4**	-	**30**	**2.0**	**3.2+**	**5+**	**4.1+**	**2.1**	<1.0	**3.7+**	**2.9+**	**1.5**	**1.8**	**1.5**	**1.5**
Mercury	-	**0.10**	-	**2**	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.21**	**0.0030**	**1**	**5**	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	18	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**40**	-	**2500**	15	15	32.5	35	28	15	15	15	15	15	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M Tier II Disposal Facility Background Concentration.
+	Exceeds FOX-M Tier II Disposal Facility Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

Table 3.9: Evaluation of 2014 Soil Analytical Data (Tier II Disposal Facility)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	6.6	Detectable concentrations ranged between 4.75 and 4.8 ug/g for upgradient samples and between 3.0 and 30 ug/g, for downgradient samples with the highest concentration reported in the surface sample collected from the MW-5 sample location while the lowest concentration was reported within the subsurface sample at the MW-4 sample location. Ten of the eleven samples analyzed reported concentrations below the BAC while one of eleven samples reported a parameter concentration above the BAC.
Nickel	8.0	Detectable concentrations ranged between 8.3 and 9.6 ug/g for upgradient samples and 5.6 and 12 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the MW-5 sample location while the lowest concentration was reported within the subsurface sample at the MW-4 sample location. Three of the eleven samples analyzed reported concentrations below the BAC while eight of eleven samples reported a parameter concentration above the BAC.
Cobalt	5.0	Detectable concentrations were ranged between 2.0 and 2.35 ug/g for upgradient samples and ranged between 1.5 and 2.9 ug/g for downgradient samples, with the highest concentration reported in the surface sample at the MW-3 sample location while the lowest concentration was reported in the subsurface sample at the MW-4 sample location. All eleven samples analyzed reported concentrations below the BAC.
Cadmium	1.0	All reported concentrations were less than the laboratory detection limit (0.10 ug/g and 0.5 ug/g for the duplicate sample submitted to the secondary laboratory) and the BAC for upgradient and downgradient samples.
Lead	10	Detectable concentrations ranged between 3.0 and 4.1 ug/g for upgradient samples and between 2.3 and 7.9 ug/g for downgradient samples, with the highest concentration reported in the surface sample at the MW-2 sample location and the lowest concentration in the subsurface sample at the MW-4 sample location. All eleven samples reported concentrations below the BAC.
Zinc	22	Detectable concentrations ranged between 11 and 12.5 ug/g for upgradient samples and between 8.5 and 140 ug/g for downgradient samples, with the highest concentration reported in the subsurface sample collected from the MW-2 sample location while the lowest concentration was reported within the subsurface sample at the MW-4 sample location. Nine of the eleven samples analyzed reported concentrations below the BAC while two of eleven samples reported a parameter concentration above the BAC.
Chromium	20	Detectable concentrations ranged between 9.6 and 13.5 ug/g for upgradient samples and between 9.1 and 17 ug/g for downgradient samples, with the highest concentration reported in the surface sample at the MW-5 sample location and the lowest concentration in the subsurface sample at the MW-4 sample location. All eleven samples reported concentrations below the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Arsenic	2.4	Detectable concentrations ranged between 2.0 and 4.1 ug/g for upgradient samples and between 1.5 and 3.7 ug/g for downgradient samples, with the highest concentration reported in the subsurface sample collected from the MW-1 sample location while the lowest concentration was reported within the surface sample at the MW-4 sample location and the surface and subsurface samples at the MW-5 sample location. Seven of the eleven samples analyzed reported concentrations below the BAC while four of eleven samples reported a parameter concentration above the BAC.
Mercury	0.1	All eleven samples reported concentrations less than the laboratory detection limit (0.050 ug/g and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC for upgradient and downgradient samples.
PCBs	0.003	All eleven samples reported concentrations less than the laboratory detection limit (0.1 ug/g and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory). The detection limits are above the BAC which was based on lower detection limits from an earlier investigation.
TPH	18	One detectable concentration PHC fractions F1, F2 and F3 was reported in the surface sample at MW-2, resulting in modified TPH concentrations for ranging from 15 to 35 ug/g for the upgradient samples and between 15 and 28 for the downgradient samples, of which two are above the BAC.

3.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 3.10. Trends have been analyzed for upgradient (MW-1) and downgradient (MW-2, MW-3, MW-4, MW-5) locations. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 3.10: Evaluation of Soil Result Trends (Tier II Disposal Facility)

Parameter	2014 Results
Copper	Concentrations show a relatively stable trend for upgradient soil locations and an upward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Nickel	Concentrations show an upward trend for upgradient and downgradient soil locations. Concentrations are clustered around the BAC.
Cobalt	Concentrations show a downward trend for upgradient and downgradient soil locations. Concentrations are generally above the BAC.
Cadmium	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.
Lead	Concentrations show a slight downward trend for upgradient soil locations and a slight upward trend for downgradient soil locations. Concentrations have generally been clustered around the BAC.
Zinc	Concentrations show a slight upward trend for upgradient soil locations and an upward trend for downgradient soil locations. Concentrations have generally been below the BAC.
Chromium	Concentrations show a downward trend for upgradient and downgradient soil locations. Concentrations have generally been above the BAC.
Arsenic	Concentrations show an upward trend for upgradient and downgradient soil locations. Concentrations have been clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.
PCBs	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.
TPH	Concentrations show a slight downward trend for upgradient soil locations and a slight upward trend for downgradient soil locations. Concentrations have generally been clustered around the BAC.

3.3.3 Groundwater Sampling

Groundwater sampling was completed at the Tier II Disposal Facility on 15 and 16 August 2014. As previously reported a total of six samples including one duplicate sample were procured from five monitoring wells as shown in plan on Figure 2. One sample, MW-3, was only collected for PHC fraction F1 due to the low volume of water available at this monitoring well.

3.3.3.1 Monitoring Well Sampling/Inspection Logs

Monitoring well sampling/inspection logs are provided following this page in Monitoring Well Sampling Reports 1 through 5.

3.3.3.2 Water Levels/Groundwater Flow

Water levels were measured at the Tier II Disposal Facility on 15 August 2014. The groundwater levels measured are shown below in Table 3.11. Based on the measured

Monitoring Well Sampling Record 1

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	530pm
Names of Samplers:		S. Borcsok	
		J. Mauchan	
Landfill Name:	Tier II	Samples Collected:	YES
Monitoring Well ID:	MW-1	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	OK	PHC F2-F4	YES
		PCBs	YES
Measured Data		Duplicate Collected?	YES
Well pipe height above ground (cm)=	56	Sample ID:	FM-T2-MW-1
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	116	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	205	Evidence of sludge or siltation:	NO
Thickness of water column	89		
Static volume of water in well	1.8		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	8L		Tubing/
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 2

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	715pm
Names of Samplers:		S. Borcsok	
		J. Mauchan	
Landfill Name:	Tier II	Samples Collected:	YES
Monitoring Well ID:	MW-2	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	OK	PHC F2-F4	YES
		PCBs	YES
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	54		FM-T2-MW-2
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	109	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	196	Evidence of sludge or siltation:	NO
Thickness of water column	87		
Static volume of water in well	1.76		
Free product thickness (mm)=	0		IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	8L		Tubing/
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	7.41		
Final Conductivity (uS/cm)=	502		
Final Temperature (degC)=	2.4		

Monitoring Well Sampling Record 3

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	755pm
Names of Samplers:		S. Borcsok	
		J. Mauchan	
Landfill Name:	Tier II	Samples Collected:	F1 ONLY
Monitoring Well ID:	MW-3	PHC F1	YES (1 VIAL)
Sample Number:		Inorganic Elements	NO
Condition of Well:		PHC F2-F4	NO
		PCBs	NO
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	55		FM-T2-MW-3
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)		Well went dry after 300mL purged, returned on 16-Aug-14 to collect sample	
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	106	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	186	Evidence of sludge or siltation:	NO
Thickness of water column	80		
Static volume of water in well	1.6		
Free product thickness (mm)=	0		IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	0.3L		Tubing/
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	Not measured (insufficient water available)		
Final Conductivity (uS/cm)=	Not measured (insufficient water available)		
Final Temperature (degC)=	Not measured (insufficient water available)		

Monitoring Well Sampling Record 4

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	420pm
Names of Samplers:		S. Borcsok	
		J. Mauchan	
Landfill Name:	Tier II	Samples Collected:	YES
Monitoring Well ID:	MW-4	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	well cap off	PHC F2-F4	YES
standpipe heaved higher than casing		PCBs	YES
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	86	(79cm to top of casing)	FM-T2-MW-4
Diameter of well (cm)=			
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	109	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	222	Evidence of sludge or siltation:	NO
Thickness of water column	113		
Static volume of water in well	2.29		
Free product thickness (mm)=	0		IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	10L		Tubing/
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	7.69		
Final Conductivity (uS/cm)=	433		
Final Temperature (degC)=	3.4		

Monitoring Well Sampling Record 5

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	445pm
Names of Samplers:		S. Borcsok	
		J. Mauchan	
Landfill Name:	Tier II	Samples Collected:	
Monitoring Well ID:	MW-5	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	OK	PHC F2-F4	YES
broken J-plug		PCBs	YES
Measured Data		Duplicate Collected?	YES
Well pipe height above ground (cm)=	60		FM-T2-MW-5
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	83	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	181	Evidence of sludge or siltation:	NO
Thickness of water column	98		
Static volume of water in well	1.98		
Free product thickness (mm)=	0		IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	8L		Tubing/
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	7.60		
Final Conductivity (uS/cm)=	462		
Final Temperature (degC)=	3.6		

groundwater levels, groundwater flow is expected to be towards the east, however groundwater flow will be highly affected by freeze/thaw cycles and permafrost.

Table 3.11: Groundwater Levels (Tier II Disposal Facility)

Monitoring Well	Date	Ground Surface Elevation (m)	Water Level (m bgs)	Water Level Elevation (m)	Depth to Bottom (m bgs)	Bottom Elevation (m)
MW-1	15-Aug-14	1.8	0.60	1.2	1.49	0.31
MW-2	15-Aug-14	0.38	0.55	-0.17	1.42	-1.04
MW-3	15-Aug-14	-0.05	0.51	-0.56	1.31	-1.36
MW-4	15-Aug-14	0.18	0.23	-0.05	1.36	-1.18
MW-5	15-Aug-14	0.59	0.23	0.36	1.21	-0.62

3.3.3.3 Laboratory Analytical Results

The analytical results for groundwater samples collected at the Tier II Disposal Facility are presented in Table 3.12. One duplicate groundwater sample was collected at the Tier II Disposal Facility from monitoring well MW-1. The RPD values for these samples are below 30% indicating good consistency of the duplicate sample results.

3.3.3.4 Discussion of Results by Parameter

A discussion of the results for each parameter analyzed in groundwater at the Tier II Disposal Facility is provided in Table 3.13. The discussion includes a comparison of results from upgradient (MW-1) and downgradient (MW-1, MW-2, MW-3, MW-4) locations to the baseline average concentrations that have been determined for each landfill from groundwater chemistry at the landfill area prior to and during remediation.

Table 3.13: Evaluation of Groundwater Analytical Results (Tier II Disposal Facility)

Parameter	Baseline Average Concentration (mg/L)	2014 Results
Copper	0.010	Detectable concentrations were 0.00065 mg/L at the upgradient location and ranged between 0.011 and 0.0059 mg/L at the downgradient location, with the highest concentration reported at monitoring well MW-4 and the lowest concentration at monitoring well MW-1. All five samples reported concentrations below the BAC.

TABLE 3.12

RESULTS OF ANALYSIS FOR PARAMETERS IN GROUNDWATER AT TIER II DISPOSAL FACILITY

PARAMETERS	Baseline Average Concentration (+)	FM-T2-MW-1 15-Aug-14	FM-T2-MW-1 (DUP) 15-Aug-14	FM-T2-MW-1 (AVG) 15-Aug-14	FM-T2-MW-2 15-Aug-14	FM-T2-MW-3 15-Aug-14	FM-T2-MW-4 15-Aug-14	FM-T2-MW-5 15-Aug-14
Copper	**0.010**	0.00065	<0.003	0.00065	0.0025	NA	0.0059	0.0011
Nickel	**0.013**	0.003	<0.003	0.003	0.0046	NA	**0.017+**	0.0041
Cobalt	**0.0030**	<0.00030	<0.001	<0.001	0.00054	NA	**0.007+**	<0.00030
Cadmium	**0.0010**	<0.000020	<0.002	<0.002	<0.000020	NA	<0.000020	<0.000020
Lead	**0.010**	<0.00020	<0.002	<0.002	0.0011	NA	0.0023	<0.00020
Zinc	**0.19**	<0.0030	<0.005	<0.005	**0.73+**	NA	0.039	0.0086
Chromium	**0.026**	0.0025	<0.003	0.0025	0.0065	NA	**0.029+**	0.0056
Arsenic	**0.0030**	0.00062	<0.003	0.00062	0.00072	NA	0.0014	0.00081
Mercury	**0.00040**	<0.00001	<0.0001	<0.0001	<0.00001	NA	0.00003	<0.00001
Total PCBs	**0.000020**	<0.00005	<0.0001	<0.0001	<0.00005	NA	<0.00005	<0.00005
PHC F1 (C6-C10)	-	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
PHC F2 (C10-C16)	-	<0.100	<0.100	<0.100	<0.100	NA	<0.100	<0.100
PHC F3 (C16-C34)	-	<0.100	<0.100	<0.100	<0.100	NA	<0.100	<0.100
PHC F4 (C34-C50)	-	<0.100	<0.100	<0.100	<0.100	NA	<0.100	<0.100
Modifed TPH (Total C6-C34)	**1.00**	0.113	0.113	0.113	0.113	NA	0.113	0.113

NOTES:

All parameter values in mg/L (ppm) unless otherwise indicated.

+ Exceeds Tier II Disposal Facility Baseline Average Concentration.

(DUP) Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG) Average concentration of duplicate samples.
< Not detected.
- No concentration reported.
N/A Not analyzed.

Parameter	Baseline Average Concentration (mg/L)	2014 Results
Nickel	0.013	Detectable concentrations were 0.003 m/L at the upgradient location and ranged between 0.041 and 0.017 mg/L at the downgradient locations, with the highest concentration reported at monitoring well MW-4 and the lowest concentration at monitoring well MW-1. Four of five samples reported concentrations below the BAC while one of five samples reported a concentration slightly above the BAC.
Cobalt	0.0015	Detectable concentrations ranged between 0.00054 and 0.007 mg/L at downgradient locations and concentrations were below detection limits at the upgradient location, with the highest concentration reported at monitoring well MW-4 and the lowest concentration at monitoring well MW-2. Four of five samples reported concentrations below the BAC while one of five samples reported a concentration slightly above the BAC.
Cadmium	0.00050	All five samples reported concentrations below the laboratory detection limit (0.000020 mg/L and 0.002 mg/L for the duplicate sample submitted to the secondary laboratory). One sample reported a laboratory detection limit above the BAC.
Lead	0.0050	Detectable concentrations ranged between 0.0011 and 0.0023 mg/L at downgradient locations and were below detection limits at the upgradient location, with the highest concentration reported at monitoring well MW-4 and the lowest concentration at monitoring well MW-2. All five samples reported concentrations below the BAC.
Zinc	0.19	Detectable concentrations ranged between 0.0086 and 0.73 mg/L at the downgradient locations and were below detection limits at the upgradient location, with the highest concentration reported at monitoring well MW-2 and the lowest concentration at monitoring well MW-5. Four of five samples reported concentrations below the BAC while one of five samples reported a concentration slightly above the BAC.
Chromium	0.026	Detectable concentrations were 0.0025 mg/L at the upgradient location and ranged between 0.0056 and 0.029 mg/L at the downgradient locations, with the highest concentration reported at monitoring well MW-4 and the lowest concentration at monitoring well MW-1. Four of five samples reported concentrations below the BAC while one of five samples reported a concentration slightly above the BAC.
Arsenic	0.0030	Detectable concentrations were 0.00062 mg/L at the upgradient location and ranged between 0.00072 and 0.0014 mg/L at the downgradient locations, with the highest concentration at monitoring well MW-4 and the lowest concentration at monitoring well MW-1. All five samples reported concentrations below the BAC.
Mercury	0.00040	One detectable concentration of 0.00003 mg/L was reported at downgradient location MW-4. All five samples reported concentrations below the BAC.

Parameter	Baseline Average Concentration (mg/L)	2014 Results
PCBs	0.000010	All five samples reported concentrations below the laboratory detection limit (0.00005 mg/L or 0.0001 mg/L for the duplicate sample submitted to the secondary laboratory) . These detection limits are above the baseline average as the BAC for PCBs at this site was based on a lower detection limit from a previous sampling event.
TPH	1.00	All five samples reported concentrations of PHC fractions F1, F2, and F3 below their respective detection limits. The calculated modified TPH value was 0.113 mg/L for all five samples, below the BAC. PHC fraction F1 was below the laboratory detection limit at MW-3.

3.3.3.5 Groundwater Trend Analysis by Parameter & Discussion of Trends

A discussion of the trends observed for parameter concentrations in groundwater from 2008 to 2014 are presented in Table 3.14. Trends have been analyzed for upgradient (MW-1) and downgradient (MW-2, MW-3, MW-4, MW-5) locations. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 3.14: Evaluation of Groundwater Result Trends (Tier II Disposal Facility)

Parameter	2014 Results
Copper	Concentrations show a relatively stable trend for upgradient and downgradient wells. Reported concentrations are below the baseline average.
Nickel	Concentrations show a slight upward trend for upgradient and downgradient wells. Reported concentrations are generally clustered around the BAC.
Cobalt	Concentrations show an slight downward trend for upgradient wells and a slight upward trend for downgradient wells. Reported concentrations are clustered around the BAC.
Cadmium	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.
Lead	Concentrations show an upward trend for upgradient and downgradient wells. Reported concentrations are generally below the BAC.
Zinc	Concentrations show a relatively stable trend for upgradient wells and an upward trend for downgradient wells. Reported concentrations are generally below the BAC.
Chromium	Concentrations show a slight upward trend for upgradient and downgradient wells. Reported concentrations are generally clustered around the BAC.
Arsenic	Concentrations show a slight downward trend for upgradient and downgradient wells. Reported concentrations are generally clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.

Parameter	2014 Results
PCBs	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.
TPH	Concentrations show a relatively stable trend for upgradient and downgradient soil locations as all reported concentrations have been below laboratory detection limits.

3.3.4 Thermal Monitoring

Thermal monitoring was completed at this landfill on 29 August 2014.

3.3.4.1 Thermistor Annual Maintenance Reports

The thermistor annual maintenance reports completed during the site inspection are provided following this page in Thermistor Annual Maintenance Reports 1-5.

3.3.4.2 Summary of Findings from Annual DEW Line Thermal Reports

Thermistor data was analyzed by Tetra Tech EBA. The results of the thermal reports indicate that the landfill is stabilizing and performing as expected from a thermal perspective. The Thermal Report for the Tier II Disposal Facility is provided in Appendix D.

3.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

3.5 RECOMMENDATIONS/NEXT STEPS

Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued.

At monitoring well installation MW-4, the standpipe has heaved up such that it is higher than the casing and the well cap cannot be placed on the well. This well is open to precipitation and results from this well may not be representative of the groundwater at this location. This well should be repaired or replaced.

Thermistor Annual Maintenance Report 1

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	Tier II Disposal Facility		
Thermistor Number: VT-1		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626709.8	E	490948.3	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07050014				Cable Serial Number TS07050014	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux	13.14 / 13.50

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0689	4.1534
2	1.0646	4.0137
3	1.0075	2.1404
4	0.9530	0.3430
5	0.9224	-0.6745
6	0.8889	-1.7988
7	0.8597	-2.7857
8	0.8293	-3.8260

Bead	Volts	Degrees C
9	0.8065	-4.6111
10	0.7831	-5.4280
11	0.7608	-6.2135
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
Some peeling red paint, no lock, pin on cap not secure
Ground wire was off datalogger
Clock behind 31:00 (mins:secs)

Thermistor Annual Maintenance Report 2

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	Tier II Disposal Facility		
Thermistor Number: VT-2		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626751.5	E	490982.5	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 0706009				Cable Serial Number TS0706009	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	Dented
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux	13.38 / 13.75

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0573	3.7740
2	0.9987	1.8519
3	0.9414	-0.0419
4	0.8993	-1.4483
5	0.8584	-2.8298
6	0.8103	-4.4815
7	0.7811	-5.4976
8	0.0000	381.0742

Bead	Volts	Degrees C
9	0.0000	381.0742
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
Pin on cap not secure
Ground wire was off datalogger
Clock behind 1:07:01

Thermistor Annual Maintenance Report 3

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	Tier II Disposal Facility		
Thermistor Number: VT-3		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626739.6	E	491059.8	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 06030090				Cable Serial Number TS06030090	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	some small cracks on outer rubber casing
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 13.14 / 13.50	
	(Battery level before replacement / after replacement)		

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0537	3.6566
2	0.9975	1.8117
3	0.9465	0.1278
4	0.9143	-0.9447
5	0.8786	-2.1446
6	0.8522	-3.0427
7	0.8273	-3.8942
8	0.8059	-4.6323

Bead	Volts	Degrees C
9	0.7828	-5.4387
10	0.7620	-6.1729
11	0.7492	-6.6286
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
No lock
Ground cable is broken at end that connects to datalogger
Clock behind 4969 days, 45:35

Thermistor Annual Maintenance Report 4

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	Tier II Disposal Facility		
Thermistor Number: VT-4		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626841.2	E	491006.6	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060020				Cable Serial Number TS07060020	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 13.38 / 13.75	

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0636	3.9787
2	1.0120	2.2883
3	0.9542	0.3834
4	0.9259	-0.5574
5	0.8780	-2.1652
6	0.8436	-3.3344
7	0.8119	-4.4234
8	0.0000	381.0742

Bead	Volts	Degrees C
9	0.0000	381.0742
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
Cap pin not secure
Clock behind 48:26

Thermistor Annual Maintenance Report 5

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	Tier II Disposal Facility		
Thermistor Number: VT-5		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626806.8	E	490976.6	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060023				Cable Serial Number TS07060023	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 13.50 / 13.63	

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0689	4.1534
2	1.0050	2.0577
3	0.9433	0.0214
4	0.9070	-1.1899
5	0.8576	-2.8583
6	0.8278	-3.8759
7	0.8023	-4.7595
8	0.0000	381.0742

Bead	Volts	Degrees C
9	0.0000	381.0742
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
Cap pin not secure
Clock behind 51:46

4.0 EAST BEACH LANDFILL

4.1 LANDFILL DESCRIPTION

The East Beach Landfill is located southeast of the main station and runs parallel to the ocean shoreline. It extends approximately 1.2 km from the Hazardous Materials Storage Area to the south end of the site. It is bounded to the east by the Foxe Basin and to the west by a low lying area. The East Beach Landfill is composed of two physically separate landfills known as the East Beach Landfill South and East Beach Landfill North. These landfills consist of existing areas of buried debris. Detailed drawings of this landfill are provided in Figures 3 and 4. The historical chemical results for soil samples collected at this landfill are shown in plan on Figures 3A and 4A. The historical chemical results for groundwater samples collected at this landfill are shown in plan on Figures 3B and 4B.

4.2 SUMMARY OF WORK CONDUCTED

4.2.1 Visual Inspection

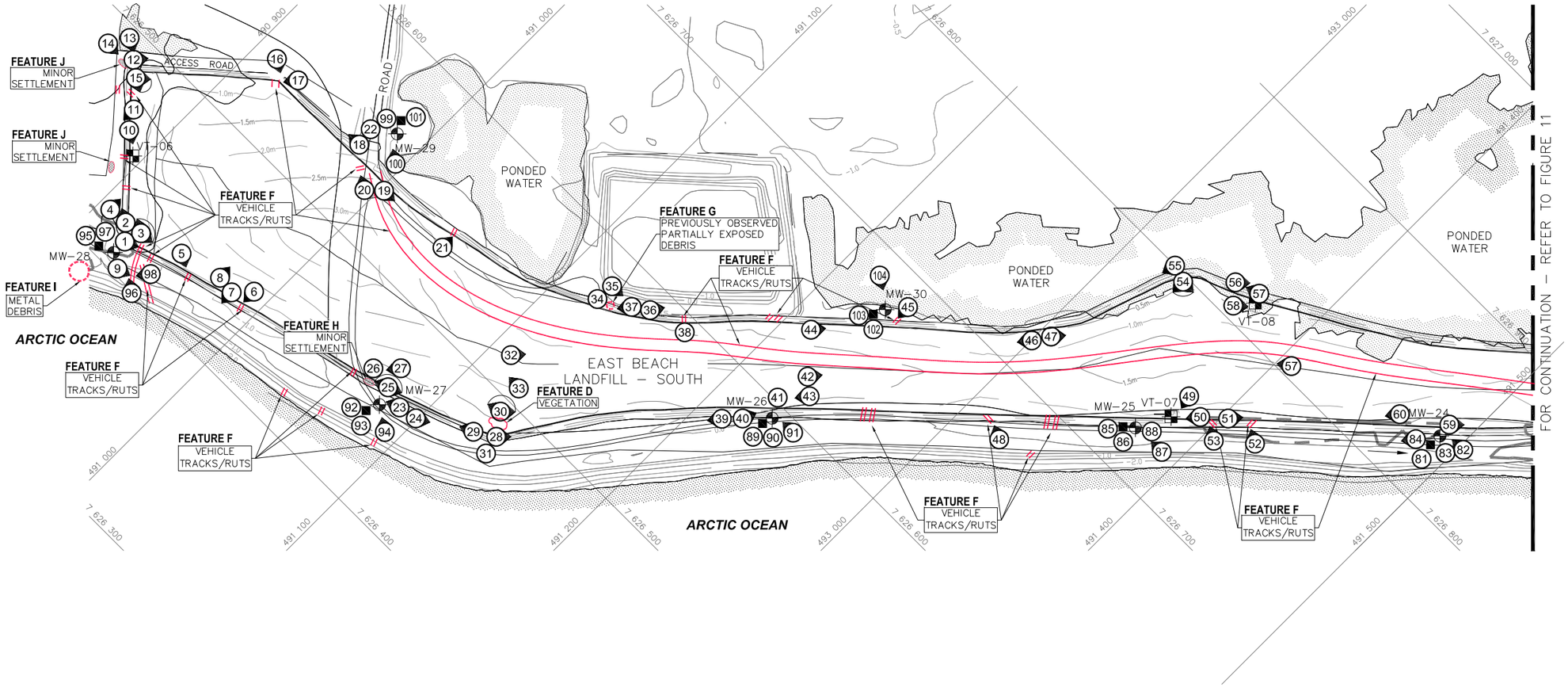
The visual inspection of the landfill was completed with no deviations from the work plan.

4.2.2 Soil Sampling

Soil samples were collected at twelve (12) locations as shown on Figures 3 and 4. Surface and subsurface samples were collected at each location, except from surficial soils at the MW-21 sample location where soil consisted of coarse-grained gravel and cobbles. Two duplicate samples was collected from surficial soil at sample locations MW-21 and MW-31. Soil sampling completed at the landfill is summarized in Table 4.1.

Table 4.1: Summary of Work Conducted by Soil Sampling Location (East Beach Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-EB-MW-20	√	√
FM-EB-MW-21	√[D]	√
FM-EB-MW-22	√	√
FM-EB-MW-23	√	√
FM-EB-MW-24	X	√
FM-EB-MW-25	√	√
FM-EB-MW-26	√	√
FM-EB-MW-27	√	√
FM-EB-MW-28	√	√
FM-EB-MW-29	√	√



LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- AREA OF SETTLEMENT
- EXPOSED DEBRIS
- VEGETATION

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 15, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.9, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

EAST BEACH LANDFILL SOUTH

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 3

Sheet Size: 11 x 17 (432mm x 279mm)

PLOT: March-02-15 9:54:59 AM Saved by: Izabela Zlba

SENES FILE NO.: 350600-515-1 FOX-M_Fig 3 - East Beach Landfill South.dwg

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:17:34 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 3 - East Beach Landfill South.dwg

MW-28 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	6.0	**13**	**14**	4.7	3.1	11
Ni	6.0	**11**	**14**	6.3	**24**	**10**
Co	<5.0	4.0	3.0	<5.0	3.2	2.8
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.11
Pb	<10	13	13	<10	3.0	13
Zn	<15	13	14	<15	10	17
Cr	<20	12	18	<20	10	12
As	1.7	2.0	2.0	**4.4**	**2.6**	**3.5**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.015	<0.020	<0.020	<0.050	<0.050	**0.5**
Modified TPH - (Total C6-C34)	25	30	20	12	15	15

MW-28 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	4.0	20	**34**	4.6	11	4.6
Ni	<5.0	**14**	**15**	**7.5**	**22**	**7.6**
Co	<5.0	4.0	3.0	<5.0	3.1	2.0
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	**47**	**41**	<10	**14**	5.3
Zn	<15	21	**74**	<15	20	10
Cr	<20	**20**	18	<20	10	8.3
As	1.7	**3.0**	**3.0**	**2.6**	**2.4**	**2.8**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.0024	<0.020	<0.020	<0.050	**0.14**	<0.1
Modified TPH - (Total C6-C34)	14	30	20	14	29	15

MW-29 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2012 0-15	2014 0-15
Cu	2.4	6.0	6.0	3.4	5.4	5.4	4.3
Ni	5.6	**12**	**11**	**7.2**	**22**	**22**	**8.2**
Co	<5.0	3.0	2.0	<5.0	3.3	3.3	2.1
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.50	<0.10
Pb	<10	7.0	4.0	<10	4.3	4.3	4.2
Zn	<15	11	13	<15	15	15	13
Cr	<20	15	11	<20	13	13	11
As	1.7	2.0	1.0	**2.5**	2.1	2.1	2.0
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	14	30	20	12	25	25	15

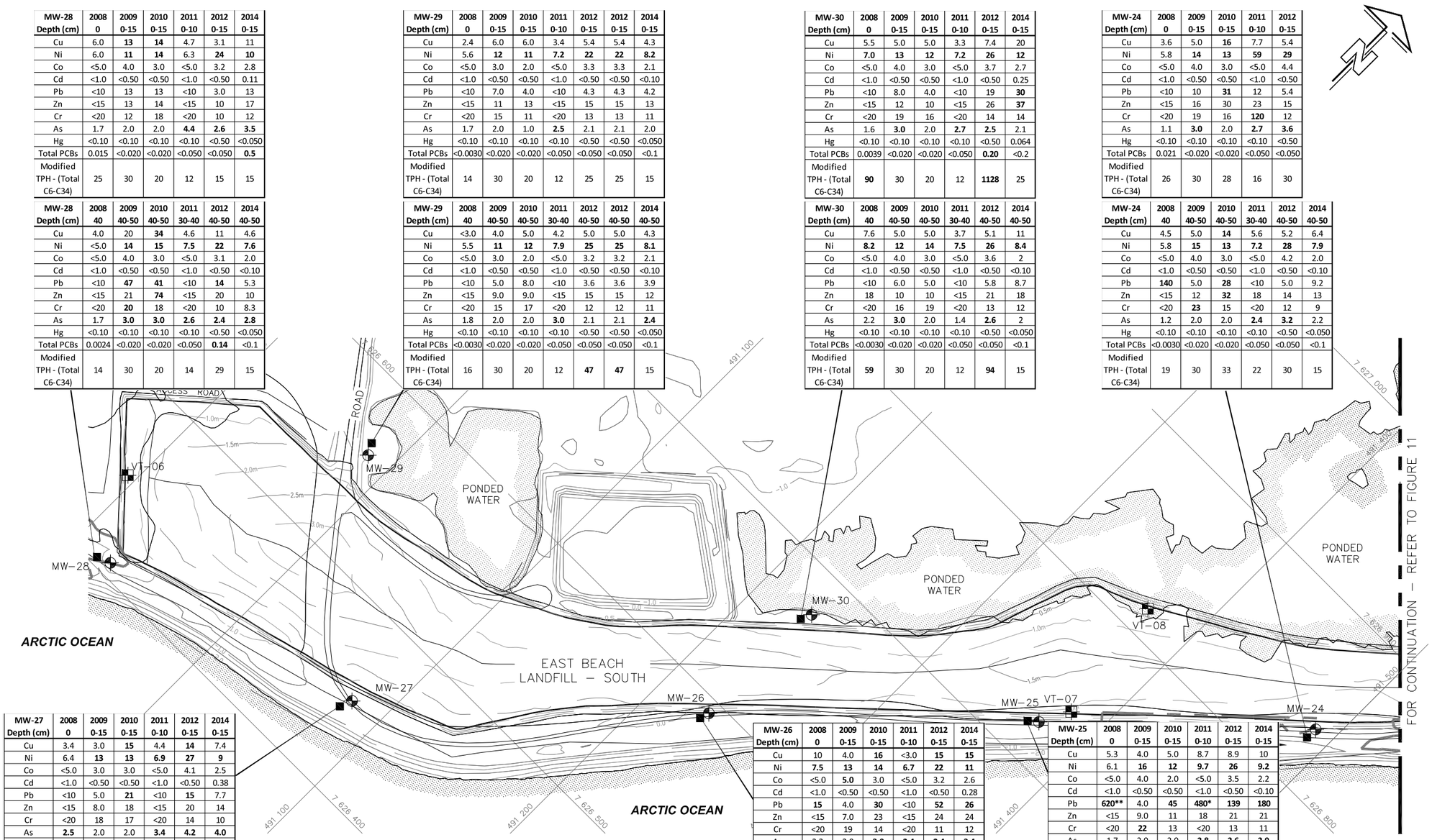
MW-29 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2012 40-50	2014 40-50
Cu	<3.0	4.0	5.0	4.2	5.0	5.0	4.3
Ni	5.5	**11**	**12**	**7.9**	**25**	**25**	**8.1**
Co	<5.0	3.0	2.0	<5.0	3.2	3.2	2.1
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.50	<0.10
Pb	<10	5.0	8.0	<10	3.6	3.6	3.9
Zn	<15	9.0	9.0	<15	15	15	12
Cr	<20	15	17	<20	12	12	11
As	1.8	2.0	2.0	**3.0**	2.1	2.1	**2.4**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	16	30	20	12	**47**	**47**	15

MW-30 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	5.5	5.0	5.0	3.3	7.4	20
Ni	**7.0**	**13**	**12**	**7.2**	**26**	**12**
Co	<5.0	4.0	3.0	<5.0	3.7	2.7
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.25
Pb	<10	8.0	4.0	<10	19	**30**
Zn	<15	12	10	<15	26	**37**
Cr	<20	19	16	<20	14	14
As	1.6	**3.0**	2.0	**2.7**	**2.5**	2.1
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	0.064
Total PCBs	0.0039	<0.020	<0.020	<0.050	**0.20**	<0.2
Modified TPH - (Total C6-C34)	**90**	30	20	12	**1128**	25

MW-30 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	7.6	5.0	5.0	3.7	5.1	11
Ni	**8.2**	**12**	**14**	**7.5**	**26**	**8.4**
Co	<5.0	4.0	3.0	<5.0	3.6	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	6.0	5.0	<10	5.8	8.7
Zn	18	10	10	<15	21	18
Cr	<20	16	19	<20	13	12
As	2.2	**3.0**	2.0	1.4	**2.6**	2
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	**59**	30	20	12	**94**	15

MW-24 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15
Cu	3.6	5.0	**16**	7.7	5.4
Ni	5.8	**14**	**13**	**59**	**29**
Co	<5.0	4.0	3.0	<5.0	4.4
Cd	<1.0	<0.50	<0.50	<1.0	<0.50
Pb	<10	10	**31**	12	5.4
Zn	<15	16	30	23	15
Cr	<20	19	16	**120**	12
As	1.1	**3.0**	2.0	**2.7**	**3.6**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50
Total PCBs	0.021	<0.020	<0.020	<0.050	<0.050
Modified TPH - (Total C6-C34)	26	30	28	16	30

MW-24 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	4.5	5.0	**14**	5.6	5.2	6.4
Ni	5.8	**15**	**13**	**7.2**	**28**	**7.9**
Co	<5.0	4.0	3.0	<5.0	4.2	2.0
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	**140**	5.0	**28**	<10	5.0	9.2
Zn	<15	12	**32**	18	14	13
Cr	<20	**23**	15	<20	12	9
As	1.2	2.0	2.0	**2.4**	**3.2**	2.2
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	19	30	33	22	30	15



MW-27 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.4	3.0	**15**	4.4	**14**	7.4
Ni	6.4	**13**	**13**	**6.9**	**27**	**9**
Co	<5.0	3.0	3.0	<5.0	4.1	2.5
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.38
Pb	<10	5.0	**21**	<10	**15**	7.7
Zn	<15	8.0	18	<15	20	14
Cr	<20	18	17	<20	14	10
As	**2.5**	2.0	2.0	**3.4**	**4.2**	**4.0**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	21	20	20	12	22	15

MW-27 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	4.3	7.0	5.0	**110****	11	5.6
Ni	5.8	**13**	**13**	**7.3**	**24**	**9.1**
Co	<5.0	4.0	3.0	<5.0	3.7	2.5
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	6.0	6.0	<10	22	9.6
Zn	<15	11	12	<15	24	15
Cr	<20	15	14	<20	12	10
As	**2.6**	**3.0**	**4.0**	**3.7**	**3.6**	**4.1**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	20	30	20	12	23	15

MW-26 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	10	4.0	**16**	<3.0	**15**	**15**
Ni	**7.5**	**13**	**14**	**6.7**	**22**	**11**
Co	<5.0	**5.0**	3.0	<5.0	3.2	2.6
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.28
Pb	**15**	4.0	**30**	<10	**52**	**26**
Zn	<15	7.0	23	<15	24	24
Cr	<20	19	14	<20	11	12
As	2.2	2.0	**3.0**	**2.4**	**2.4**	**3.4**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.022	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	37	30	20	12	**43**	15

MW-26 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	<3.0	3.0	**18**	<3.0	11	11
Ni	5.1	**11**	**14**	<5.0	**23**	**13**
Co	<5.0	3.0	3.0	<5.0	3.2	2.1
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.11
Pb	<10	4.0	**33**	<10	8.3	**18**
Zn	<15	8.0	24	<15	13	19
Cr	<20	13	15	<20	10	10
As	1.8	2.0	**3.0**	2.0	**2.6**	**3.1**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	23	30	20	12	26	15

MW-25 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	5.3	4.0	5.0	8.7	8.9	10
Ni	6.1	**16**	**12**	**9.7**	**26**	**9.2**
Co	<5.0	4.0	2.0	<5.0	3.5	2.2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	**620****	4.0	**45**	**480***	**139**	**180**
Zn	<15	9.0	11	18	21	21
Cr	<20	**22**	13	<20	13	11
As	1.7	2.0	2.0	**2.8**	**2.6**	**2.9**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.0064	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	27	30	20	20	**94**	15

MW-25 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	5.8	4.0	5.0	6.0	6.9	6.9
Ni	**6.9**	**13**	**13**	**7.8**	**26**	**8.3**
Co	<5.0	**5.0**	3.0	<5.0	3.8	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	**160**	6.0	**91**	**130**	**88**	**230***
Zn	<15	10	12	<15	18	16
Cr	<20	16	15	<20	15	10
As	2.2	1.0	2.0	**4.0**	**2.4**	**2.7**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	**43**	30	20	17	**97**	15

LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	13	N/A	100
Ni	6.6	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	14	200	500
Zn	32	N/A	500
Cr	20	N/A	250
As	2.3	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.10	1	5
Modified TPH - (Total C6-C34)	40	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.9, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

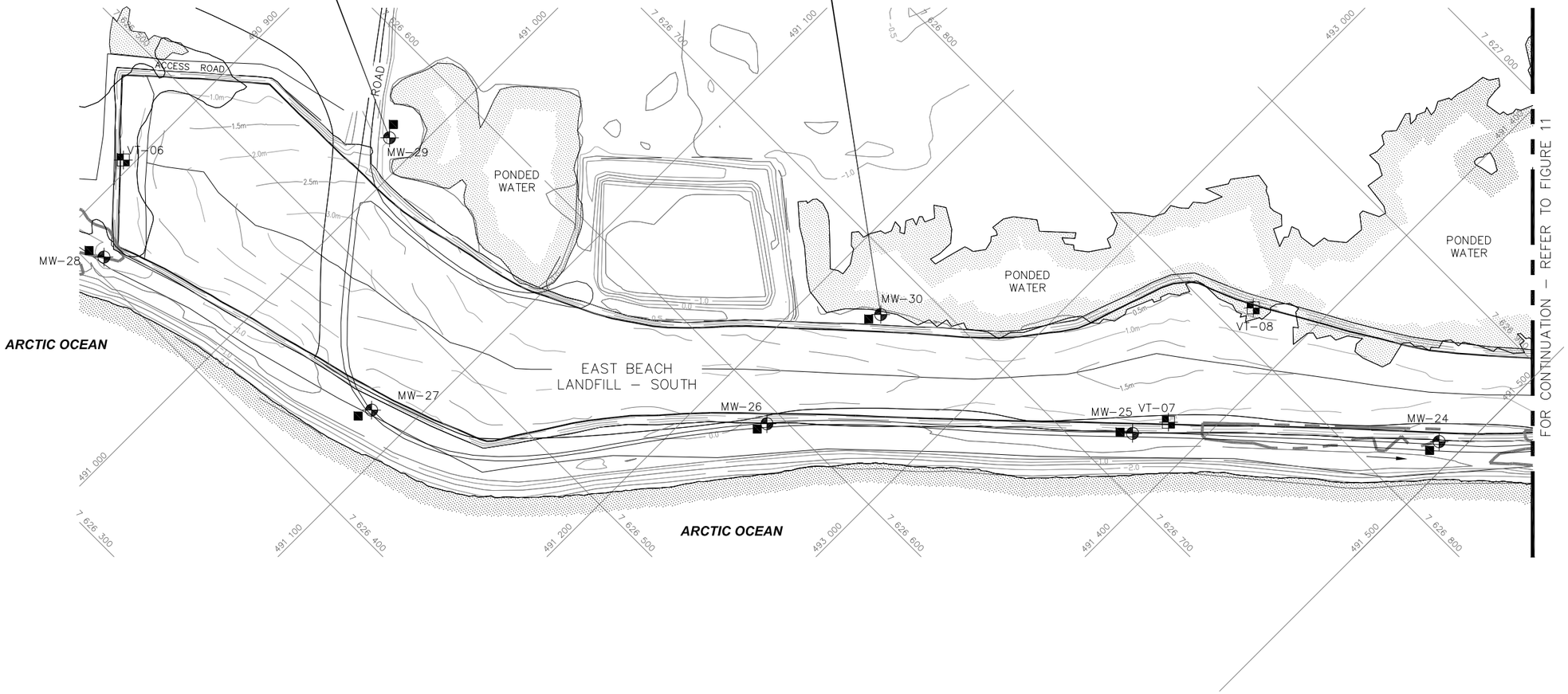
2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
EAST BEACH LANDFILL SOUTH
SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 3A

MW-29	2008	2009	2010	2011	2012	2014
Cu	<0.0050	0.0030	0.0020	**0.0060**	**0.027**	**0.008**
Ni	**0.0093**	**0.0080**	**0.0060**	<0.0050	**0.044**	**0.011**
Co	<0.0030	0.00050	0.00030	<0.0030	**0.0030**	0.0016
Cd	<0.0010	<0.00010	<0.00010	<0.0010	0.00031	0.0002
Pb	0.0014	<0.0010	<0.0010	<0.010	0.0050	0.0038
Zn	**0.081**	**0.020**	<0.010	**0.065**	**0.16**	**0.11**
Cr	0.014	<0.0050	0.013	0.031	**0.050**	0.015
As	0.0035	0.0030	<0.0050	<0.0030	**0.0050**	0.0028
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025	0.00002
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.00005
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	<0.10	0.1

MW-30	2008	2009	2010	2011	2012	2014
Cu	<0.0050	0.0020	0.0010	**0.016**	**0.011**	0.00435
Ni	<0.0050	**0.037**	**0.014**	**0.079**	**0.031**	0.01205
Co	<0.0030	<0.00020	0.00020	**0.010**	0.0020	0.0008
Cd	<0.0010	<0.00010	<0.00010	**0.0010**	0.00012	<0.002
Pb	<0.0010	<0.0010	<0.0010	**0.013**	0.0030	0.00205
Zn	0.013	<0.010	<0.010	**0.19**	**0.19**	0.307
Cr	0.0073	0.0020	0.0020	**0.22**	**0.052**	0.0405
As	0.0045	**0.0080**	<0.010	**0.014**	**0.0060**	0.0063
Hg	<0.00040	<0.00020	<0.00010	<0.00040	<0.000025	<0.0001
Total PCBs	<0.000020	<0.00010	<0.00010	<0.0030	<0.000010	<0.0001
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.20	<1.0	0.20	0.11



LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration
Cu	0.0050
Ni	0.0050
Co	0.0030
Cd	0.0010
Pb	0.010
Zn	0.019
Cr	0.041
As	0.0046
Hg	0.00040
Total PCB	0.000020
Modified TPH - (Total C6-C34)	1.0

All Concentrations in mg/L

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.9, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
EAST BEACH LANDFILL SOUTH
GROUNDWATER CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 3B

Sheet Size: 11 x 17 (432mm x 279mm)
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Saved by: Izabela Zlba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 3 - East Beach Landfill South.dwg

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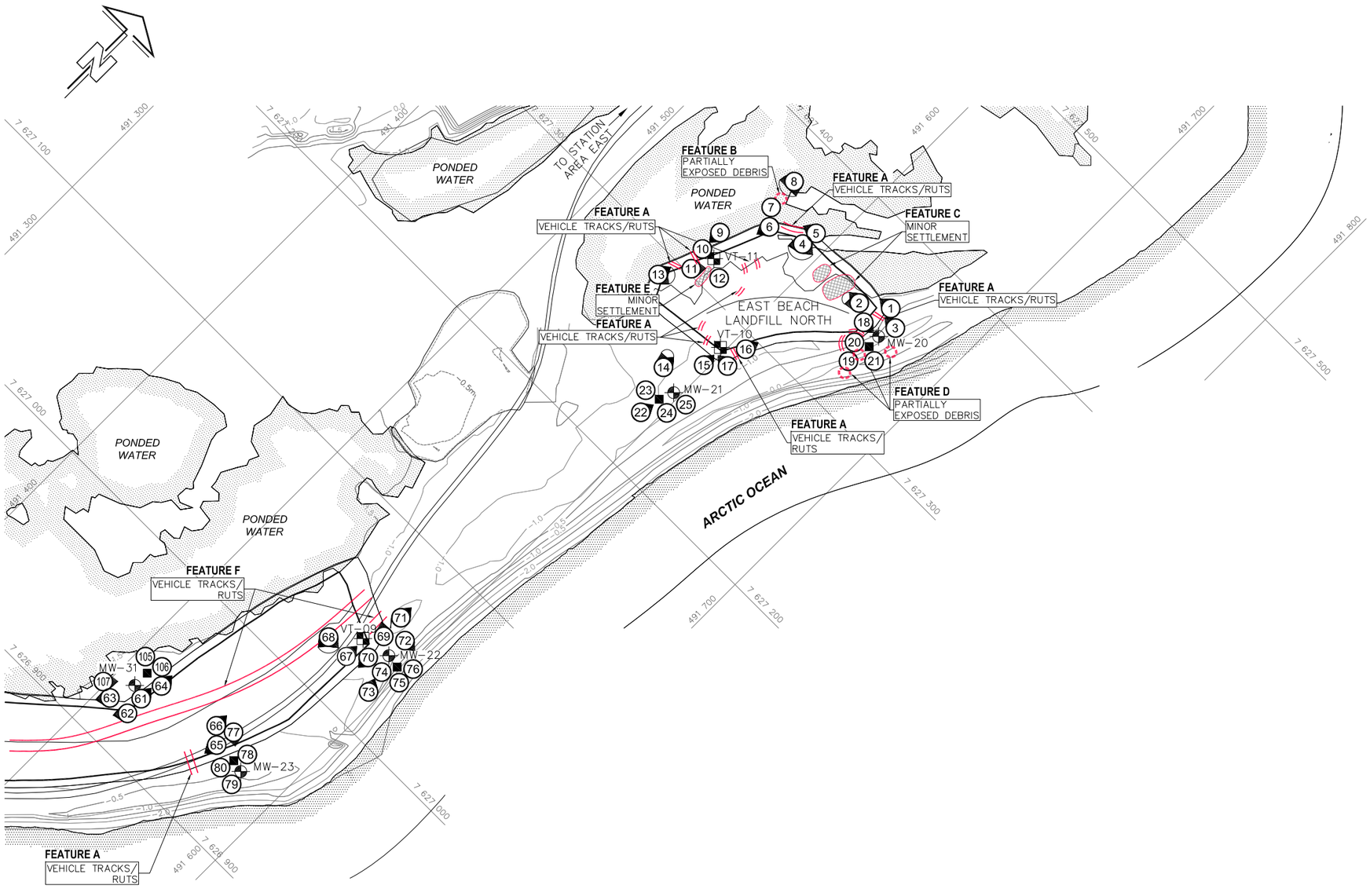
Saved by: Izabela Zba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 4 - East Beach Landfill North.dwg



LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- AREA OF SETTLEMENT
- EXPOSED DEBRIS

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. EAST BEACH LANDFILL NORTH PHOTOGRAPHS TAKEN AUG. 16, 2014.
3. EAST BEACH LANDFILL SOUTH PHOTOGRAPHS TAKEN AUG. 15, 2014.
4. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.10, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

EAST BEACH LANDFILL NORTH

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 4

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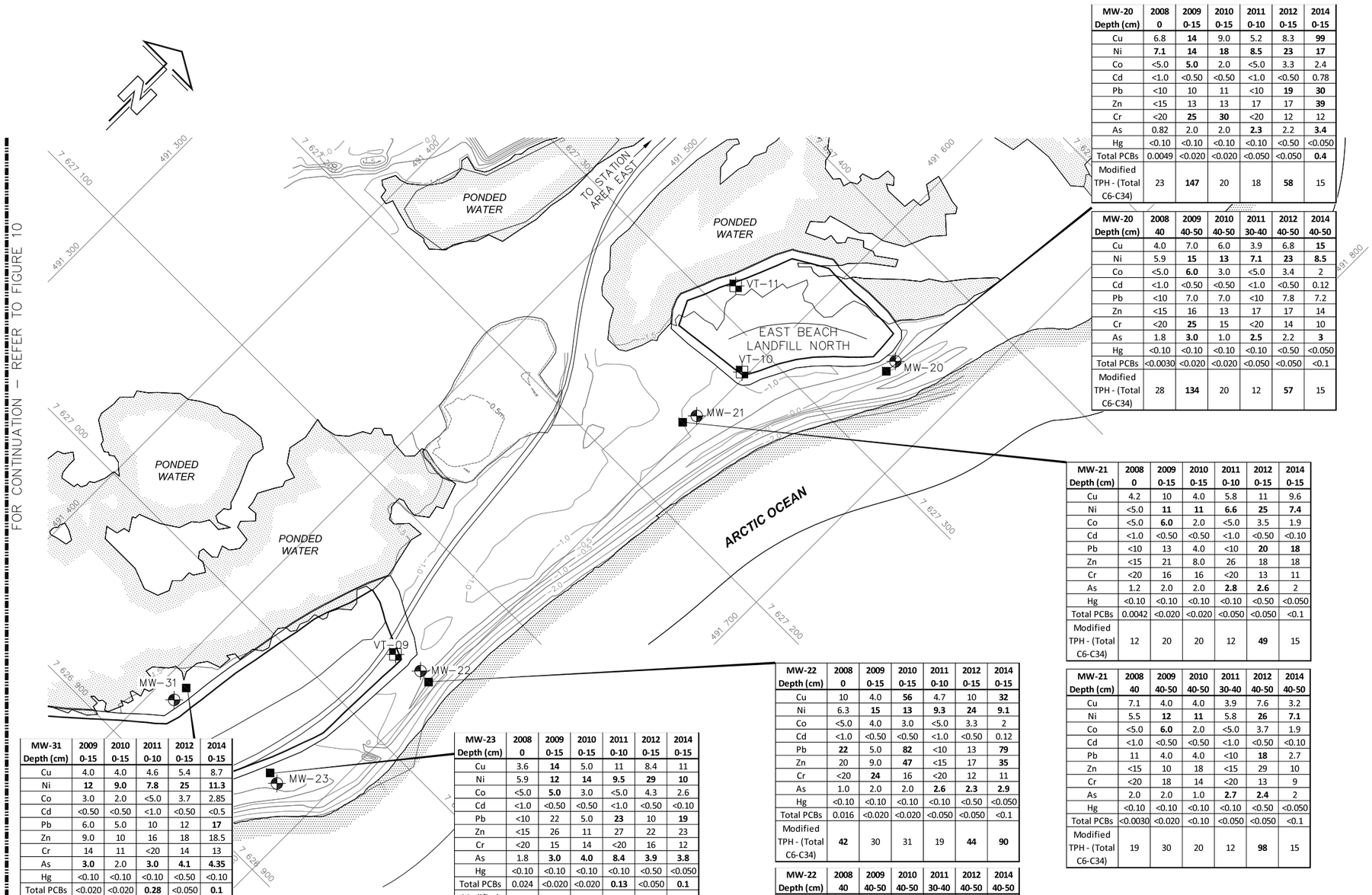
SENES FILE NO.: 350600-515-1 FOX-M_Fig 4 - East Beach Landfill North.dwg



MW-20 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	6.8	**14**	9.0	5.2	8.3	**99**
Ni	**7.1**	**14**	**18**	**8.5**	**23**	**17**
Co	<5.0	**5.0**	2.0	<5.0	3.3	2.4
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.78
Pb	<10	10	11	<10	**19**	**30**
Zn	<15	13	13	17	17	**39**
Cr	<20	**25**	**30**	<20	12	12
As	0.82	2.0	2.0	**2.3**	2.2	**3.4**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.0049	<0.020	<0.020	<0.050	<0.050	**0.4**
Modified TPH - (Total C6-C34)	23	**147**	20	18	**58**	15

MW-20 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	4.0	7.0	6.0	3.9	6.8	**15**
Ni	5.9	**15**	**13**	**7.1**	**23**	**8.5**
Co	<5.0	**6.0**	3.0	<5.0	3.4	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.12
Pb	<10	7.0	7.0	<10	7.8	7.2
Zn	<15	16	13	17	17	14
Cr	<20	**25**	15	<20	14	10
As	1.8	**3.0**	1.0	**2.5**	2.2	**3**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	28	**134**	20	12	**57**	15

MW-21 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	4.2	10	4.0	5.8	11	9.6
Ni	<5.0	**11**	**11**	**6.6**	**25**	**7.4**
Co	<5.0	**6.0**	2.0	<5.0	3.5	1.9
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	13	4.0	<10	**20**	**18**
Zn	<15	21	8.0	26	18	18
Cr	<20	16	16	<20	13	11
As	1.2	2.0	2.0	**2.8**	**2.6**	2
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.0042	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	20	12	**49**	15

MW-21 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	7.1	4.0	4.0	3.9	7.6	3.2
Ni	5.5	**12**	**11**	5.8	**26**	**7.1**
Co	<5.0	**6.0**	2.0	<5.0	3.7	1.9
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	11	4.0	4.0	<10	**18**	2.7
Zn	<15	10	18	<15	29	10
Cr	<20	18	14	<20	13	9
As	2.0	2.0	1.0	**2.7**	**2.4**	2
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.10	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	19	30	20	12	**98**	15

MW-22 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	10	4.0	**56**	4.7	10	**32**
Ni	6.3	**15**	**13**	**9.3**	**24**	**9.1**
Co	<5.0	4.0	3.0	<5.0	3.3	2
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.12
Pb	**22**	5.0	**82**	<10	13	**79**
Zn	20	9.0	**47**	<15	17	**35**
Cr	<20	**24**	16	<20	12	11
As	1.0	2.0	2.0	**2.6**	**2.3**	**2.9**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.016	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	**42**	30	31	19	**44**	**90**

MW-22 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	**21**	4.0	**19**	4.7	8.8	**38**
Ni	**7.1**	**12**	**13**	**7.0**	**24**	**11**
Co	<5.0	4.0	3.0	<5.0	3.2	2.8
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	0.31
Pb	**27**	4.0	**50**	<10	**40**	**260***
Zn	29	10	29	<15	16	**59**
Cr	<20	15	16	<20	14	15
As	1.4	**3.0**	2.0	**2.7**	**2.6**	**4.5**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.017	<0.020	<0.020	<0.050	<0.050	<0.1
Modified TPH - (Total C6-C34)	**46**	30	20	20	**45**	15

MW-23 Depth (cm)	2008 0	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	3.6	**14**	5.0	11	8.4	11
Ni	5.9	**12**	**14**	**9.5**	**29**	**10**
Co	<5.0	**5.0**	3.0	<5.0	4.3	2.6
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	<10	22	5.0	**23**	10	**19**
Zn	<15	26	11	27	22	23
Cr	<20	15	14	<20	16	12
As	1.8	**3.0**	**4.0**	**8.4**	**3.9**	**3.8**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.024	<0.020	<0.020	**0.13**	<0.050	**0.1**
Modified TPH - (Total C6-C34)	19	30	32	**64**	**46**	15

MW-23 Depth (cm)	2008 40	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	**70**	5.0	5.0	**13**	8.1	4.4
Ni	**63**	**13**	**13**	**9.1**	**27**	**9.0**
Co	**15**	**5.0**	3.0	<5.0	4.3	2.3
Cd	<1.0	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	**90**	6.0	5.0	**15**	12	4.7
Zn	**240**	14	11	21	21	12
Cr	**85**	16	14	<20	16	10
As	**19**	**3.0**	**4.0**	**3.4**	**3.4**	**3.7**
Hg	<0.10	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.069	<0.020	<0.020	0.070	**0.10**	<0.1
Modified TPH - (Total C6-C34)	32	30	20	28	**41**	15

MW-31 Depth (cm)	2009 0-15	2010 0-15	2011 0-10	2012 0-15	2014 0-15
Cu	4.0	4.0	4.6	5.4	8.7
Ni	**12**	**9.0**	**7.8**	**25**	**11.3**
Co	3.0	2.0	<5.0	3.7	2.85
Cd	<0.50	<0.50	<1.0	<0.50	<0.5
Pb	6.0	5.0	10	12	**17**
Zn	9.0	10	16	18	18.5
Cr	14	11	<20	14	13
As	**3.0**	2.0	**3.0**	**4.1**	**4.35**
Hg	<0.10	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.020	<0.020	**0.28**	<0.050	**0.1**
Modified TPH - (Total C6-C34)	25	20	12	34	35

MW-31 Depth (cm)	2009 40-50	2010 40-50	2011 30-40	2012 40-50	2014 40-50
Cu	4.0	4.0	3.2	5.8	8.3
Ni	**14**	**10**	6.5	**22**	**9.0**
Co	3.0	2.0	<5.0	3.3	2.2
Cd	<0.50	<0.50	<1.0	<0.50	<0.10
Pb	8.0	6.0	<10	11	20
Zn	11	14	<15	20	16
Cr	19	15	<20	13	11
As	**3.0**	2.0	1.4	2.1	**3.2**
Hg	<0.10	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.020	<0.020	**0.10**	<0.050	0.20
Modified TPH - (Total C6-C34)	25	20	12	30	15

LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	13	N/A	100
Ni	6.6	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	14	200	500
Zn	32	N/A	500
Cr	20	N/A	250
As	2.3	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.10	1	5
Modified TPH - (Total C6-C34)	40	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.10, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

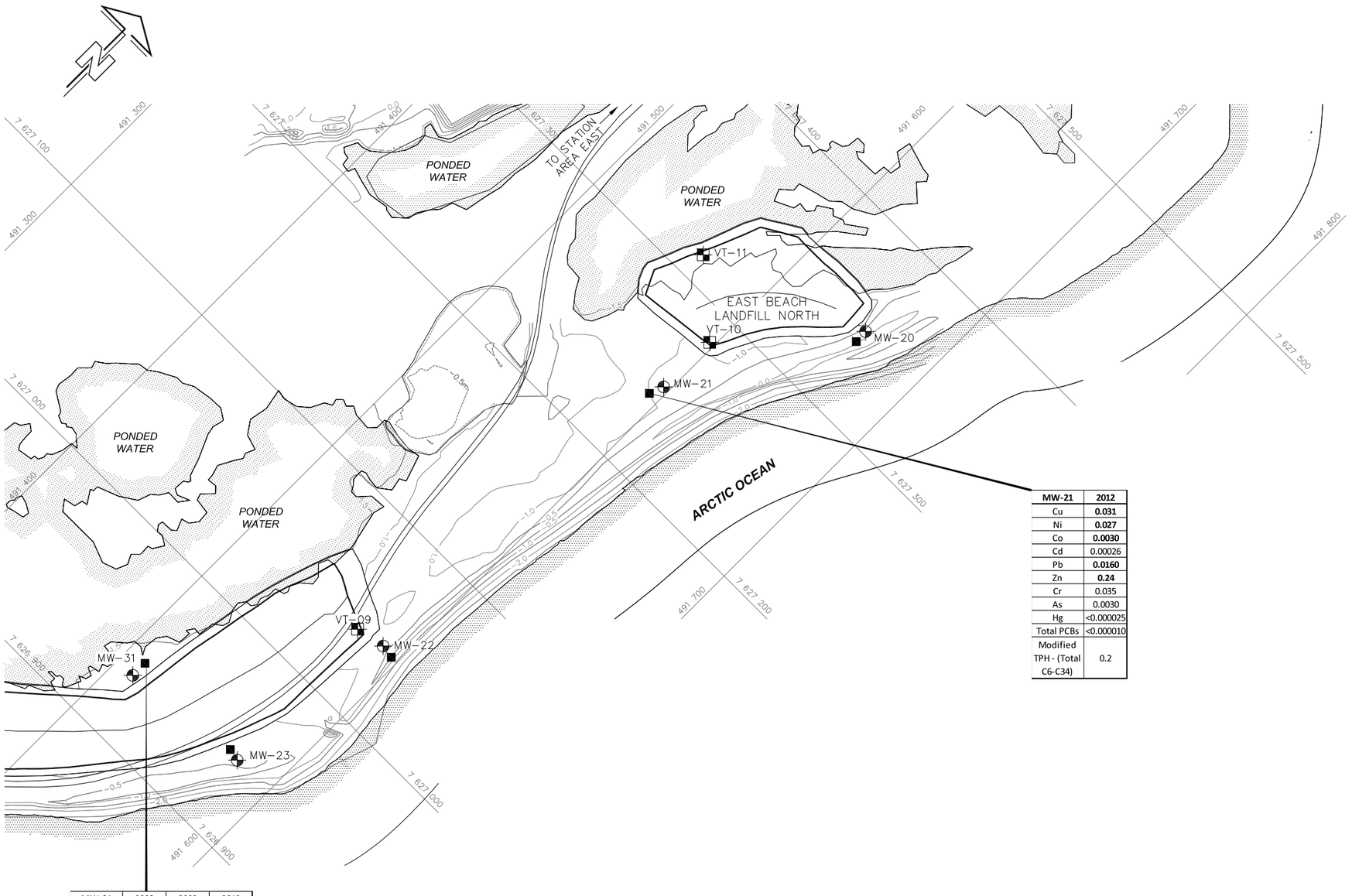
2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
EAST BEACH LANDFILL NORTH

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 4A

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-26-15 4:16:27 PM
Saved by: Izabela Zba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 4 - East Beach Landfill North.dwg



MW-21	2012
Cu	**0.031**
Ni	**0.027**
Co	**0.0030**
Cd	0.00026
Pb	**0.0160**
Zn	**0.24**
Cr	0.035
As	0.0030
Hg	<0.000025
Total PCBs	<0.000010
Modified TPH - (Total C6-C34)	0.2

MW-31	2008	2009	2012
Cu	**0.0060**	**0.0080**	**0.026**
Ni	<0.0050	<0.0050	**0.030**
Co	<0.0030	0.00020	0.0010
Cd	<0.0010	0.00020	0.00049
Pb	<0.0010	<0.0010	0.0020
Zn	0.011	<0.010	**0.095**
Cr	<0.0050	0.0080	0.021
As	<0.0030	<0.0010	0.0010
Hg	<0.00040	<0.00020	<0.000025
Total PCBs	<0.000020	<0.00010	<0.000010
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.10

LEGEND:

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration
Cu	0.0050
Ni	0.0050
Co	0.0030
Cd	0.0010
Pb	0.010
Zn	0.019
Cr	0.041
As	0.0046
Hg	0.00040
Total PCB	0.000020
Modified TPH - (Total C6-C34)	1.0

All Concentrations in mg/L

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.10, Dec. 2012

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
EAST BEACH LANDFILL NORTH
GROUNDWATER CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:2500	Drawing No: FIGURE 4B

FM-EB-MW-30	√	√
FM-EB-MW-31	√ D	√

D = duplicate sample collected
√ - sample collected
X – no sample collected

4.2.3 Groundwater Sampling

Groundwater monitoring was completed at twelve monitoring wells as shown on Figures 3 and 4. Groundwater monitoring and sampling at this landfill was generally completed as per the work plan. As indicated in Table 4.2, groundwater samples were not collected from ten of twelve monitoring wells at this landfill as the wells were dry during this monitoring program. One duplicate groundwater sample was collected at monitoring well MW-30.

Table 4.2: Summary of Work Conducted by Groundwater Sampling Location (East Beach Landfill)

Location	Visual Inspection/ Groundwater Monitoring	Sample collected for PCB analysis	Sample collected for metals analysis	Sample collected for PHCs F1-F4 analysis
FM-EB-MW-20	√	X N	X N	X N
FM-EB-MW-21	√	X N	X N	X N
FM-EB-MW-22	√	X N	X N	X N
FM-EB-MW-23	√	X N	X N	X N
FM-EB-MW-24	√	X N	X N	X N
FM-EB-MW-25	√	X N	X N	X N
FM-EB-MW-26	√	X N	X N	X N
FM-EB-MW-27	√	X N	X N	X N
FM-EB-MW-28	√	X N	X N	X N
FM-EB-MW-29	√	√	√	√
FM-EB-MW-30	√	√ D	√ D	√ D
FM-EB-MW-31	√	X N	X N	X N

D - duplicate sample collected
√ - sample collected
X – no sample collected
N – no water in well (well was dry)
I – insufficient water in well to collect sample

4.2.4 Thermal Monitoring

Thermal monitoring was completed at all six of the vertical thermistor locations at the East Beach Landfill. A summary of thermistor work completed at this landfill is provided in Table 4.3.

Table 4.3: Summary of Work Conducted by Thermistor Location (East Beach Landfill)

Location	Realtime Data	Data Downloaded	Batteries Replaced
FM-EB-VT-6	√	√	√
FM-EB-VT-7	√	√	√
FM-EB-VT-8	√	√	√
FM-EB-VT-9	√	√	√
FM-EB-VT-10	√	√	√
FM-EB-VT-11	√	√	√

4.3 RESULTS OF THE MONITORING PROGRAM

4.3.1 Visual Inspection

The visual inspection at the East Beach Landfill was completed on 16 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 4.4.

4.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 4.5.

4.3.1.2 Photographic Records

The photographic records for the East Beach Landfill are provided in Tables 4.6 and 4.7.

4.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 4.8 below for each category observed.

TABLE 4.4 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

INSPECTION REPORT – PAGE 1 OF 3

SITE NAME: FOX-M
LANDFILL DESIGNATION: East Beach Landfill
DATE OF INSPECTION: 16 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 4.4 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	At the north end of the north landfill and at the far south end of the south landfill (Feature C, E, J)				<1%	Small depressions	Table 4.6: P-2.2, 11 Table 4.7: P-14, P-26	
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	On E side of landfill NE of MW-27, and sparsely located on other landfill berm areas				<1%	Small shrubs	Table 4.6: P-28, P-31	
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	East of North Landfill and south of South Landfill (Feature D, G, I)				<1%	Metal/wood debris	Table 4.6: P-74 Table 4.7: P-7, P-8.1, P-19	Debris not likely to have originated within landfill
Presence/Condition – Monitoring Instruments	YES	Six thermistor installations and twelve monitoring wells as per drawing						Table 4.6: P-10, P-23, P-49, P-50, P-56, P-58, P-67, P-68.1, P-87, P-94, P-100 Table 4.7: P-9 to P-13, P-14.1, P-15, P-18, P22, P-25	
Features of Note.	YES	Vehicle tracks/ruts in multiple places on the landfill, landfill is used as a roadway to access the area. (Feature A, F) Large areas of ponded water located on the west side of the landfill.				5%	Vehicle Tracks, Ponded Water	Table 4.6: P-2, P-3.3, P-4, P-5, P-16, P-21, P-27, P-45, P-48, P-52, P-53, P-65, P-69, P-98 Table 4.7: P-3, P-5, P-14.1	

Table 4.5: Preliminary Stability Assessment - FOX-M East Beach Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	None	None
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	Acceptable	Occasional
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

East Beach Landfill South (see Figures 3 and 4)

Photo 1 (FOX-M EB P-1 ne.jpg)	Photo 2 (FOX-M EB P-2 nw.jpg)
Description: View along eastern top of slope of the East Beach Landfill South.	Description: View downslope of the western extents of the landfill. Vehicle tracks/ruts observed on slope. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 3.1 (FOX-M EB P-3 ne.jpg)	Photo 3.2 (FOX-M EB P-3 north.jpg)
Description: View northeast along top of slope from the southernmost corner of the landfill, near MW-28. Vehicle tracks/ruts observed on slope and cap. **(FEATURE F)**	Description: View north across landfill cap from the corner of the landfill near MW-28.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 3.3 (FOX-M EB P-3 nw.jpg)	Photo 4 (FOX-M EB P-4 north.jpg)
Description: View along top of slope toward the westernmost corner of the landfill. VT-06 can be seen on the top of the slope. Vehicle tracks/ruts observed on slope. **(FEATURE F)**	Description: View uphill of vehicle tracks/ruts observed on slope near MW-28. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 5 (FOX-M EB P-5 east.jpg)	Photo 6 (FOX-M EB P-6.jpg)
Description: View of vehicle tracks/ruts observed on top of the eastern slope near MW-28. **(FEATURE F)**	Description: Vehicle tracks/ruts observed on top of slope near MW-28. MW-28 seen in the background. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 7 (FOX-M EB P-7.jpg)	Photo 8 (FOX-M EB P-8 north.jpg)
Description: View downslope near the southeastern corner of the East Beach Landfill South.	Description: View across landfill cap from near the southeastern corner.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 9 (FOX-M EB P-9 east.jpg)	Photo 10 (FOX-M EB P-10 se.jpg)
Description: Vehicle ruts observed on the slope near the southeastern corner.	Description: View of VT-06. View looking southeast, toward beach.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 11 (FOX-M EB P-11.jpg)	Photo 12 (FOX-M EB P-12.jpg)
Description: The slope and access road at the western end of the landfill.	Description: The top of the slope viewed from the western corner.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 13 (FOX-M EB P-13 se.jpg)	Photo 14 (FOX-M EB P-14 east.jpg)
Description: The western corner of the East Beach Landfill South.	Description: Minor settlement observed at the western corner of the East Beach Landfill. **(FEATURE J)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 15.1 (FOX-M EB P-15 east.jpg)	Photo 15.2 (FOX-M EB P-15 ne.jpg)
Description: View east across landfill cap from the western corner.	Description: View northeast across the landfill cap from the western corner.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 15.3 (FOX-M EB P-15 se.jpg)	Photo 16 (FOX-M EB P-16.jpg)
Description: View toward beach and VT-06 from the western corner.	Description: Vehicle tracks/ruts observed on the top of the slope near the western corner. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 17 (FOX-M EB P-17 sw.jpg)	Photo 18 (FOX-M EB P-18.jpg)
Description: View along top of slope toward the western corner of the landfill.	Description: View from the intersection of the road and the access road toward the western extents of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 19 (FOX-M EB P-19 east.jpg)	Photo 20 (FOX-M EB P-20.jpg)
Description: View east across landfill from near MW-29.	Description: Surface material cover of the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 21 (FOX-M EB P-21.jpg)	Photo 22 (FOX-M EB P-22.jpg)
Description: Vehicle tracks/ruts observed on the top of the slope east of MW-29. **(FEATURE F)**	Description: The access road onto the East Beach Landfill South. Photo taken from adjacent to MW-29.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 23 (FOX-M EB P-23 west.jpg)	Photo 24 (FOX-M EB P-24 ne.jpg)
Description: View west toward MW-23.	Description: View northeast along beach from adjacent to MW-27.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 25.1 (FOX-M EB P-25 east.jpg)	Photo 25.2 (FOX-M EB P-25 north.jpg)
Description: View east along the slope. Photo taken from near MW-27.	Description: View across landfill cap from near MW-27.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 25.3 (FOX-M EB P-25 west.jpg)	Photo 26 (FOX-M EB P-26.jpg)
Description: View west along beach from near MW-27.	Description: Minor settlement observed at the top of the slope near MW-27. **(FEATURE H)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 27 (FOX-M EB P-27.jpg)	Photo 28 (FOX-M EB P-28 ne.jpg)
Description: View downslope of vehicle tracks/ruts on the slope near MW-27. **(FEATURE F)**	Description: View along top of slope. Sparse vegetation observed on the landfill slope.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 29 (FOX-M EB P-29 west.jpg)	Photo 30.1 (FOX-M EB P-30 ne.jpg)
Description: View west along top of slope toward the southern extent of the landfill.	Description: View along the cap of the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 30.2 (FOX-M EB P-30 west.jpg)	Photo 31 (FOX-M EB P-31.jpg)
Description: View across the cap of the East Beach Landfill South.	Description: View toward the slope on the beach side of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 32 (FOX-M EB P-32 ne.jpg)	Photo 33 (FOX-M EB P-33 west.jpg)
Description: View northeast along East Beach Landfill South.	Description: View west along East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 34 (FOX-M EB P-34.jpg)	Photo 35 (FOX-M EB P-35.jpg)
Description: The western slope, near the southern end, of the East Beach Landfill South. The previously observed surface debris noted in 2012 was not seen at this location during the 2014 inspection. **(FEATURE G)**	Description: View of the western slope, near the southern end, of the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 36 (FOX-M EB P-36.jpg)	Photo 37 (FOX-M EB P-37.jpg)
Description: View toward MW-30 on the western side of the East Beach Landfill South. Vehicle tracks/ruts observed on slope. **(FEATURE F)**	Description: The western slope of the East Beach Landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 38 (FOX-M EB P-38.jpg)	Photo 39 (FOX-M EB P-39.jpg)
Description: Vehicle tracks/ruts observed on the western slope of the East Beach Landfill. **(FEATURE F)**	Description: View along beach and landfill toe in the vicinity of MW-26.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 40 (FOX-M EB P-40.jpg)	Photo 41 (FOX-M EB P-41.jpg)
Description: View along toe of the landfill in the vicinity of MW-26.	Description: The slope of the landfill adjacent to MW-26.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 42 (FOX-M EB P-42 ne.jpg)	Photo 43 (FOX-M EB P-43 sw.jpg)
Description: View northeast along landfill cap from near MW-26.	Description: View southwest along landfill cap from near MW-26
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 44 (FOX-M EB P-44 ne.jpg)	Photo 45 (FOX-M EB P-45.jpg)
Description: View along the western top of slope from near MW-30.	Description: The vehicle tracks/ruts observed on the slope adjacent to MW-30. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 46 (FOX-M EB P-46 sw.jpg)	Photo 47 (FOX-M EB P-47 ne.jpg)
Description: View southwest along western top of slope.	Description: View northeast along western top of slope.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 48 (FOX-M EB P-48.jpg)	Photo 49 (FOX-M EB P-49.jpg)
Description: Vehicle tracks/ruts observed on the eastern slope, south of MW-25. **(FEATURE F)**	Description: View toward VT-07 and MW-25.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 50 (FOX-M EB P-50 sw.jpg)	Photo 51 (FOX-M EB P-51 ne.jpg)
Description: View along top of the eastern slope toward VT-07.	Description: Vehicle tracks/ruts observed northeast of VT-07. View northeast along eastern slope. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

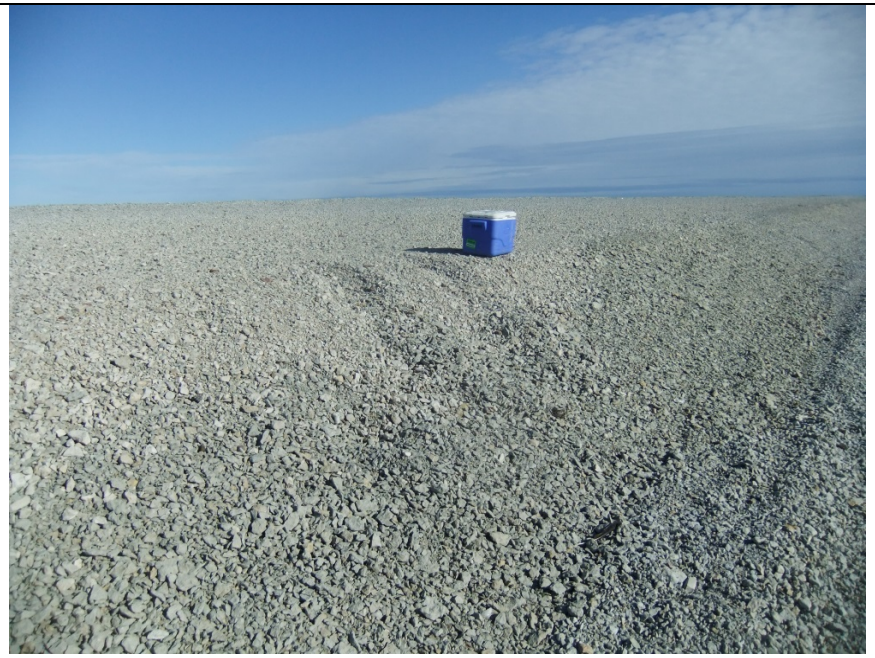
Photo 52 (FOX-M EB P-52.jpg)	Photo 53 (FOX-M EB P-53.jpg)
Description: Vehicle tracks/ruts observed near VT-07.	Description: Vehicle tracks/ruts observed near VT-07.
	
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 54.1 (FOX-M EB P-54 east.jpg)	Photo 54.2 (FOX-M EB P-54 south.jpg)
Description: View east towards beach, across the East Beach Landfill South.	Description: View south along the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 55 (FOX-M EB P-55.jpg)	Photo 56 (FOX-M EB P-56.jpg)
Description: The western slope near VT-08.	Description: Vertical thermistor VT-08.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 57 (FOX-M EB P-57.jpg)	Photo 58 (FOX-M EB P-58.jpg)
Description: View along East Beach Landfill South in the vicinity of VT-08.	Description: Inspecting vertical thermistor VT-08.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 59 (FOX-M EB P-59 ne.jpg)	Photo 60 (FOX-M EB P-60 sw.jpg)
Description: View along eastern slope, adjacent to MW-24.	Description: View southwest along slope, adjacent to MW-24.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 61 (FOX-M EB P-61.jpg)	Photo 62 (FOX-M EB P-62.jpg)
Description: The western slope north of MW-31.	Description: The western slope south of MW-31.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 63 (FOX-M EB P-63.jpg)	Photo 64 (FOX-M EB P-64.jpg)
Description: View along the western slope. Photo taken from adjacent to MW-31.	Description: Ponded water adjacent to the western slope near MW-31.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 65 (FOX-M EB P-65.jpg)	Photo 66 (FOX-M EB P-66 north.jpg)
Description: Vehicle tracks/ruts observed on the eastern slope near MW-23. **(FEATURE F)**	Description: View north toward the north end of the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 67 (FOX-M EB P-67 north.jpg)	Photo 68.1(FOX-M EB P-68 east.jpg)
Description: View north toward VT-09.	Description: View east toward the beach and VT-09.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 68.2 (FOX-M EB P-68 south.jpg)	Photo 69 (FOX-M EB P-69.jpg)
Description: View south along the East Beach Landfill South cap. Photo taken from near VT-09.	Description: Vehicle tracks/ruts observed on the slope north of VT-09. **(FEATURE F)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 70 (FOX-M EB P-70.jpg)	Photo 71 (FOX-M EB P-71.jpg)
Description: View south along eastern slope. Photo taken from near VT-09.	Description: View north toward East Beach Landfill North. Photo taken from adjacent to VT-09.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

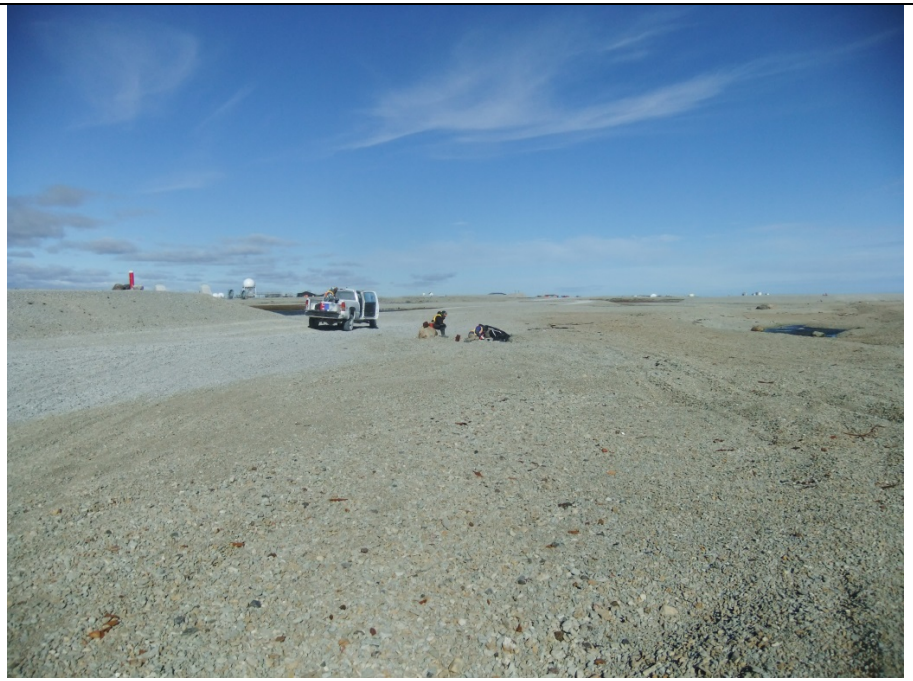
Photo 72 (FOX-M EB P-72.jpg)	Photo 73 (FOX-M EB P-73 north.jpg)
Description: View toward beach from adjacent to MW-22.	Description: View north toward MW-22.
	
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 74 (FOX-M EB P-74.jpg)	Photo 75 (FOX-M EB P-75.jpg)
Description: Monitoring well MW-22.	Description: Sample collection of FM-EB-MW-22.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 76 (FOX-M EB P-76.jpg)	Photo 77 (FOX-M EB P-77 se.jpg)
Description: After sample collection and backfill of FM-EB-MW-22.	Description: View southeast toward MW-23 from the landfill cap.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 78 (FOX-M EB P-78.jpg)	Photo 79 (FOX-M EB P-79 north.jpg)
Description: Sample collection of FM-EB-MW-23.	Description: View north toward MW-23.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 80 (FOX-M EB P-80.jpg)	Photo 81 (FOX-M EB P-81.jpg)
Description: After sample collection and backfill of FM-EB-MW-23.	Description: Sample collection of FM-EB-MW-24.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 82 (FOX-M EB P-82 west.jpg)	Photo 83 (FOX-M EB P-83.jpg)
Description: View west toward MW-24.	Description: After soil sample collection and backfill of FM-EB-MW-24.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 84 (FOX-M EB P-84 sw.jpg)	Photo 85 (FOX-M EB P-85.jpg)
Description: View southwest along eastern slope from adjacent to MW-24.	Description: Sample collection of FM-EB-MW-25.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 86 (FOX-M EB P-86.jpg)	Photo 87 (FOX-M EB P-87 west.jpg)
Description: After sample collection and backfill of FM-EB-MW-25.	Description: View west toward MW-25 and labourer, Cane Pikuyak.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 88 (FOX-M EB P-88 sw.jpg)	Photo 89 (FOX-M EB P-89.jpg)
Description: View southwest along eastern slope from adjacent to MW-25.	Description: Soil sample collection of FM-EB-MW-26.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 90 (FOX-M EB P-90.jpg)	Photo 91 (FOX-M EB P-91.jpg)
Description: After soil sample collection and backfill of FM-EB-MW-26.	Description: Soil sample collection by Mr. Stephen Borcsok at FM-EB-MW-26.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 92 (FOX-M EB P-92.jpg)	Photo 93 (FOX-M EB P-93.jpg)
Description: Soil sample collection of FM-EB-MW-27.	Description: After sample collection and backfill of FM-EB-MW-27.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 94 (FOX-M EB P-94 nw.jpg)	Photo 95 (FOX-M EB P-95.jpg)
Description: View northwest toward MW-27	Description: Soil sample collection of FM-EB-MW-28.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 96 (FOX-M EB P-96.jpg)	Photo 97 (FOX-M EB P-97.jpg)
Description: The southeastern corner of the East Beach Landfill South, adjacent to MW-28.	Description: After sample collection and backfill of FM-EB-MW-28.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 98 (FOX-M EB P-98.jpg)	Photo 99 (FOX-M EB P-99.jpg)
Description: View of the vehicle tracks/ruts observed on the eastern slope, near MW-28	Description: Soil sample collection of FM-EB-Mw-29.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 100 (FOX-M EB P-100 nw.jpg)	Photo 101 (FOX-M EB P-101.jpg)
Description: View northwest, looking away from the landfill, along the road adjacent to MW-29.	Description: After sample collection and backfill of FM-EB-MW-29.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 102 (FOX-M EB P-102.jpg)	Photo 103 (FOX-M EB P-103.jpg)
Description: Test pit dug at FM-EB-MW-30.	Description: After backfill of FM-EB-MW-30.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 104 (FOX-M EB P-104.jpg)	Photo 105 (FOX-M EB P-105.jpg)
Description: View toward MW-30 and the East Beach Landfill South.	Description: Soil sample collection of FM-EB-MW-31.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.6: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL SOUTH)

Photo 106 (FOX-M EB P-106.jpg)	Photo 107 (FOX-M EB P-107 ne.jpg)
Description: After sample collection and backfill of FM-EB-MW-31.	Description: View toward MW-30 and the East Beach Landfill South.
Date: August 15, 2014	Date: August 15, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

East Beach Landfill North (see Figure 4)

Photo 1 (FOX-M EBN P-1 west.jpg)	Photo 2.1 (FOX-M EBN P-2 sw.jpg)
Description: View west along northern slope of the East Beach Landfill North.	Description: View southwest across East Beach Landfill North from adjacent to northeast corner.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 2.2 (FOX-M EBN P-2 west.jpg)	Photo 3 (FOX-M EBN P-3.jpg)
Description: View west across East Beach Landfill North from adjacent to northeast corner. Minor settlement observed at top of slope in area of sparse vegetation. **(FEATURE C)**	Description: The northeastern corner of the landfill, adjacent to MW-20. Vehicle tracks/ruts observed on slope. **(FEATURE A)**
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 4.1 (FOX-M EBN P-4 east.jpg)	Photo 4.2 (FOX-M EBN P-4 se.jpg)
Description: View east along top of northern slope towards beach. Photo taken from northwest corner of the landfill.	Description: View southeast across the East Beach Landfill North. Photo taken from the northwest corner of the landfill.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 4.3 (FOX-M EBN P-4 sw.jpg)	Photo 5 (FOX-M EBN P-5 west.jpg)
Description: View southwest along top of western slope. Photo taken from northwest corner of the landfill.	Description: View west along northwestern slope. Vehicle tracks/ruts observed on the slope. **(FEATURE A)**
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

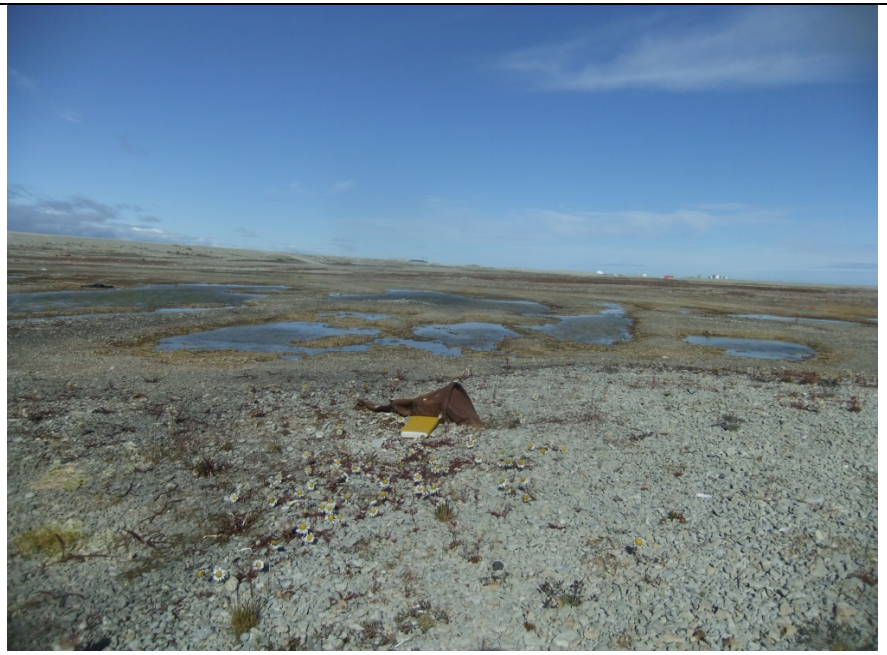
Photo 6 (FOX-M EBN P-6 south.jpg)	Photo 7 (FOX-M EBN P-7 north.jpg)
Description: View along the western slope of the East Beach Landfill North. Ponded water observed adjacent to landfill.	Description: Partially exposed debris near the northwest corner of landfill. **(FEATURE B)**
	
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

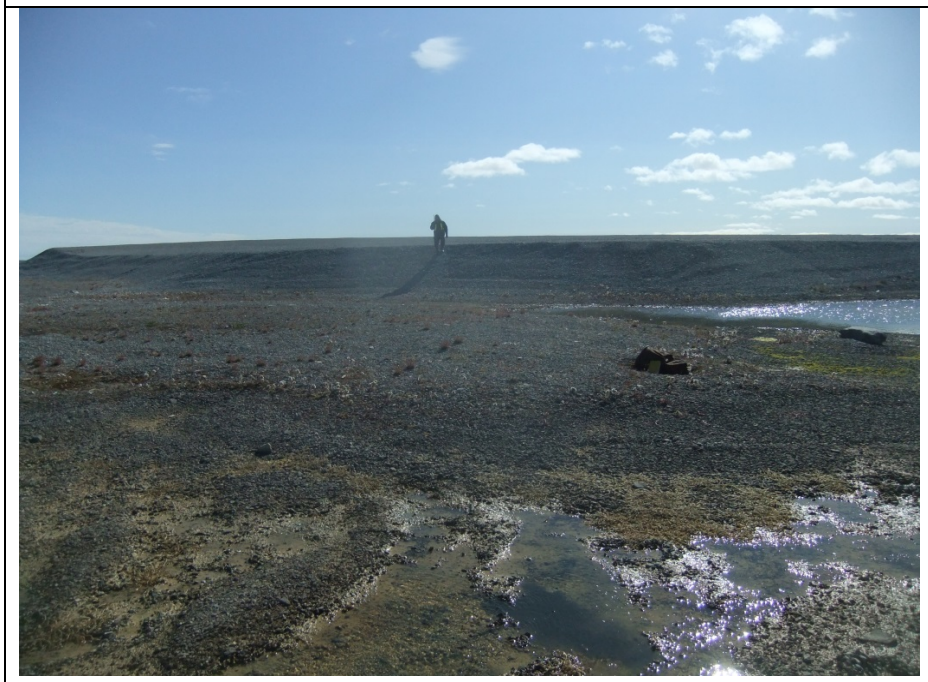
Photo 8.1 (FOX-M EBN P-8 se.jpg)	Photo 8.2 (FOX-M EBN P-8 south.jpg)
Description: View toward East Beach Landfill North and the partially exposed debris shown in Photo 7. **(FEATURE B)**	Description: View south toward the East Beach Landfill North. Vertical thermistor, VT-11, can be seen on the cap.
	
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 9 (FOX-M EBN P-9 south.jpg)	Photo 10 (FOX-M EBN P-10 east.jpg)
Description: View along the western slope of the landfill adjacent to VT-11.	Description: View up the slope toward VT-11.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

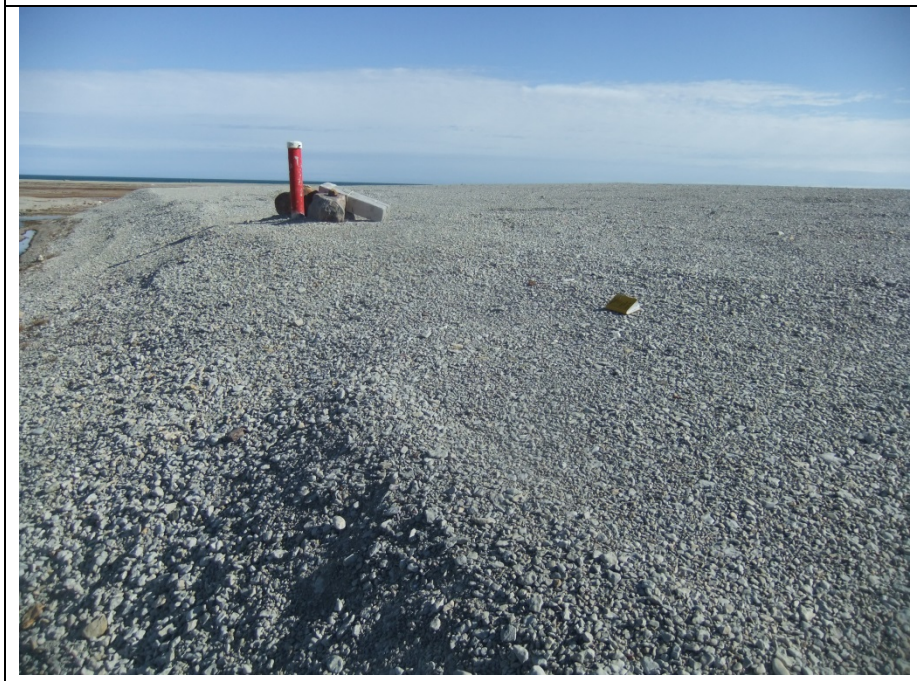
Photo 11 (FOX-M EBN P-11 ne.jpg)	Photo 12 (FOX-M EBN P-12.jpg)
Description: Minor settlement observed south of VT-11. **(FEATURE E)**	Description: Minor settlement observed south of VT-11. **(FEATURE E)**
	
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 13.1 (FOX-M EBN P-13 north.jpg)	Photo 13.2 (FOX-M EBN P-13 east.jpg)
Description: View along top of slope toward VT-11. Vehicle tracks/ruts observed on the slope in the foreground. **(FEATURE A)**	Description: View across the East Beach Landfill from the southwestern corner.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

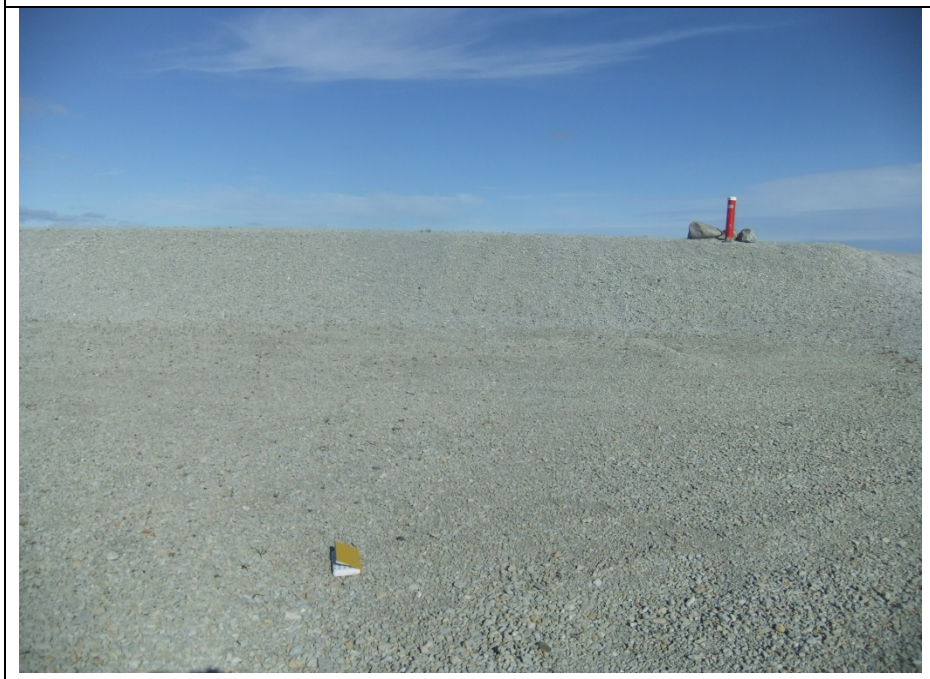
Photo 14.1 (FOX-M EBN P-14 north.jpg)	Photo 14.2 (FOX-M EBN P-14 nw.jpg)
Description: View north toward East Beach Landfill North from adjacent to MW-21. VT-10 seen adjacent to the southeast corner of the landfill. Vehicle tracks/ruts observed on the southern slope, west of VT-10. **(FEATURE A)**	Description: View northwest toward the East Beach Landfill North from adjacent to MW-21.
	
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 15 (FOX-M EBN P-15 north.jpg)	Photo 16 (FOX-M EBN P-16 north.jpg)
Description: View toward VT-10.	Description: View along eastern slope of the East Beach Landfill North.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 17 (FOX-M EBN P-17 west.jpg)	Photo 18 (FOX-M EBN P-18.jpg)
Description: View along the southern slope from adjacent to VT-10. Vehicle tracks/ruts observed on the southern slope.	Description: View toward MW-20 and the beach.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 19 (FOX-M EBN P-19.jpg)	Photo 20 (FOX-M EBN P-20.jpg)
Description: Partially exposed debris (metal wire) and scattered debris (scrap wood) near MW-20. **(FEATURE D)**	Description: Soil sample collection of FM-EB-MW-20.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 21 (FOX-M EBN P-21.jpg)	Photo 22 (FOX-M EBN P-22.jpg)
Description: After sample collection and backfill of FM-EB-MW-20.	Description: View toward MW-21 and the East Beach Landfill North.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 23 (FOX-M EBN P-23.jpg)	Photo 24 (FOX-M EBN P-24.jpg)
Description: Soil sample collection of FM-EB-MW-21.	Description: After sample collection and backfill at FM-EB-MW-21.
Date: August 16, 2014	Date: August 16, 2014

TABLE 4.7: LANDFILL VISUAL INSPECTION PHOTO LOG (EAST BEACH LANDFILL NORTH)

Photo 25 (FOX-M EBN P-25.jpg)	
Description: View of crew at MW-21.	
Date: August 16, 2014	

Table 4.8: Visual Inspection Trends (East Beach Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	None noted on 2012 landfill drawing.	Minor settlement observed at south end of South Landfill and at north end of North Landfill. (Feature C, E, J)	Settlement observed is minor and not expected to negatively impact the performance of the landfill.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	The presence of tension crack(s) was noted on the legend for the East Beach Landfill South 2012 drawing, however the location of these crack(s) is not clear from this drawing.	None observed.	Tension cracking may be occurring at the landfill but is not expected to negatively impact the performance of the landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation	A small patch of vegetation was noted northeast of MW-27.	An area with multiple small shrubs was observed on the landfill berm northeast of MW-27, and other small shrubs are sporadically located around the landfill.	Vegetation is slowly establishing itself on the landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Debris Exposed	Occasional pieces of partially exposed and surface debris are noted on the 2012 landfill drawing.	Occasional pieces of metal and wood debris were observed around the landfill. It does not appear that this debris originated from within the landfill. (Feature D, G, I)	One piece of debris noted in 2012 was not visible in 2014. Debris exposed is not believed to have originated within the landfill
Presence/Condition of Monitoring Instruments	Six vertical thermistor installations and twelve monitoring well installations were present on the 2012 landfill drawing.	Six vertical thermistor installations and twelve monitoring well installations were observed at the landfill.	Monitoring instruments are generally remaining in good condition.

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Other Features of Note	Multiple instances of vehicle tracks/ruts are present on the landfill and ponded water is visible on the landward side of the South Landfill on the 2012 landfill drawing.	Vehicle tracks/ruts are present in multiple locations around the landfill. (Feature A, F) The landfill is used as a roadway for access around the area. Ponded water is located on the landward (northwest) side of the South Landfill.	Vehicles continue to drive over and around the landfill, however it does not appear to be having a negative affect on the landfill performance.

4.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the East Beach Landfill indicates that conditions remain very similar. Vegetation is beginning to colonize the landfill and some new vehicle tracks are present. No other significant changes were observed. Based on these visual inspection results, the performance of the landfill is acceptable.

4.3.2 Soil Sampling

Soil sampling was completed at the East Beach Landfill on 15 and 16 August 2014. As previously reported a total of 26 samples including two duplicate samples were procured from twelve locations as shown in plan on Figures 3 and 4.

4.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the East Beach Landfill are presented in Table 4.9.

Duplicate soil samples was collected from surficial soils at sample locations MW-21 and MW-31 and were submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample results for the surface sample at MW-21 were above 30% for three of eleven parameters, and the duplicate sample results for the surface sample at MW-31 were above 30% for four of eleven parameters In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

TABLE 4.9

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT EAST BEACH LANDFILL

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-EB-MW-20-S 15-Aug-14 0-15cm	FM-EB-MW-20-D 15-Aug-14 40-50cm	FM-EB-MW-21-S 15-Aug-14 0-15cm	FM-EB-MW-21-S (DUP) 15-Aug-14 0-15cm	FM-EB-MW-21-S (AVG) 15-Aug-14 0-15cm	FM-EB-MW-21-D 15-Aug-14 40-50cm	FM-EB-MW-22-S 15-Aug-14 0-15cm	FM-EB-MW-22-D 15-Aug-14 40-50cm	FM-EB-MW-23-S 15-Aug-14 0-15cm
Copper	**6.3**	**13**	**-**	**100**	**99+**	**15+**	**9.6**	4	**6.8**	3.2	**32+**	**38+**	**11+**
Nickel	**5.0**	**6.6**	**-**	**100**	**17+**	**8.5+**	**7.4+**	**10+**	**8.7+**	**7.1+**	**9.1+**	**11+**	**10+**
Cobalt	**5.0**	**5.0**	**-**	**50**	2.4	2	1.9	2.4	2.15	1.9	2	2.8	2.6
Cadmium	**1.0**	**1.0**	**-**	**5**	0.78	0.12	<0.10	<0.5	<0.5	<0.10	0.12	0.31	<0.10
Lead	**10**	**14**	**200**	**500**	**30+**	7.2	**18+**	3	**10.5**	2.7	**79+**	**260+***	**19+**
Zinc	**15**	**32**	**-**	**500**	**39+**	14	**18**	9	13.5	10	**35+**	**59+**	**23**
Chromium	**20**	**20**	**-**	**250**	12	10	11	11	11	9.4	11	15	12
Arsenic	**1.0**	**2.3**	**-**	**30**	**3.4+**	**2.5+**	**2.4+**	**3.0+**	**2.7+**	**2.0**	**2.9+**	**4.5+**	**3.8+**
Mercury	**-**	**0.10**	**-**	**2**	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.213**	**0.10**	**1**	**5**	**0.4+**	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<10	<5	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	80	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<10	<50	<50	<10	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<10	<50	<50	<10	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**40**	-	**2500**	15	15	15	32.5	35	15	**90+**	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M East Beach Landfill Background Concentration.
+	Exceeds FOX-M East Beach Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

TABLE 4.9

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT EAST BEACH LANDFILL

PARAMETERS	Background Concentration (BOLD)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-EB-MW-23-D 15-Aug-14 40-50cm	FM-EB-MW-24-D 15-Aug-14 40-50cm	FM-EB-MW-25-S 15-Aug-14 0-15cm	FM-EB-MW-25-D 15-Aug-14 40-50cm	FM-EB-MW-26-S 15-Aug-14 0-15cm	FM-EB-MW-26-D 15-Aug-14 40-50cm	FM-EB-MW-27-S 15-Aug-14 0-15cm	FM-EB-MW-27-D 15-Aug-14 40-50cm	FM-EB-MW-28-S 15-Aug-14 0-15cm
Copper	**6.3**	**13**	**-**	**100**	4.4	**6.4**	**10**	**6.9**	**15+**	**11**	**7.4**	5.6	**11**
Nickel	**5.0**	**6.6**	**-**	**100**	**9+**	**7.9+**	**9.2+**	**8.3+**	**11+**	**13+**	**9+**	**9.1+**	**10+**
Cobalt	**5.0**	**5.0**	**-**	**50**	2.3	2	2.2	2	2.6	2.1	2.5	2.5	2.8
Cadmium	**1.0**	**1.0**	**-**	**5**	<0.10	<0.10	<0.10	<0.10	0.28	0.11	0.38	<0.10	0.11
Lead	**10**	**14**	**200**	**500**	4.7	9.2	**180+**	**230+***	**26+**	**18+**	7.7	9.6	**13**
Zinc	**15**	**32**	**-**	**500**	12	13	**21**	**16**	**24**	**19**	14	15	**17**
Chromium	**20**	**20**	**-**	**250**	9.6	9.4	11	10	12	9.9	10	10	12
Arsenic	**1.0**	**2.3**	**-**	**30**	**3.7+**	**2.2**	**2.9+**	**2.7+**	**3.4+**	**3.1+**	**4+**	**4.1+**	**3.5+**
Mercury	**-**	**0.10**	**-**	**2**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.213**	**0.10**	**1**	**5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.5+**
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**40**	-	**2500**	15	15	15	15	15	15	15	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M East Beach Landfill Background Concentration.
+	Exceeds FOX-M East Beach Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes
(AVG)	Average concentration of duplicate samples
<	Not detected.

TABLE 4.9

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT EAST BEACH LANDFILL

PARAMETERS	Background Concentration (BOLD)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-EB-MW-28-D 15-Aug-14 40-50cm	FM-EB-MW-29-S 15-Aug-14 0-15cm	FM-EB-MW-29-D 15-Aug-14 40-50cm	FM-EB-MW-30-S 15-Aug-14 0-15cm	FM-EB-MW-30-D 15-Aug-14 40-50cm	FM-EB-MW-31-S 15-Aug-14 0-15cm	FM-EB-MW-31-S (DUP) 15-Aug-14 0-15cm	FM-EB-MW-31-S (AVG) 15-Aug-14 0-15cm	FM-EB-MW-31-D 15-Aug-14 40-50cm
Copper	**6.3**	**13**	**-**	**100**	4.6	4.3	4.3	**20+**	**11**	**8.4**	**9**	**8.7**	**8.3**
Nickel	**5.0**	**6.6**	**-**	**100**	**7.6+**	**8.2+**	**8.1+**	**12+**	**8.4+**	**8.6+**	**14+**	**11.3+**	**9+**
Cobalt	**5.0**	**5.0**	**-**	**50**	2	2.1	2.1	2.7	2	2.3	3.4	2.85	2.2
Cadmium	**1.0**	**1.0**	**-**	**5**	<0.10	<0.10	<0.10	0.25	<0.10	<0.10	<0.5	<0.5	<0.10
Lead	**10**	**14**	**200**	**500**	5.3	4.2	3.9	**30+**	8.7	**21+**	**13**	**17+**	**20+**
Zinc	**15**	**32**	**-**	**500**	10	13	12	**37+**	**18**	**19**	**18**	**18.5**	**16**
Chromium	**20**	**20**	**-**	**250**	8.3	11	11	14	12	11	15	13	11
Arsenic	**1.0**	**2.3**	**-**	**30**	**2.8+**	**2.0**	**2.4+**	**2.1**	**1.7**	**3.7+**	**5+**	**4.35+**	**3.2+**
Mercury	**-**	**0.10**	**-**	**2**	<0.050	<0.050	<0.050	0.064	<0.050	<0.050	<0.10	<0.10	<0.050
Total PCBs	**0.213**	**0.10**	**1**	**5**	<0.1	<0.1	<0.1	<0.2	<0.1	0.1	<0.05	0.1	**0.2+**
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<10	<10	<10	<10	<5	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<10	15	<10	<10	<50	<50	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<10	<10	<10	<10	<50	<50	<10
Modifed TPH (Total C6-C34)	-	**40**	-	**2500**	15	15	15	25	15	15	32.5	35	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M East Beach Landfill Background Concentration.
+	Exceeds FOX-M East Beach Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes
(AVG)	Average concentration of duplicate samples
<	Not detected.

4.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the East Beach Landfill is provided in Table 4.10. The discussion includes a comparison of results from downgradient locations to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage. No upgradient locations have been identified at this landfill.

Table 4.10: Evaluation of 2014 Soil Analytical Data (East Beach Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	13	Detectable concentrations ranged between 3.2 and 99 ug/g, with the highest concentration reported in the surface sample at the MW-20 sample location and the lowest concentration in the subsurface sample at the MW-21 sample location. Twenty of twenty-six samples reported concentrations below the BAC while six of twenty-six samples reported concentrations above the BAC.
Nickel	6.6	Detectable concentrations ranged between 7.1 and 17 ug/g, with the highest concentration reported in the surface sample at the MW-20 sample location and the lowest concentration in the subsurface sample at the MW-21 sample location. All twenty-six samples reported concentrations above the BAC.
Cobalt	5.0	Detectable concentrations ranged between 1.9 and 2.85 ug/g, with the highest concentration reported in the surface sample at the MW-31 sample location and the lowest concentration in the subsurface sample at the MW-21 sample location. All twenty-six samples reported concentrations below the BAC.
Cadmium	1.0	Detectable concentrations ranged between 0.11 and 0.78 ug/g, with the highest concentration reported in the surface sample at the MW-20 sample location and the lowest concentration in the subsurface sample at the MW-26 sample location and in the surface sample at the MW-28 sample location. All twenty-six samples reported concentrations below the BAC.
Lead	10	Detectable concentrations ranged between 2.7 and 260 ug/g, with the highest concentration reported in the subsurface sample at the MW-22 sample location and the lowest concentration in the subsurface sample at the MW-21 sample location. Eleven of twenty-six samples reported concentrations below the BAC while fifteen of twenty-six samples reported concentrations above the BAC. Two concentrations were reported above the DEW Line Cleanup Tier I Criteria of 200 ug/g.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Zinc	32	Detectable concentrations ranged between 10 and 59 ug/g, with the highest concentration in the subsurface sample at the MW-22 sample location and the lowest concentration in the subsurface samples at the MW-21 and MW-28 sample locations. Twenty-two of twenty-six samples reported concentrations below the BAC while four of twenty-six samples reported concentrations above the BAC.
Chromium	20	Detectable concentrations ranged between 8.3 and 15 ug/g, with the highest concentration in the subsurface sample at the MW-22 sample location and the lowest concentration in the subsurface sample at the MW-28 sample location. All twenty-six samples reported concentrations below the BAC.
Arsenic	2.3	Detectable concentrations ranged between 1.7 and 4.5 ug/g, with the highest concentration reported in the subsurface sample at the MW-22 sample location and the lowest concentration in the subsurface sample at the MW-30 sample location. Five of twenty-six samples reported concentrations below the BAC while twenty-one of twenty-six samples reported concentrations above the BAC.
Mercury	0.10	A detectable concentration of 0.064 ug/g was reported in the surface sample from the MW-30 sample location. All twenty-six samples reported concentrations below the BAC.
PCBs	0.05	Detectable concentrations ranged between 0.1 and 0.5 ug/g, with the highest concentration reported in the surface sample at the MW-28 sample location and the lowest concentration in the surface samples at the MW-23 and MW-31 sample locations. Two of twenty-six samples reported concentrations below the BAC while twenty-four of twenty-six samples reported concentrations above the BAC. Only four samples contained detectable concentrations of PCBs, the remaining twenty samples reported laboratory detection limits above the BAC.
TPH	28	Two detectable concentration of PHC fraction F1, F2 or F3 were reported resulting in modified TPH concentrations ranging from 15 to 90 ug/g for the twenty-six samples. Twenty-three of twenty-six samples reported concentrations below the BAC while three of twenty-six samples reported concentrations above the BAC.

4.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 4.11. Trends have been analyzed for downgradient locations as no upgradient locations have been identified at this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 4.11: Evaluation of Soil Result Trends (East Beach Landfill)

Parameter	2014 Results
Copper	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Nickel	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Cobalt	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally above the BAC.
Cadmium	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally below the BAC.
Lead	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally below the BAC.
Zinc	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally below the BAC.
Chromium	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally above the BAC.
Arsenic	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations are generally below the laboratory detection limit and BAC.
PCBs	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
TPH	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.

4.3.3 Groundwater Sampling

Groundwater sampling at the East Beach Landfill was completed on 15 and 16 August 2014. As previously reported a total of three samples including one duplicate were procured from two monitoring wells as shown in plan on Figures 3 and 4.

4.3.3.1 Monitoring Well Sampling/Inspection Logs

Monitoring well sampling/inspection logs are provided following this page in Monitoring Well Sampling Records 6-17.

4.3.3.2 Water Levels/Groundwater Flow

Water levels were measured at the East Beach Landfill on 15 August 2014. The groundwater levels measured are shown below in Table 4.12. Groundwater flow direction cannot be determined from the measured groundwater levels as only two monitoring wells contained water during this monitoring event. However given the topography of the area groundwater flow is generally expected to be towards the ocean adjacent to the landfill.

Monitoring Well Sampling Record 6

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	540pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-20	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
	no lock	PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	39	Sample ID:	
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	111	Evidence of sludge or siltation:	NO
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 7

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	535pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-21	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	42		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	136	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 8

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	530pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-22	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
	no lock	PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	52		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	67	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 9

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	525pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-23	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	120	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 10

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	520pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-24	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
	no lock	PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	42		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	115	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 11

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	515pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-25	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
	no lock	PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	45		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	135	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 12

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	510pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-26	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:		PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	35		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	123	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 13

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	505pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-27	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:		PHC F2-F4	
well cap can be removed from casing		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	45		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	124	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 14

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	500pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-28	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	45		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	120	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 15

Site Name:	FOX-M		
Date of Sampling Event:	16-Aug-14	Time:	810am
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	YES
Monitoring Well ID:	MW-29	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	OK	PHC F2-F4	YES
	rusty lock	PCBs	YES
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	39	Sample ID:	FM-EB-MW-29
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	78	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	120	Evidence of sludge or siltation:	NO
Thickness of water column	42		
Static volume of water in well	0.85		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=	4L	(Dry after 3L)	Tubing /
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	7.44		
Final Conductivity (uS/cm)=	603		
Final Temperature (degC)=	2.7		

Monitoring Well Sampling Record 16

Site Name:	FOX-M		
Date of Sampling Event:	16-Aug-14	Time:	830am
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	YES
Monitoring Well ID:	MW-30	PHC F1	YES
Sample Number:		Inorganic Elements	YES
Condition of Well:	OK	PHC F2-F4	YES
Soft soil around well		PCBs	YES
Measured Data		Duplicate Collected?	YES
Well pipe height above ground (cm)=	36	Sample ID:	FM-EB-MW-30
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	52	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	122	Evidence of sludge or siltation:	NO
Thickness of water column	70		
Static volume of water in well	1.42		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=			Tubing /
Decontamination required: (Y/N)	N		Footvalve
Number washes:			
Number rinses:			
Final pH=	7.7		
Final Conductivity (uS/cm)=	1082		
Final Temperature (degC)=	1.6		

Monitoring Well Sampling Record 17

Site Name:	FOX-M		
Date of Sampling Event:	15-Aug-14	Time:	545pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-31	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	119	Evidence of sludge or siltation:	No
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Table 4.12: Groundwater Levels (East Beach Landfill)

Monitoring Well	Date	Ground Surface Elevation (m)	Water Level (m bgs)	Water Level Elevation (m)	Depth to Bottom (m bgs)	Bottom Elevation (m)
MW-20	15-Aug-14	-0.03	Dry	N/A	0.72	-0.75
MW-21	15-Aug-14	-0.6	Dry	N/A	0.94	-1.54
MW-22	15-Aug-14	-0.48	Dry	N/A	0.15	-0.63
MW-23	15-Aug-14	*	Dry	*	0.80	*
MW-24	15-Aug-14	0.01	Dry	N/A	0.73	-0.72
MW-25	15-Aug-14	0.24	Dry	N/A	0.90	-0.66
MW-26	15-Aug-14	0.57	Dry	N/A	0.88	-0.31
MW-27	15-Aug-14	-0.1	Dry	N/A	0.79	-0.89
MW-28	15-Aug-14	-0.42	Dry	N/A	0.71	-1.13
MW-29	15-Aug-14	-0.03	0.39	-0.42	0.81	-0.84
MW-30	15-Aug-14	-1.03	0.16	-1.19	0.86	-1.89
MW-31	15-Aug-14	-0.21	Dry	N/A	0.79	-1.00

* - the ground surface elevation for this monitoring well was identified as TBD in the project *Terms of Reference*

Monitoring wells MW-21, MW-29, MW-30, and MW-31 were reported to contain water during the past 2012 monitoring event, while all other wells were reported to be dry. It is recommended that monitoring of all wells continue during future monitoring events.

4.3.3.3 Laboratory Analytical Results

The analytical results for groundwater analyses at the East Beach Landfill are presented in Table 4.13.

A duplicate groundwater sample was collected at MW-30 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample were above 30% for seven of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

4.3.3.4 Discussion of Results by Parameter

A discussion of the results for each parameter analyzed in groundwater at the East Beach Landfill is provided in Table 4.14. The discussion includes a comparison of results from downgradient locations to the baseline average concentrations that have been determined for

TABLE 4.13

RESULTS OF ANALYSIS FOR PARAMETERS IN GROUNDWATER AT EAST BEACH LANDFILL

PARAMETERS	Baseline Average Concentration (+)	FM-EB-MW-29 16-Aug-14	FM-EB-MW-30 16-Aug-14	FM-EB-MW-30 (DUP) 16-Aug-14	FM-EB-MW-30 (AVG) 16-Aug-14
Copper	**0.0050**	**0.008+**	0.0017	**0.007+**	0.00435
Nickel	**0.0050**	**0.011+**	**0.0091+**	**0.015+**	**0.01205+**
Cobalt	**0.0030**	0.0016	0.0006	0.001	0.0008
Cadmium	**0.0010**	0.0002	<0.000020	<0.002	<0.002
Lead	**0.010**	0.0038	0.0011	0.003	0.00205
Zinc	**0.019**	**0.11+**	**0.21+**	**0.404+**	**0.307+**
Chromium	**0.041**	0.015	0.022	**0.059+**	0.0405
Arsenic	**0.0046**	0.0028	0.0036	**0.009+**	**0.0063+**
Mercury	**0.00040**	0.00002	<0.00001	<0.0001	<0.0001
Total PCBs	**0.000020**	<0.00005	<0.00005	<0.0001	<0.0001
PHC F1 (C6-C10)	-	<0.025	<0.025	<0.025	<0.025
PHC F2 (C10-C16)	-	<0.100	<0.100	<0.100	<0.100
PHC F3 (C16-C34)	-	<0.100	<0.100	<0.100	<0.100
PHC F4 (C34-C50)	-	<0.100	<0.100	<0.100	<0.100
Modifed TPH (Total C6-C34)	**1.0**	0.113	0.113	0.113	0.113

NOTES:

All parameter values in mg/L (ppm) unless otherwise indicated.

\+ Exceeds East Beach Landfill Baseline Average Concentration.

(DUP) Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG) Average concentration of duplicate samples.
< Not detected.
\- No concentration reported.

each landfill from soil chemistry at the landfill area prior to and during remediation. No upgradient locations have been identified at this landfill.

Table 4.14: Evaluation of Groundwater Analytical Results (East Beach Landfill)

Parameter	Baseline Average Concentration (mg/L)	2014 Results
Copper	0.005	Detectable ranged between 0.00435 and 0.008 mg/L with the highest concentration recorded at monitoring well MW-29 and the lowest concentration recorded at monitoring well MW-30. Two of three samples reported concentrations below the BAC while one of three samples reported a concentration above the BAC.
Nickel	0.005	Detectable ranged between 0.011 and 0.01205 mg/L with the highest concentration recorded at monitoring well MW-30 and the lowest concentration recorded at monitoring well MW-29. All three samples reported concentrations above the BAC.
Cobalt	0.003	Detectable ranged between 0.0008 and 0.0016 mg/L with the highest concentration recorded at monitoring well MW-29 and the lowest concentration recorded at monitoring well MW-30. All three samples reported concentrations below the BAC.
Cadmium	0.001	A detectable concentration of 0.0002 mg/L was reported at monitoring well MW-29. All three samples reported concentrations below the BAC.
Lead	0.0100	Detectable concentrations ranged between 0.00205 and 0.0038 mg/L, with the highest concentration recorded at monitoring well MW-29 and the lowest concentration recorded at monitoring well MW-30. All three samples reported concentrations below the BAC.
Zinc	0.019	Detectable concentrations ranged between 0.11 and 0.307 mg/L, with the highest concentration recorded at monitoring well MW-29 and the lowest concentration recorded at MW-30. All three samples reported concentrations above the BAC.
Chromium	0.041	Detectable concentrations ranged between 0.015 and 0.0405 mg/L, with the highest concentration recorded at monitoring well MW-29 and the lowest concentration recorded at monitoring well MW-30. All three samples reported concentrations above the BAC.
Arsenic	0.0046	Detectable concentrations ranged between 0.0028 and 0.0063 mg/L, with the highest concentration recorded at monitoring well MW-30 and the lowest concentration recorded at monitoring well MW-29. Two of three samples reported concentrations below the BAC while one of three samples reported a concentration above the BAC.
Mercury	0.0004	A detectable concentration of 0.0002 mg/L was reported at monitoring well MW-29. All three samples reported concentrations below the BAC.
PCBs	0.000020	All results were below the laboratory detection limits of 0.00005 mg/L and 0.0001 mg/L. The laboratory detection limits are above the BAC as it was defined based on a lower detection limit from a previous monitoring event.
TPH	1.0	All results were below the laboratory detection limits for PHC fractions F1, F2, and F3 resulting in a modified TPH value of 0.113 mg/L. All three concentrations were below the BAC.

4.3.3.5 Groundwater Trend Analysis by Parameter & Discussion of Trends

A discussion of the trends observed for parameter concentrations in groundwater from 2008 to 2014 are presented in Table 4.15. Trends have been analyzed for downgradient locations as no upgradient locations have been identified at this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 4.15: Evaluation of Groundwater Result Trends (East Beach Landfill)

Parameter	2014 Results
Copper	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally above the BAC.
Nickel	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally above the BAC.
Cobalt	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally clustered around the BAC.
Cadmium	Concentrations show a downward trend for downgradient wells. Reported concentrations are generally below the BAC.
Lead	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally below the BAC.
Zinc	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally above the BAC.
Chromium	Concentrations show an upward trend for downgradient wells. Reported concentrations are generally below the BAC.
Arsenic	Concentrations show a slight upward trend for downgradient wells. Reported concentrations are generally clustered around the BAC.
Mercury	Concentrations show a downward trend for downgradient wells. Reported concentrations are generally below the BAC.
PCBs	Concentrations show a stable trend as all reported concentrations are below laboratory detection limits.
TPH	Concentrations show a downward trend for downgradient wells. Reported concentrations are generally below the BAC.

4.3.4 Thermal Monitoring

Thermal monitoring results were retrieved from thermistor installations at the East Beach Landfill on 29 August 2014.

4.3.4.1 Thermistor Annual Maintenance Reports

Thermistor annual maintenance reports are provided following this page in Thermistor Annual Maintenance Reports 6-11.

Thermistor Annual Maintenance Report 6

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-6		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626451.0	E	490895.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060018				Cable Serial Number TS07060018	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 12.77 / 13.50	

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0830	4.6151
2	1.0489	3.4992
3	0.9872	1.4725
4	0.9391	-0.1205
5	0.9156	-0.9039
6	0.8878	-1.8357
7	0.8603	-2.7649
8	0.8327	-3.7081

Bead	Volts	Degrees C
9	0.8094	-4.5106
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced

Memory: Wrapped when downloaded

Cap pin not on thermistor cap, pin was not secure

Clock behind 1:43:14

Thermistor Annual Maintenance Report 7

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-7		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626742.0	E	491381.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07010006				Cable Serial Number TS07010006	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 13.38 / 13.75	

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0774	4.4304
2	1.0588	3.8214
3	1.0050	2.0577
4	0.9536	0.3607
5	0.9253	-0.5778
6	0.8955	-1.5765
7	0.8677	-2.6846
8	0.8338	-3.6688

Bead	Volts	Degrees C
9	0.8049	-4.6667
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced

No lock, cap pin can fall out

Ground cable not attached to datalogger, attachment point on datalogger is stuck

Clock behind 42:04

Thermistor Annual Maintenance Report 8

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-8		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7626816.0	E	491370.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07040022				Cable Serial Number TS07040022	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux 13.02 / 13.38	

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0927	4.9319
2	1.0658	4.0511
3	0.9928	1.6585
4	0.9442	0.0493
5	0.9143	-0.9447
6	0.8821	-2.0261
7	0.8541	-2.9778
8	0.8266	-3.9179

Bead	Volts	Degrees C
9	0.8065	-4.6111
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced

Cap has lock but needs pin or ziptie to secure it to thermistor cap

Clock behind 42:30

Thermistor Annual Maintenance Report 9

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-9		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7627039.0	E	491580.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060017				Cable Serial Number TS07060017	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux	13.26 / 13.75

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.0750	4.3531
2	1.0830	4.6151
3	1.0384	3.1544
4	0.9706	0.9237
5	0.9317	-0.3668
6	0.9022	-1.3510
7	0.8651	-2.6017
8	0.8375	-3.5433

Bead	Volts	Degrees C
9	0.8097	-4.5000
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced
Casing slightly dented
Cap pin not secure, no lock
Ground cable attachment stuck
Clock behind 50:38

Thermistor Annual Maintenance Report 10

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-10		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7627284.0	E	491695.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060003				Cable Serial Number TS07060003	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux	13.14 / 13.50

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.1049	5.3311
2	1.0681	4.1285
3	0.9993	1.8720
4	0.9471	0.1456
5	0.9200	-0.7560
6	0.8927	-1.6714
7	0.8603	-2.7649
8	0.8357	-3.6034

Bead	Volts	Degrees C
9	0.8126	-4.3996
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced

No lock

Clock behind 51:59

Thermistor Annual Maintenance Report 11

Contractor Name:	SENES	Inspection Date:	16-Aug-14
Prepared By:	S. Borcsok	Download Date:	29-Aug-14

Thermistor Information

Site Name:	**FOX-M**	Thermistor Location	East Beach Landfill		
Thermistor Number: VT-11		Inclination: Vertical			
Install Date:		First Date Event		Last Date Event	
Coordinates and Elevation	N	7627315.0	E	491569.0	Elev
Length of Cable (m)		Cable Lead Above Ground (m)		Nodal Points	
Datalogger Serial # 07060002				Cable Serial Number TS07060002	
Thermistor Type: UL16					

Thermistor Inspection

	Good	Needs Maintenance	
Casing	□X	□	
Cover	□X	□	
Data Logger	□X	□	
Cable	□X	□	
Beads	□X	□	
Battery Installation Date	Unknown (possibly Sept 2011)		
Battery Levels	Main 11.34 / 11.34	Aux	13.26 / 13. 75

(Battery level before replacement / after replacement)

Manual Ground Temperature Readings

Bead	Volts	Degrees C
1	1.1104	5.5108
2	1.0876	4.7648
3	0.9993	1.8720
4	0.9536	0.3607
5	0.9205	-0.7382
6	0.8895	-1.7792
7	0.8584	-2.8298
8	0.8303	-3.7893

Bead	Volts	Degrees C
9	0.8071	-4.5926
10	0.0000	381.0742
11	0.0000	381.0742
12	0.0000	381.0742
13	0.0000	381.0742
14	0.0000	381.0742
15	0.0000	381.0742
16	0.0000	381.0742

Observations and Proposed Maintenance

Dessicant needs to be replaced

No lock

Clock behind 43:57

4.3.4.2 Summary of Findings from Annual DEW Line Thermal Reports

Thermistor data was analyzed by Tetra Tech EBA. The results of the thermal reports indicate that the landfill is stabilizing and performing as expected from a thermal perspective. The Thermal Report for the Tier II Disposal Facility is provided in Appendix D.

4.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable. Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued.

4.5 RECOMMENDATIONS/NEXT STEPS

Two soil samples reported lead concentrations above the DEW Line Cleanup Tier I Criteria. Concentrations of lead should be monitored in the future to determine whether high lead concentrations in soil are a result of contaminant migration from the landfill. Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued. No remedial work is required at this time.

5.0 NON-HAZARDOUS WASTE LANDFILL

5.1 LANDFILL DESCRIPTION

The Non-Hazardous Waste Landfill in the vicinity of the Station North Pallet Line, north of the station POL and Barrel Dump and south of the station crushed rock stockpile. It was constructed on previously disturbed ground for disposal of non-hazardous waste derived from site cleanup. A detailed drawing of this landfill is provided in Figure 5. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 5A. The historical chemical results for groundwater samples collected at this landfill are shown in plan on Figure 5B.

5.2 SUMMARY OF WORK CONDUCTED

5.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the visual inspection work plan.

5.2.2 Soil Sampling

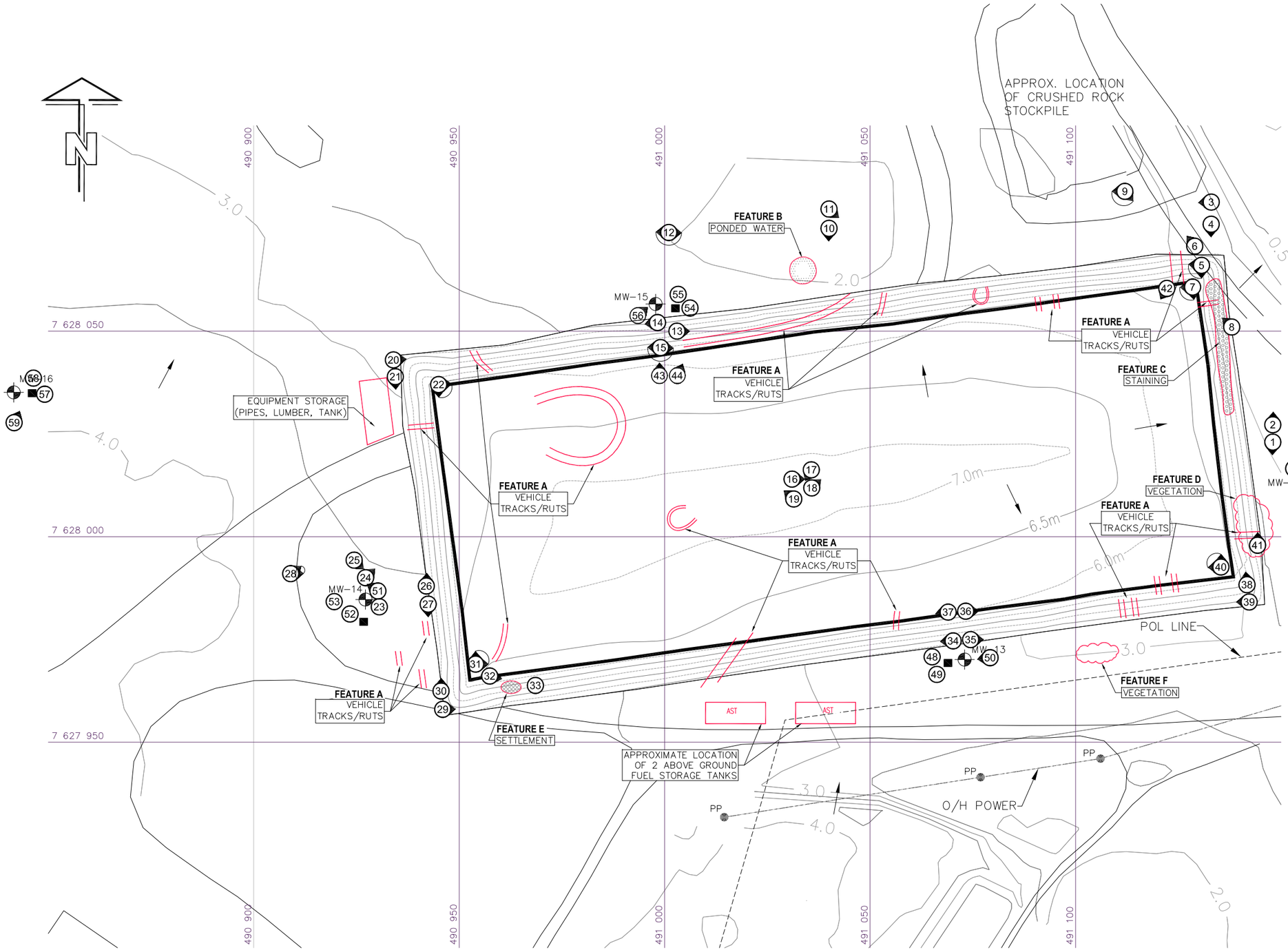
Soil samples were collected at five (5) locations as shown on Figure 5. Surface and subsurface samples were collected at each location. There were no deviations from the soil sampling work plan. One duplicate sample was collected from surface soil at the MW-12 sample location. Soil sampling completed at the landfill is summarized in Table 5.1.

Table 5.1: Summary of Work Conducted by Soil Sampling Location (Non-Hazardous Waste Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-NH-MW-12	√ D	√
FM-NH-MW-13	√	√
FM-NH-MW-14	√	√
FM-NH-MW-15	√	√
FM-NH-MW-16	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: March-02-15 10:02:35 AM Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 5 - Station Area_Non-Haz Landfill.dwg



LEGEND:

- MONITORING WELL LOCATION
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- NATURAL STAINING
- VEGETATION
- AREA OF SETTLEMENT

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 14, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.2, Dec. 2012

0 20 40 metres

SCALE 1:1000

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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

STATION AREA

NON-HAZARDOUS WASTE LANDFILL

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 5

MW-15 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	**5.3**	**6.0**	**8.8**	5.1
Ni	**7.4**	**13**	**22**	**10**
Co	<5.0	2.0	3.2	2.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**37**	14	**30**	10
Zn	**22**	11	**38**	**15**
Cr	<20	18	16	11
As	0.51	**2.0**	**2.5**	**3.8**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	28	30	52	15

MW-15 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.3	5.0	**5.5**	**5.4**
Ni	**5.4**	**13**	**20**	**7.9**
Co	<5.0	2.0	3.0	1.5
Cd	<1.0	<0.50	<0.50	0.15
Pb	<10	6.0	14	11.0
Zn	**43**	10	**21**	11.0
Cr	<20	18	14	8
As	0.27	**3.0**	1.8	**2.4**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	**167**	33	52	**306**

MW-12 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	5.0	5.0	**6.4**	**20.5**
Ni	**6.5**	**13**	**26**	**9.35**
Co	<5.0	3.0	3.8	2.25
Cd	<1.0	<0.50	<0.50	<0.5
Pb	17	**28**	**36**	**69.5**
Zn	<15	13	**23**	**24.5**
Cr	<20	16	15	11.5
As	0.77	1.0	**2.1**	**3**
Hg	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	41	29	**71**	42

MW-12 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.5	4.0	**5.7**	4.5
Ni	**7.2**	**12**	**24**	**8.7**
Co	<5.0	2.0	3.6	2.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**21**	14	**25**	**19**
Zn	<15	10	**19**	13
Cr	<20	15	13	11.0
As	1.4	1.0	**2.0**	**2.7**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	32	28	40	**139**

MW-16 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.9	**6.0**	**8.6**	**5.6**
Ni	**5.2**	**10**	**22**	**6.6**
Co	<5.0	2.0	3.5	2.0
Cd	<1.0	<0.50	<0.50	0.21
Pb	**200**	**41**	**170**	**79**
Zn	**22**	14	**42**	**28**
Cr	<20	13	**22**	11
As	1.3	**2.0**	**3.1**	**3.0**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	**0.0049**	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	**96**	**82**	**77**	**75**

MW-16 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	4.0	4.9	3.6
Ni	<5.0	**11**	**16**	**5.2**
Co	<5.0	2.0	2.8	1.6
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**24**	13	**49**	15
Zn	<15	9.0	**24**	11
Cr	<20	16	14	8
As	1.4	**2.0**	**2.6**	**2.0**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	25	20	44	15

MW-14 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	3.2	**25**	**6.3**	4.2
Ni	<5.0	**13**	**24**	**7**
Co	<5.0	2.0	3.5	1.8
Cd	<1.0	<0.50	<0.50	0.12
Pb	**20**	8.0	**23.8**	13
Zn	<15	10	**21**	14
Cr	<20	15	16	9
As	0.69	**2.0**	**2.5**	**2.3**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**94**	43	29	15

MW-14 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	4.0	4.3	2.4
Ni	<5.0	**15**	**15**	4.7
Co	<5.0	2.0	2.3	1.4
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	6.0	5.7	3.2
Zn	<15	9.0	10	8.1
Cr	<20	**23**	9.0	7.4
As	0.28	**2.0**	1.4	1.5
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	21	20	15	15

MW-13 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	3.5	4.0	**5.4**	4.8
Ni	<5.0	**9.0**	**21**	**8.3**
Co	<5.0	2.0	3.1	2.1
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**34**	**42**	**56**	**41**
Zn	<15	10	**20**	14
Cr	<20	12	14	12
As	0.70	1.0	**2.3**	**2.2**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**66**	35	42	**64**

MW-13 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	4.75	4.0	**9.4**	3.8
Ni	**5.1**	**11**	**26**	**7.3**
Co	<5.0	2.0	4.2	1.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**33**	**27**	**140**	**26**
Zn	<15	9.0	**21**	11
Cr	<20	14	15	9.5
As	1.5	1.0	**2.2**	1.7
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	**71**	20	36	**766**

LEGEND:

- MONITORING WELL LOCATION
- SOIL SAMPLING LOCATION
- 7.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	5.2	N/A	100
Ni	5.0	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	18	200	500
Zn	15	N/A	500
Cr	20	N/A	250
As	2.0	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.0031	1	5
Modified TPH - (Total C6-C34)	56	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

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2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.2, Dec. 2012

0 20 40 metres

SCALE 1:1000

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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

STATION AREA

NON-HAZARDOUS WASTE LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 5A

Sheet Size: 11 x 17 (432mm x 279mm)

PLOT: February-27-15 10:20:23 AM Saved by: Izabela Ziba

SENES FILE NO.: 350600-515-1 FOX-M_Fig 5 - Station Area_Non-Haz Landfill.dwg

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-26-15 4:27:28 PM Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 5 - Station Area_Non-Haz Landfill.dwg

MW-15	2008	2010	2012	2014
Cu	0.0057	0.0020	0.0050	0.0012
Ni	<0.0050	**0.010**	**0.024**	0.008
Co	<0.0030	0.00040	**0.0030**	0.001
Cd	<0.0010	<0.00010	<0.000050	<0.000020
Pb	0.0012	<0.0010	0.0010	0.00021
Zn	<0.0050	<0.010	0.047	0.004
Cr	<0.0050	0.0040	0.011	**0.013**
As	<0.0030	<0.0010	<0.0010	0.00028
Hg	<0.00040	<0.00010	<0.000025	<0.00001
Total PCBs	<0.000020	<0.00010	<0.000010	<0.00005
Modified TPH - (Total C6-C34)	<1.0	<0.20	<0.10	0.113

MW-13	2008	2010	2012
Cu	<0.0050	0.0030	0.0050
Ni	<0.0050	**0.010**	**0.024**
Co	<0.0030	0.00050	0.0020
Cd	<0.0010	0.00010	0.000050
Pb	0.0017	<0.0010	0.0020
Zn	0.039	<0.010	0.015
Cr	<0.0050	0.0040	0.0050
As	<0.0030	<0.0010	<0.0010
Hg	<0.00040	<0.00010	<0.000025
Total PCBs	<0.000020	<0.00010	<0.000010
Modified TPH - (Total C6-C34)	**1.4**	<0.20	**3.0**

LEGEND:

- MONITORING WELL LOCATION
- SOIL SAMPLING LOCATION
- 7.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration
Cu	0.0064
Ni	0.0081
Co	0.0030
Cd	0.0010
Pb	0.010
Zn	0.048
Cr	0.011
As	0.0030
Hg	0.00040
Total PCB	0.000020
Modified TPH - (Total C6-C34)	1.0

All Concentrations in mg/L

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.2, Dec. 2012

0 20 40 metres

SCALE 1:1000

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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
STATION AREA
NON-HAZARDOUS WASTE LANDFILL

GROUNDWATER CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 5B

5.2.3 Groundwater Sampling

Groundwater monitoring was completed at five monitoring wells as shown on Figure 5. Groundwater monitoring and sampling at the Non-Hazardous Waste Landfill was generally completed as per the work plan. As indicated in Table 5.2, groundwater samples were not collected from three of five monitoring wells at this landfill as the wells were dry during the landfill inspection, and samples were not collected from one of five wells as there was free floating petroleum product in the well. One duplicate groundwater sample was collected at MW-15.

Table 5.2: Summary of Work Conducted by Groundwater Sampling Location (Non-Hazardous Waste Landfill)

Location	Visual Inspection/ Groundwater Monitoring	Sample collected for PCB analysis	Sample collected for metals analysis	Sample collected for PHCs F1-F4 analysis
FM-NH-MW-12	√	X^{N}	X^{N}	X^{N}
FM-NH-MW-13	√	X^{P}	X^{P}	X^{P}
FM-NH-MW-14	√	X^{N}	X^{N}	X^{N}
FM-NH-MW-15	√	√^{D}	√^{D}	√^{D}
FM-NH-MW-16	√	X^{N}	X^{N}	X^{N}

D - duplicate sample collected
√ - sample collected
X – no sample collected
N – no water in well (well was dry)
I – insufficient water in well to collect sample
P – well not sampled due to presence of floating free product

5.2.4 Thermal Monitoring

No thermal monitoring was completed at this landfill as no thermal monitoring installations have been installed at this landfill.

5.3 RESULTS OF THE MONITORING PROGRAM

5.3.1 Visual Inspection

The visual inspection at the Non-Hazardous Waste Landfill was completed on 14 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 5.3.

5.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 5.4.

TABLE 5.3 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Non-Hazardous Waste Landfill
DATE OF INSPECTION: 14 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 5.3 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	On west side of south berm (Feature E)	0.5m	0.5m	0.2m	<1%	Small depression	P-33	
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	Near southeast corner of landfill (Feature D, F)				<1%	Small shrubs	P-41	
Staining	YES	North end of east landfill berm (Feature C)	20m	1m		2%	Slightly darker aggregate	P-8	
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	YES	Five monitoring wells around perimeter of landfill					Monitoring wells	P-43, P-46, P-47, P-49, P-50, P-56	
Features of Note.	YES	On berms and cap of landfill (Feature A)				<1%	Vehicle tracks	P-17.2, P-13, P-20, P-31.1	

Table 5.4: Preliminary Stability Assessment - FOX-M Comm. Northwest Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	None	None
Frost Action	None	None
Staining	Acceptable	Isolated
Vegetation Stress	None	None
Seepage/Ponded Water	None	None
Debris exposure	None	None
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

5.3.1.2 Photographic Records

The photograph log for the site is provided in Table 5.5.

5.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 5.6 below for each category observed.

Table 5.6: Visual Inspection Trends (Non-Hazardous Waste Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	Area of settlement noted on the west side of the south berm on the 2012 landfill drawing.	One area of minor settlement was observed on the west side of the south berm. (Feature E)	Area of settlement is still minor and does not appear to be worsening.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation	None noted on 2012 landfill drawing.	Small areas of shrubs were noted near the southeast corner of the landfill. (Feature D, F)	Vegetation is slowly establishing itself on the landfill.
Staining	Staining identified on north end of east side of landfill.	Area of slightly darker aggregate observed on north end of east side of landfill. (Feature C)	Natural staining continues to be present at one location at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Debris Exposed	Geotextile debris was noted northeast of the landfill on the 2012 landfill drawing.	None observed.	Debris around the landfill was removed or buried, no new debris is present.
Presence/Condition of	Five monitoring wells	Five monitoring wells were	Monitoring wells

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Station Area Non-Hazardous Waste Landfill (see Figure 5)

Photo 1 (FOX-M NHWL P-1 south.jpg)	Photo 2 (FOX-M NHWL P-2 north.jpg)
Description: View looking south along eastern toe of landfill. MW-12 seen in foreground.	Description: View looking north along eastern toe of landfill. Crushed rock stockpile seen in background.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 3 (FOX-M NHWL P-3 east.jpg)	Photo 4 (FOX-M NHWL P-4 south.jpg)
Description: View west between crushed rock stockpile (right hand side) and the northern slope of the non-hazardous waste landfill.	Description: View south along eastern slope of landfill. Truck is parked adjacent to MW-12.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 5.1 (FOX-M NHWL P-5 south.jpg)	Photo 5.2 (FOX-M NHWL P-5 west.jpg)
Description: View along eastern slope of landfill from the northeast corner.	Description: View along northern slope of landfill from the northeast corner. Crushed rock stockpile on right hand side.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 6 (FOX-M NHWL P-6 north.jpg)	Photo 7.1 (FOX-M NHWL P-7 south.jpg)
Description: View looking toward crushed rock stockpile from northeast corner of landfill	Description: View south along top of eastern slope. Truck parked adjacent to MW-12.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 7.2 (FOX-M NHWL P-7 west.jpg)	Photo 8 (FOX-M NHWL P-8 nw.jpg)
Description: View west along northern top of slope. Vehicle tracks/ruts seen in the foreground on the slope. **(Feature A)**	Description: View upslope over slightly stained area near the northeast corner of the landfill. **(Feature C)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 9.1 (FOX-M NHWL P-9 sw.jpg)	Photo 9.2 (FOX-M NHWL P-9 west.jpg)
Description: The vehicle tracks/ruts on the slope at the northeast corner of the landfill. **(FEATURE A)**	Description: View along the toe of the northern slope. Crushed rock stockpile on the right hand side.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 10 (FOX-M NHWL P-10 south.jpg)	Photo 11 (FOX-M NHWL P-11 sw.jpg)
Description: View south toward the northern slope of the landfill. Vehicle tracks/ruts can be seen on the slope.	Description: View southeast over ponded water toward northeast corner of landfill and crushed rock stockpile. **(FEATURE B)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 12.1 (FOX-M NHWL P-12 east.jpg)	Photo 12.2 (FOX-M NHWL P-12 south.jpg)
Description: View west over vegetation and standing water north of the landfill.	Description: View south toward MW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 12.3 (FOX-M NHWL P-12 west.jpg)	Photo 13 (FOX-M NHWL P-13.jpg)
Description: View west toward northwestern corner of landfill.	Description: View west along northern slope of landfill. Vehicle tracks/ruts observed on slope. **(FEATURE A)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 14 (FOX-M NHWL P-14.jpg)	Photo 15.1 (FOX-M NHWL P-15 east.jpg)
Description: View west along northern slope of landfill.	Description: View east along top of northern slope.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 15.2 (FOX-M NHWL P-15 south.jpg)	Photo 15.3 (FOX-M NHWL P-15 west.jpg)
Description: View south across cap of landfill toward monument.	Description: View west along top of northern slope of landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 16 (FOX-M NHWL P-16.jpg)	Photo 17 (FOX-M NHWL P-17 sw.jpg)
Description: View toward monument on landfill cap.	Description: View southwest toward monument located at the middle of the landfill cap.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 18 (FOX-M NHWL P-18 ne.jpg)	Photo 19 (FOX-M NHWL P-19 nw.jpg)
Description: View northeast from monument.	Description: View northwest from monument.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 20 (FOX-M NHWL P-20.jpg)	Photo 21 (FOX-M NHWL P-21.jpg)
Description: View east from the northwest corner along northern slope. Vehicle tracks/ruts observed on slope. **(FEATURE A)**	Description: View south along western slope of landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 22.1 (FOX-M NHWL P-22 east.jpg)	Photo 22.2 (FOX-M NHWL P-22 se.jpg)
Description: View east from northwest corner of the landfill cap. Monument rock can be seen in the distance.	Description: View across landfill cap from the northwest corner. Monument rock can be seen in the distance.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 22.3 (FOX-M NHWL P-22 south.jpg)	Photo 23 (FOX-M NHWL P-23.jpg)
Description: View south along top of slope from the northwest corner of the cap.	Description: Soil sample FM-NH-MW-14 (at field book) adjacent to MW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 24 (FOX-M NHWL P-24 ne.jpg)	Photo 25 (FOX-M NHWL P-25.jpg)
Description: View northeast toward landfill from MW-14.	Description: View southeast toward landfill from MW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 26 (FOX-M NHWL P-26.jpg)	Photo 27 (FOX-M NHWL P-27.jpg)
Description: View north along western slope of landfill.	Description: View south along western slope of landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 28.1 (FOX-M NHWL P-28 east.jpg)	Photo 28.2 (FOX-M NHWL P-28 ne.jpg)
Description: View east toward landfill from west of MW-14.	Description: View toward equipment storage area adjacent to the northwest corner of the landfill. Photo taken from west of MW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 29 (FOX-M NHWL P-29 east.jpg)	Photo 30 (FOX-M NHWL P-30 north.jpg)
Description: View along southern slope of landfill. Photo taken from southwestern corner.	Description: View along western slope of landfill. Photo taken from southwestern corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 31.1 (FOX-M NHWL P-31 east.jpg)	Photo 31.2 (FOX-M NHWL P-31 north.jpg)
Description: View east across landfill cap from the southwestern corner. Vehicle tracks/ruts observed.	Description: View north across cap from the southwestern corner of the cap.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 31.3 (FOX-M NHWL P-31 ne.jpg)	Photo 32 (FOX-M NHWL P-32 east.jpg)
Description: View across landfill cap from the southwestern corner.	Description: View east along top of southern slope.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 33 (FOX-M NHWL P-33.jpg)	Photo 34 (FOX-M NHWL P-34 west.jpg)
Description: Minor settlement observed on southern slope near southwestern corner of landfill. **(FEATURE E)**	Description: View along southern toe from near MW-13.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 35 (FOX-M NHWL P-35 east.jpg)	Photo 36 (FOX-M NHWL P-36 east.jpg)
Description: View east along slope from near MW-13.	Description: View east along top of slope from near MW-13.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

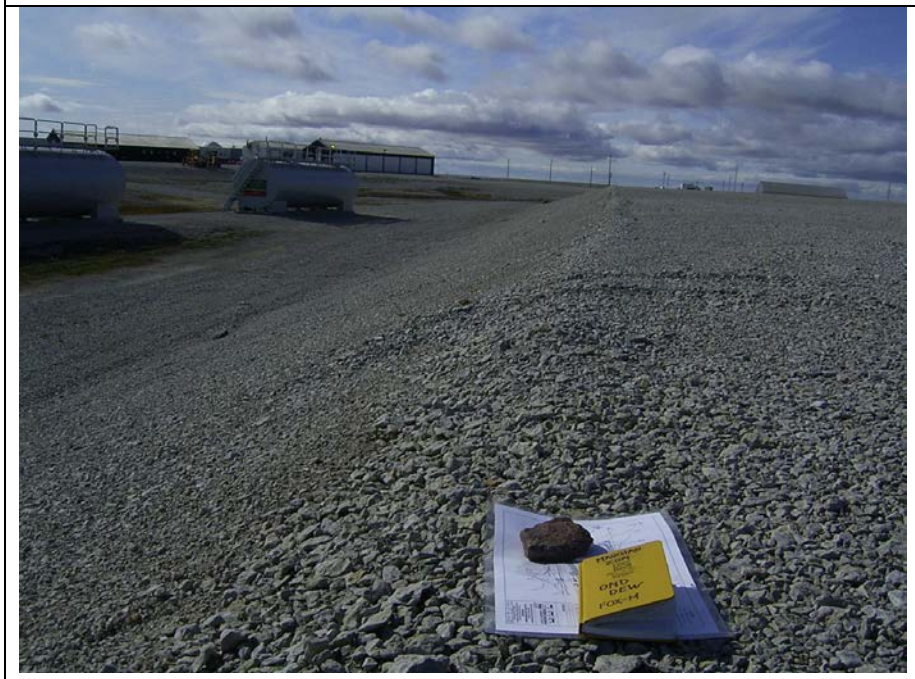
Photo 37 (FOX-M NHWL P-37 west.jpg)	Photo 38 (FOX-M NHWL P-38 north.jpg)
Description: View west along top of slope from near MW-13.	Description: View north along eastern slope of landfill.
	
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 39 (FOX-M NHWL P-39 west.jpg)	Photo 40.1 (FOX-M NHWL P-40 north.jpg)
Description: View along southern slope of landfill from southeastern corner. Vegetation visible near landfill slope. **(FEATURE F)**	Description: View along top of eastern slope from southeastern corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

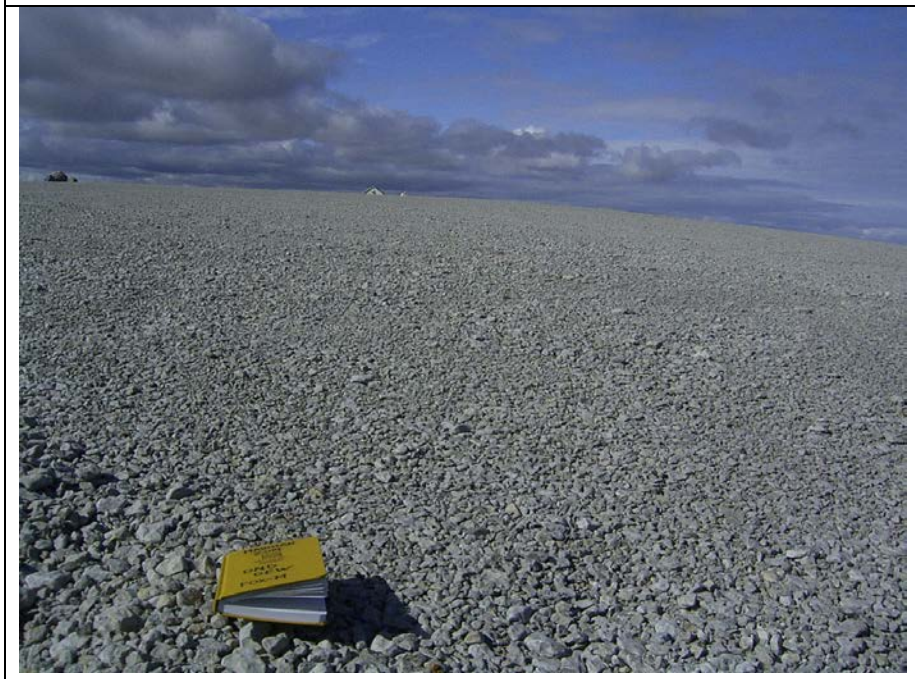
Photo 40.2 (FOX-M NHWL P-40 nw.jpg)	Photo 40.3 (FOX-M NHWL P-40 west.jpg)
Description: View across landfill cap from southeastern corner.	Description: View west along top of southern slope of landfill.
	
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 41 (FOX-M NHWL P-41.jpg)	Photo 42 (FOX-M NHWL P-42 sw.jpg)
Description: View north over vegetation on the eastern slope. **(FEATURE D)**	Description: View southwest across landfill cap.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 43 (FOX-M NHWL P-43.jpg)	Photo 44 (FOX-M NHWL P-44.jpg)
Description: View toward MW-15 from top of landfill slope.	Description: View northeast from top of slope near MW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 45 (FOX-M NHWL P-45.jpg)	Photo 46 (FOX-M NHWL P-46.jpg)
Description: Soil sample collection of FM-NH-MW-12	Description: Soil sample collection of FM-NH-MW-12.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 47 (FOX-M NHWL P-47.jpg)	Photo 48 (FOX-M NHWL P-48.jpg)
Description: Monitoring well MW-12.	Description: Soil sample collection of FM-NH-MW-13
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 49 (FOX-M NHWL P-49.jpg)	Photo 50 (FOX-M NHWL P-50 west.jpg)
Description: After collection and backfill of FM-NH-MW-13.	Description: Monitoring well MW-13. View looking west.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 51 (FOX-M NHWL P-51.jpg)	Photo 52 (FOX-M NHWL P-52.jpg)
Description: View west from MW-14, looking away from landfill toward MW-16.	Description: Soil sample collection of FM-NH-MW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 53 (FOX-M NHWL P-53.jpg)	Photo 54 (FOX-M NHWL P-54.jpg)
Description: After sample collection and backfill of FM-NH-MW-14.	Description: Soil sample collection of FM-NH-MW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 55 (FOX-M NHWL P-55.jpg)	Photo 56 (FOX-M NHWL P-56.jpg)
Description: After sample collection and backfill of FM-NH-MW-15.	Description: Monitoring well MW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 57(FOX-M NHWL P-57.jpg)	Photo 58 (FOX-M NHWL P-58.jpg)
Description: Soil sample collection of FM-NH-MW-16.	Description: After collection and backfill of FM-NH-MW-16.
Date: August 14, 2014	Date: August 14, 2014

TABLE 5.5: LANDFILL VISUAL INSPECTION PHOTO LOG (NON-HAZARDOUS WASTE LANDFILL)

Photo 59 (FOX-M NHWL P-59.jpg)	
Description: Monitoring well MW-15 and wildlife monitor Mr. Andrew Allianaq.	
Date: August 14, 2014	

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Monitoring Instruments	identified on the 2012 landfill drawing.	observed.	continue to be in generally good condition.
Other Features of Note	Multiple vehicle tracks and ruts identified on the landfill cap and berms.	Many vehicle tracks and ruts were noted on the berms and cap of the landfill. More tracks are visible than were noted on the 2012 drawing. (Feature A) Ponded water located north of the landfill. (Feature B)	Vehicles continue to drive over and around the landfill, however it does not appear to be having a negative affect on the landfill performance.

5.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Non-Hazardous Waste Landfill indicates that conditions remain very similar. Vegetation may be beginning to colonize the landfill and some new vehicle tracks are present. No other significant changes were observed. Based on these visual inspection results, the performance of the landfill is acceptable.

5.3.2 Soil Sampling

Soil sampling at the Non-Hazardous Waste Landfill was completed on 14 August 2014. As previously reported a total of eleven samples including one duplicate sample were procured from five locations as shown in plan on Figure 5.

5.3.2.1 Laboratory Analytical Results

The laboratory analytical results for soil samples collected at the Non-Hazardous Waste Landfill during the 2014 monitoring event are provided in Table 5.7. A duplicate soil sample was collected from surface soil at MW-12 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample were above 30% for four of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

5.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Non-Hazardous Waste Landfill is provided in Table 5.8. The discussion includes a comparison of results from upgradient (MW-16) and downgradient (MW-12, MW-13, MW-14, MW-15) soil sampling locations concentrations (BAC) to the baseline average concentrations that have been

TABLE 5.7

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT NON-HAZARDOUS WASTE LANDFILL

PARAMETERS	Background Concentration	Baseline Average Concentration	DEW Line Cleanup Tier I Criteria	DEW Line Cleanup Tier II Criteria	FM-NH-MW-12-S	FM-NH-MW-12-S (DUP)	FM-NH-MW-12-S (AVG)	FM-NH-MW-12-D	FM-NH-MW-13-S	FM-NH-MW-13-D	FM-NH-MW-14-S	FM-NH-MW-14-D	FM-NH-MW-15-S	FM-NH-MW-15-D	FM-NH-MW-16-S	FM-NH-MW-16-D
	(_)	(+)	(*)	(**)	14-Aug-14 0-15cm	14-Aug-14 0-15cm	14-Aug-14 0-15cm	14-Aug-14 40-50cm	14-Aug-14 0-15cm	14-Aug-14 40-50cm	14-Aug-14 0-15cm	14-Aug-14 40-50cm	14-Aug-14 0-15cm	14-Aug-14 40-50cm	14-Aug-14 0-15cm	14-Aug-14 40-50cm
Copper	**6.3**	**5.2**	-	**100**	**16+**	**25+**	**20.5+**	4.5	4.8	3.8	4.2	2.4	5.1	**5.4+**	**5.6+**	3.6
Nickel	**5.0**	**5.0**	-	**100**	**7.7+**	**11+**	**9.35+**	**8.7+**	**8.3+**	**7.3+**	**7+**	4.7	**10+**	**7.9+**	**6.6+**	**5.2+**
Cobalt	**5.0**	**5.0**	-	**50**	1.9	2.6	2.25	2.7	2.1	1.7	1.8	1.4	2.7	1.5	2.0	1.6
Cadmium	**1.0**	**1.0**	-	**5**	<0.10	<0.5	<0.5	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	0.15	0.21	<0.10
Lead	**10**	**18**	**200**	**500**	**73+**	**66+**	**69.5+**	**19+**	**41+**	**26+**	**13**	3.2	10	**11**	**79+**	**15**
Zinc	**15**	**15**	-	**500**	**21+**	**28+**	**24.5+**	13	14	11	14	8.1	15	11	**28+**	11
Chromium	**20**	**20**	-	**250**	10	13	11.5	11	12	9.5	9.4	7.4	11	7.9	11	7.9
Arsenic	**1.0**	**2.0**	-	**30**	**2.0**	**4.0+**	**3.0+**	**2.7+**	**2.2+**	**1.7**	**2.3+**	**1.5**	**3.8+**	**2.4+**	**3+**	**2.0**
Mercury	-	**0.10**	-	**2**	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.213**	**0.0031**	**1**	**5**	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	6	6	41	<10	32	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	11	11	84	<10	660	<10	<10	<10	61	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<50	<50	14	54	74	<10	<10	<10	240	65	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<50	<50	<10	<10	<10	<10	<10	<10	33	<10	<10
Modifed TPH (Total C6-C34)	-	**56**	-	**2500**	15	42	42	**139+**	**64+**	**766+**	15	15	15	**306+**	**75+**	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M Non-Hazardous Waste Landfill Background Concentration.
+	Exceeds FOX-M Non-Hazardous Waste Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage.

Table 5.8: Evaluation of 2014 Soil Analytical Data (Non-Hazardous Waste Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	5.2	Detectable concentrations ranged between 3.6 and 5.6 ug/g for upgradient samples and between 2.4 and 20.5 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-12 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. Seven of the eleven samples reported concentrations less than the BAC, while four of the eleven samples reported a concentration slightly higher than the BAC.
Nickel	5.0	Detectable concentrations ranged between 5.2 and 6.6 ug/g for upgradient samples and between 4.7 and 10.0 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-15 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. One of the eleven samples reported concentrations less than the BAC, while tenof the eleven samples reported a concentration slightly higher than the BAC.
Cobalt	5.0	Detectable concentrations ranged between 1.6 and 2.0 ug/g for upgradient samples and between 1.4 and 2.7 ug/g for downgradient samples, with the highest concentration recorded in the subsurface sample at the MW-12 sample location and the surface sample at the MW-15 sample location, and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. All eleven samples reported concentrations less than the BAC.
Cadmium	1.0	Two detectable concentrations of 0.12 and 0.21 ug/g were reported with the highest concentration reported in the surface sample at the upgradient MW-16 sample location, and the lowest concentration reported in the surface sample at the downgradient MW-14 sample location. All eleven samples reported concentrations below the BAC.
Lead	18	Detectable concentrations ranged between 15 and 79 ug/g for upgradient samples and between 3.2 and 69.5 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-16 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. Five of the eleven samples reported concentrations less than the BAC, while six of the eleven samples reported a concentration higher than the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Zinc	15	Detectable concentrations ranged between 11 and 28 ug/g for upgradient samples and between 8.1 and 24.5 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-16 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. Seven of the eleven samples reported concentrations less than or equal to the BAC, while four of the eleven samples reported a concentration higher than the BAC.
Chromium	20	Detectable concentrations ranged between 7.9 and 11 ug/g for upgradient samples and between 7.4 and 12 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-13 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. All eleven samples reported concentrations below the BAC.
Arsenic	2.0	Detectable concentrations ranged between 2.0 and 3.0 ug/g for upgradient samples and between 1.5 and 3.8 ug/g for downgradient samples, with the highest concentration recorded in the surface sample at the MW-15 sample location and the lowest concentration recorded in the subsurface sample at the MW-14 sample location. Four of the eleven samples reported concentrations less than or equal to the BAC, while seven of the eleven samples reported a concentration higher than the BAC.
Mercury	0.10	All results were below the laboratory detection limit of 0.050 ug/g (and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and were below the BAC for upgradient and downgradient samples.
PCBs	0.003	All results were below the laboratory detection limit of 0.1 ug/g (and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory). These detection limits are above the BAC which was derived from lower detection limits in a previous investigation.
TPH	56	Detectable concentrations of PHCs F1, F2, and F3 were reported in five of eleven samples, resulting in modified TPH concentrations between 15 and 75 ug/g for upgradient samples and between 15 and 766 ug/g for downgradient samples, with the highest concentration in the subsurface sample at MW-13, and the lowest concentration at five locations. Six of eleven samples reported concentrations below the BAC, while five of eleven samples reported concentration above the BAC.

5.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 5.9. Trends have been analyzed for upgradient (MW-16) and downgradient (MW-12, MW-13, MW-14, MW-15) locations. Note that these trend analyses were performed

on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 5.9: Evaluation of Soil Result Trends (Non-Hazardous Waste Landfill)

Parameter	2014 Results
Copper	Concentrations show a slight upward trend for upgradient and downgradient soil locations. Reported concentrations are generally clustered around the BAC.
Nickel	Concentrations show a downward trend for upgradient soil locations and slight downward trend for downgradient soil locations. Reported concentrations are generally clustered around the BAC.
Cobalt	Concentrations show an upward trend for upgradient soil locations and a downward trend for downgradient soil locations. Reported concentrations are generally above the BAC.
Cadmium	Concentrations show a downward trend for upgradient and downgradient soil location. Reported concentrations are generally below the BAC.
Lead	Concentrations show a downward trend for upgradient soil locations and a slight upward trend for downgradient soil locations. Reported concentrations are clustered around the BAC.
Zinc	Concentrations show a generally stable trend for upgradient soil locations and an upward trend for downgradient soil locations. Reported concentrations are generally above the BAC.
Chromium	Concentrations show a slight downward trend for upgradient soil locations and a generally stable trend for downgradient soil locations. Reported concentrations are generally above the BAC.
Arsenic	Concentrations show an upward trend for upgradient and downgradient soil locations. Reported concentrations are generally above the BAC.
Mercury	Concentrations show a generally stable trend for upgradient and downgradient soil locations as reported concentrations are below laboratory detection limits.
PCBs	Concentrations show a generally stable trend for upgradient and downgradient soil locations as reported concentrations are below laboratory detection limits.
TPH	Concentrations show a downward trend for upgradient and downgradient soil locations. Reported concentrations are generally below the BAC.

5.3.3 Groundwater Sampling

Groundwater sampling at the Non-Hazardous Waste Landfill was completed on 14 August 2014. As previously reported a total of two groundwater samples including one duplicate sample were procured from one monitoring well as shown in plan on Figure 5.

5.3.3.1 Monitoring Well Sampling/Inspection Logs

Monitoring well sampling/inspection logs are provided following this page in Monitoring Well Sampling Records 18-22.

5.3.3.2 Water Levels/Groundwater Flow

Water levels were measured at the Non-Hazardous Waste Landfill on 14 August 2014. The groundwater levels measured are shown below in Table 5.10. Groundwater flow direction cannot be determined from the measured groundwater levels as only two of the five wells

Monitoring Well Sampling Record 18

Site Name:	FOX-M	Non-Hazardous Landfill	
Date of Sampling Event:	14-Aug-14	Time:	420pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	Non-Haz	Samples Collected:	None
Monitoring Well ID:	MW-12	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	53	Sample ID:	FM-NH-MW-12
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (well was dry or frozen)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	133	Evidence of sludge or siltation:	None
Measured well refusal depth from ground surface	80		
Thickness of water column			
Static volume of water in well			
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 19

Site Name:	FOX-M	Non-Hazardous Landfill	
Date of Sampling Event:	14-Aug-14	Time:	425pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	Non-Haz	Samples Collected:	None
Monitoring Well ID:	MW-13	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:		PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	58	Sample ID:	
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	138	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	163	Evidence of sludge or siltation:	None
Measured well refusal depth from ground surface	105		
Thickness of water column	25		
Static volume of water in well	0.51		
Depth to free product surface (cm)	119		
Free product thickness (cm)=	19	Measurement method:	IM
Free product top	119		
Purging: (Y/N)	N	Purging/Sampling Equipment:	
Volume Purged Water=			
Decontamination required: (Y/N)		**WELL NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT**	
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 20

Site Name:	FOX-M	Non-Hazardous Landfill	
Date of Sampling Event:	14-Aug-14	Time:	4pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	Non-Haz	Samples Collected:	None
Monitoring Well ID:	MW-14	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	no lock	PHC F2-F4	
broken J-plug, water around standpipe		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40	Sample ID:	
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (well was dry or frozen)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm) = (i.e. depth to frozen ground)	112	Evidence of sludge or siltation:	None
Measured well refusal depth from ground surface	72		
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record 21

Site Name:	FOX-M		
Date of Sampling Event:	14-Aug-14	Time:	410pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	Non-Haz	Samples Collected:	
Monitoring Well ID:	MW-15	PHC F1	Yes
Sample Number:		Inorganic Elements	Yes
Condition of Well:		PHC F2-F4	Yes
		PCBs	Yes
Measured Data		Duplicate Collected?	Yes
Well pipe height above ground (cm)=	50	Sample ID:	FM-NH-MW-15
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	96	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	168	Evidence of sludge or siltation:	None
Measured well refusal depth from ground surface	118		
Thickness of water column	72		
Static volume of water in well	1.46		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra
Volume Purged Water=			Tubing/
Decontamination required: (Y/N)	Y		Footvalve
Number washes:	1		
Number rinses:	1		
Final pH=	7.89		
Final Conductivity (uS/cm)=	582		
Final Temperature (degC)=	3.7		

Monitoring Well Sampling Record 22

Site Name:	FOX-M	Non-Hazardous Landfill	
Date of Sampling Event:	14-Aug-14	Time:	3pm
Names of Samplers:		S.Borcsok	
		J.Mauchan	
Landfill Name:	Non-Haz	Samples Collected:	None
Monitoring Well ID:	MW-16	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	Broken cap	PHC F2-F4	
Standing water around standpipe		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	58	Sample ID:	
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (well was dry or frozen)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	142	Evidence of sludge or siltation:	None
Measured well refusal depth from ground surface	84		
Thickness of water column			
Static volume of water in well			
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

contained water. Given the generally flat topography of the area surrounding the landfill, groundwater flow is expected to be very slow and away from the landfill in the direction of the closest of the numerous small ponds that are located in the vicinity of the landfill.

Monitoring well MW-13 was observed to have 19 cm of floating free product from 0.61 to 0.80 m bgs. It is suspected that this free product is associated with spills from an above-ground fuel storage tank and associated above-ground pipeline located south of the monitoring well. It is very likely that the presence of fuel in soil and groundwater extends into the footprint of the landfill.

Table 5.10: Groundwater Levels (Non-Hazardous Waste Landfill)

Monitoring Well	Date	Ground Surface Elevation (m)	Water Level (m bgs)	Water Level Elevation (m)	Depth to Bottom (m bgs)	Bottom Elevation (m)
MW-12	14-Aug-14	2.41	Dry	N/A	0.80	1.61
MW-13*	14-Aug-14	3.12	0.80	2.32	1.05	2.07
MW-14	14-Aug-14	4.39	Dry	N/A	0.72	3.67
MW-15	14-Aug-14	2.72	0.46	2.26	1.18	1.54
MW-16	14-Aug-14	4.65	Dry	N/A	0.84	3.81

* - monitoring well had floating free product in well

Monitoring wells MW-13 and MW-15 were reported to contain water during the previous 2012 monitoring program, while the other wells were reported to be dry during this period. It is recommended that monitoring of all wells continue during future monitoring events.

5.3.3.3 Laboratory Analytical Results

Laboratory analytical results for groundwater at the Non-Hazardous Waste Landfill are presented in Table 5.11. One duplicate groundwater sample was collected at the Non-Hazardous Waste Landfill from MW-15. The RPDs for the duplicate sample results were above 30% for two of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

5.3.3.4 Discussion of Results by Parameter

An evaluation of the groundwater analytical results at the Non-Hazardous Waste Landfill is presented in Table 5.12. The discussion includes a comparison of results for one downgradient

TABLE 5.11

RESULTS OF ANALYSIS FOR PARAMETERS IN GROUNDWATER AT NON-HAZARDOUS WASTE LANDFILL

PARAMETERS	Baseline Average Concentration (+)	FM-NH-MW-15 14-Aug-14	FM-NH-MW-15 (DUP) 14-Aug-14	FM-NH-MW-15 (AVG) 14-Aug-14
Copper	**0.0064**	0.0012	0.003	0.0021
Nickel	**0.0081**	0.0076	<0.003	0.0076
Cobalt	**0.0030**	0.0005	0.001	0.00075
Cadmium	**0.0010**	<0.000020	<0.002	<0.002
Lead	**0.010**	0.00021	<0.002	0.00021
Zinc	**0.048**	0.0036	<0.005	0.0036
Chromium	**0.011**	**0.013+**	<0.003	**0.013+**
Arsenic	**0.0030**	0.00028	<0.003	0.00028
Mercury	**0.00040**	<0.00001	<0.0001	<0.0001
Total PCBs	**0.000020**	<0.00005	<0.0001	<0.0001
PHC F1 (C6-C10)	-	<0.025	<0.025	<0.025
PHC F2 (C10-C16)	-	<0.100	<0.100	<0.100
PHC F3 (C16-C34)	-	<0.100	<0.100	<0.100
PHC F4 (C34-C50)	-	<0.100	<0.100	<0.100
Modifed TPH (Total C6-C34)	**1.0**	0.113	0.113	0.113

NOTES:

All parameter values in mg/L (ppm) unless otherwise indicated.

+	Exceeds Non-Hazardous Waste Landfill Baseline Average Concentration.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

location (MW-15) to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation.

Table 5.12: Evaluation of Groundwater Analytical Results (Non-Hazardous Waste Landfill)

Parameter	Baseline Average Concentration (mg/L)	2014 Results
Copper	0.0064	A detectable concentration of 0.0021 mg/L was reported at MW-15, below the BAC.
Nickel	0.0081	A detectable concentration of 0.0076 mg/L was reported at MW-15, below the BAC.
Cobalt	0.0015	A detectable concentration of 0.00075 mg/L was reported at MW-15, below the BAC.
Cadmium	0.00050	Reported concentrations at MW-15 were below the laboratory detection limits of 0.000020 and 0.002 mg/L. One laboratory detection limit is above the BAC.
Lead	0.0050	A detectable concentration of 0.00021 mg/L was reported at MW-15, below the BAC.
Zinc	0.010	A detectable concentration of 0.0036 mg/L was reported at MW-15, below the BAC.
Chromium	0.011	A detectable concentration of 0.013 mg/L was reported at MW-15, slightly above the BAC.
Arsenic	0.0030	A detectable concentration of 0.00028 mg/L was reported at MW-15, below the BAC.
Mercury	0.00040	Reported concentrations at MW-15 were below the laboratory detection limits of 0.00001 and 0.0001 mg/L, below the BAC.
PCBs	0.000020	Reported concentrations at MW-15 were below the laboratory detection limits of 0.00005 and 0.0001 mg/L. These detection limits are above the BAC.
TPH	1.0	A modified TPH concentration of 0.113 mg/L was reported at MW-15, below the BAC.

5.3.3.5 Groundwater Trend Analysis by Parameter & Discussion of Trends

A discussion of the trends observed for parameter concentrations in groundwater from 2008 to 2014 are presented in Table 5.13. Trends have been analyzed for downgradient (MW-13, MW-15) locations where groundwater has been sampled. The upgradient well at this landfill MW-16 has not been sampled from 2008 to present as no water has been available in the well. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 5.13: Evaluation of Groundwater Result Trends (Non-Hazardous Waste Landfill)

Parameter	2014 Results
Copper	Concentrations show a slight downward trend for downgradient wells with reported concentrations below the BAC.
Nickel	Concentrations show an upward trend for downgradient wells with reported concentrations generally above the BAC.
Cobalt	Concentrations show a slight upward trend for downgradient wells with reported concentrations clustered around the BAC.
Cadmium	Concentrations show a downward trend for downgradient wells with reported concentrations below the BAC.
Lead	Concentrations show a slight downward trend for downgradient wells with reported concentrations below the BAC.
Zinc	Concentrations show a generally stable trend for downgradient wells with reported concentrations slightly above the BAC.
Chromium	Concentrations show an upward trend for downgradient wells with reported concentrations generally below the BAC.
Arsenic	Concentrations show a slight downward trend for downgradient wells with reported concentrations below the BAC.
Mercury	Concentrations show a stable trend for downgradient wells with reported concentrations all below laboratory detection limits and the BAC.
PCBs	Concentrations show a stable trend for downgradient wells with reported concentrations all below laboratory detection limits
TPH	Concentrations show a slight downward trend for downgradient wells with reported concentrations above and below the BAC.

5.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the results of the 2014 monitoring program, the performance of the Non-Hazardous Waste Landfill is acceptable.

The presence of floating free petroleum product in MW-13 was likely caused by a spill from the aboveground fuel storage tank and associated aboveground fuel line located south of the landfill. Based on the quantity of product observed at MW-13 and the proximity of this well to the landfill, it is very likely that this plume of hydrocarbons extends beneath the footprint of the landfill.

5.5 RECOMMENDATIONS/NEXT STEPS

Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued. No remedial work on the landfill is necessary at this time.

Further delineation of the hydrocarbon plume identified near MW-13 may be required, however this is unrelated to the performance of the landfill.

6.0 G-217 WEST LANDFILL

6.1 LANDFILL DESCRIPTION

The G-217 West Landfill is located approximately 200 m southwest of the main FOX-M station area, and has an approximate area of 4,400 m^2. It consists of an area of buried debris. A detailed drawing of this landfill is provided in Figure 6. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 6A.

6.2 SUMMARY OF WORK CONDUCTED

6.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the visual inspection work plan.

6.2.2 Soil Sampling

Soil samples were collected at four (4) locations as shown on Figure 6. Surface and subsurface samples were collected at each location. There were no deviations from the soil sampling work plan. One duplicate soil sample was collected in the subsurface at the W-5 sample location. Soil sampling completed at the landfill is summarized in Table 6.1.

Table 6.1: Summary of Work Conducted by Soil Sampling Location (G-217 West Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-W-5	√	√ D
FM-W-6	√	√
FM-W-7	√	√
FM-W-8	√	√

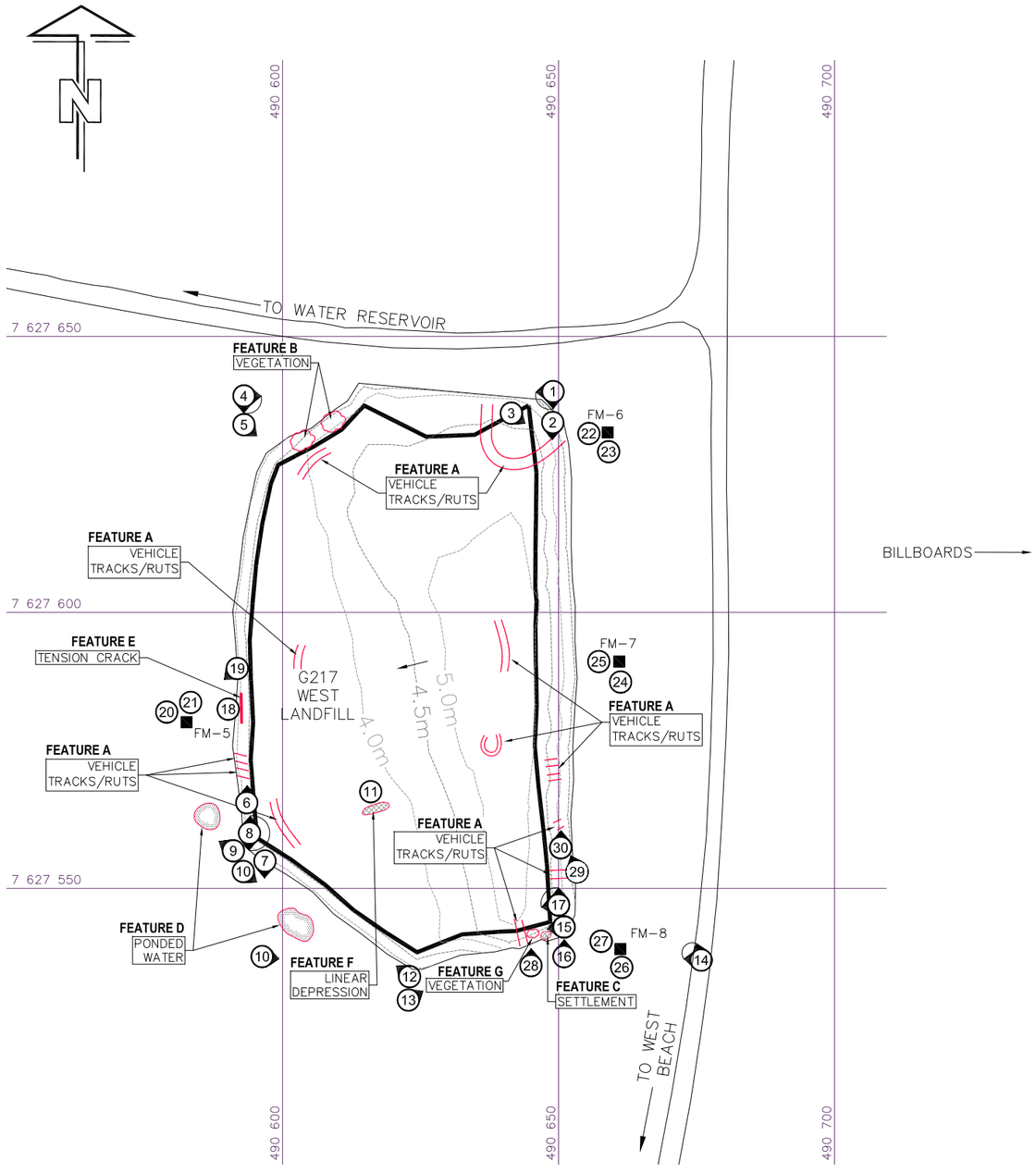
D = duplicate sample collected
√ - sample collected
X – no sample collected

6.2.3 Groundwater Sampling

No groundwater monitoring wells are present at this landfill

6.2.4 Thermal Monitoring

No thermistor installations are present at this landfill.



LEGEND:

- MONITORING WELL LOCATION
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- 5.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- AREA OF SETTLEMENT/DEPRESSION
- PONDED WATER
- TENSION CRACK
- VEGETATION

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 14, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.3, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

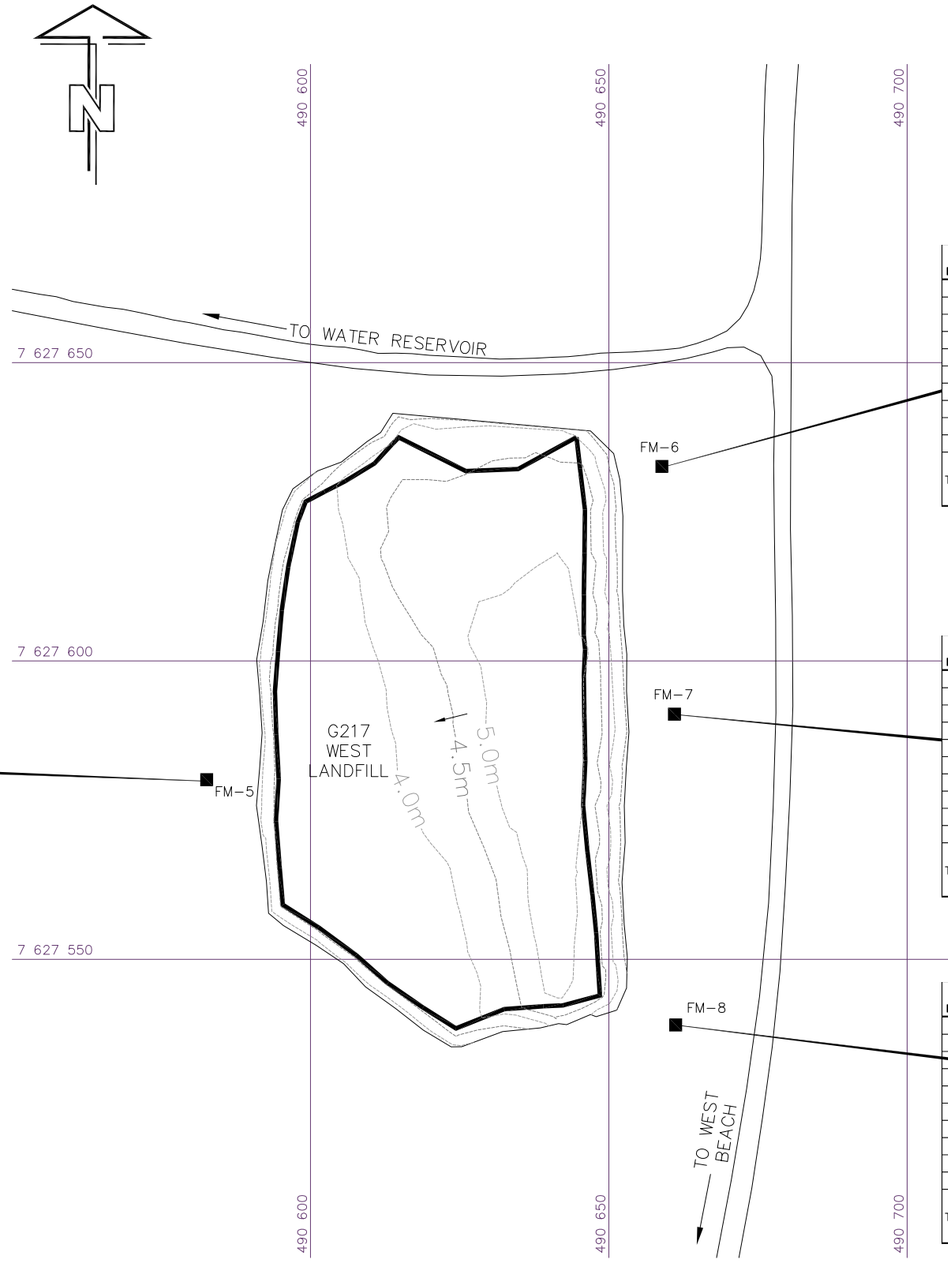
FOX-M HALL BEACH, NUNAVUT

STATION AREA

G217 - WEST LANDFILL

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 6

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: March-02-15 10:06:20 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 6 - Station Area_West Landfill.dwg



FM-6 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	**6.0**	**7.0**	**22**	**7.9**
Ni	**7.4**	**11**	**21**	**8.8**
Co	<5.0	3.0	3.4	2.1
Cd	<1.0	<0.50	<0.50	0.19
Pb	**13**	**23**	**27**	**28**
Zn	**310**	**483**	**119**	**200**
Cr	<20	14	15	12
As	**5.8**	**2.0**	**2.5**	**2.5**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**1523**	20	**186**	**630**

FM-6 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	**6.3**	**7.0**	**8.9**	**14.0**
Ni	**6.8**	**9.0**	**15**	**9**
Co	<5.0	2.0	2.4	2.4
Cd	<1.0	<0.50	<0.50	0.20
Pb	**14**	11	**20**	**32**
Zn	**270**	**52**	**234**	**140**
Cr	<20	11	10	14
As	2.0	2.0	1.9	**2.4**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**1527**	61	**658**	22

FM-7 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	<3.0	**7.0**	**12**	4
Ni	**6.5**	**12**	**22**	**8.3**
Co	<5.0	3.0	3.3	2.2
Cd	<1.0	<0.50	<0.50	0.24
Pb	**19**	**56**	**47**	**25**
Zn	17	40	24	21
Cr	<20	**23**	19	14.0
As	**2.4**	**3.0**	**3.5**	**3.5**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	25	15	15

FM-7 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.7	2.0	**13**	1.9
Ni	**6.9**	5.0	**21**	2.6
Co	<5.0	1.0	3.4	0.74
Cd	<1.0	<0.50	0.7	<0.10
Pb	**32**	3.0	**79**	2
Zn	20	8.0	30	6
Cr	<20	8.0	**27**	4.6
As	**2.9**	<1.0	**3.2**	<1.0
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	24	15

FM-8 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	<3.0	5.0	**6.6**	4.1
Ni	<5.0	**10**	**13**	**5.9**
Co	<5.0	2.0	2.1	1.5
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	4.9	3.8
Zn	<15	11	11	9
Cr	<20	12	8.0	8.4
As	1.5	2.0	1.7	**2.4**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	27	15	15

FM-8 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	**6.0**	**17**	3.4
Ni	<5.0	**24**	**20**	3.4
Co	<5.0	2.0	3.1	0.96
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	5.4	1.8
Zn	<15	9.0	27	6
Cr	<20	**43**	13	5.8
As	**2.2**	**3.0**	**3.5**	1.2
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.40	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	15	15

FM-5 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	2.4	5.0	2.0	**5.9**
Ni	3.8	**11**	**7.9**	**8**
Co	<5.0	3.0	1.5	2.9
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	1.7	5.4
Zn	<15	12	9.0	14
Cr	<20	12	7.5	14
As	0.65	2.0	0.60	**3.1**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.20	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	15	15	15

FM-5 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	5.3	**6.0**	2.2	**7.3**
Ni	**8.1**	**12**	**8.9**	**12**
Co	<5.0	3.0	1.7	4.15
Cd	<1.0	<0.50	<0.50	<0.5
Pb	<10	5.0	1.7	6.05
Zn	<15	14	9.0	18.5
Cr	<20	13	7.7	18.5
As	**2.2**	**3.0**	1.0	**3.35**
Hg	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.0030	<0.20	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	57	15	35

LEGEND:

- SOIL SAMPLING LOCATION
- 5.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	5.9	N/A	100
Ni	5.9	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	12	200	500
Zn	41	N/A	500
Cr	20	N/A	250
As	2.1	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.0030	1	5
Modified TPH - (Total C6-C34)	141	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.3, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

STATION AREA G217 - WEST LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 6A

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:38:03 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 6 - Station Area_West Landfill.dwg

6.3 RESULTS OF THE MONITORING PROGRAM

6.3.1 Visual Inspection

The visual inspection at the G-217 West Landfill was completed on 14 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 6.2.

6.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 6.3.

6.3.1.2 Photographic Records

The photograph log for the site is provided in Table 6.4.

6.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 6.5 below for each category observed.

Table 6.5: Visual Inspection Trends (G-217 West Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	A linear depression was noted on the 2012 landfill drawing on the landfill cap.	Minor settlement was observed at the southeast corner of the landfill in one location, and a linear depression was observed on the west side of the landfill cap. (Feature C, G)	An additional minor area of settlement was observed in 2014.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	One tension crack noted on west landfill berm.	A tension crack was observed on the west landfill berm. (Feature E)	The presence of tension cracks is not increasing.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.

TABLE 6.2 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: G-217 West Landfill
DATE OF INSPECTION: 14 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 6.2 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	Small hole at southeast corner, linear depression on cap (Feature C, F)	0.3m	0.3m	0.1m	<1%	Small hole, linear depression	P-15, P-11	
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	YES	Tension crack on west side of landfill (Feature E)	2m	0.05m	0.05m	<1%	Tension crack	P-18	
Animal Burrows	NO								
Vegetation	YES	On northwest and southeast corners of landfill (Feature B, G)				<1%	Grasses	P-5	
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water southwest of landfill in two locations (Feature D), vehicle tracks/ruts across landfill (Feature A)				5%	Ponded water, vehicle ruts	P-7, P-9, P-2, P-3, P-6, P-8.1, P-8.2,	

Table 6.3: Preliminary Stability Assessment - FOX-M G-217 West Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	None	None
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	None	None
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Station Area G217 West Landfill (see Figure 6)

Photo 1 (FOX-M W P-1 south.jpg)	Photo 1.2 (FOX-M W P-1 west.jpg)
Description: View looking south along eastern toe of landfill. People standing adjacent to soil sample FM-W-7 location.	Description: View looking west at northern end of landfill toward water reservoir.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 2 (FOX-M W P-2.jpg)	Photo 3 (FOX-M W P-3.jpg)
Description: Vehicle ruts at northeast corner of landfill. **(FEATURE A)**	Description: View looking down slope at northeast corner of landfill. Vehicle tracks/ruts observed. **(FEATURE A)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 4.1 (FOX-M W P-4 se.jpg)	Photo 4.2 (FOX-M W P-4 south.jpg)
Description: View east toward landfill from near the northwest corner.	Description: View south from near the northwest corner of the landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 4.3 (FOX-M W P-4 east.jpg)	Photo 5 (FOX-M W P-5 se.jpg)
Description: Vegetation on the slope at the northwest corner of the landfill. **(FEATURE B)**	Description: View toward landfill from northwest corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 6 (FOX-M W P-6 north.jpg)	Photo 7 (FOX-M W P-7.jpg)
Description: View north along slope of landfill. Vehicle tracks/ruts observed on slope. **(FEATURE A)**	Description: View south away from landfill at southwest corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 8.1 (FOX-M W P-8 east.jpg)	Photo 8.2 (FOX-M W P-8 north.jpg)
Description: Vehicle tracks/ruts in the southwest corner of the landfill. **(FEATURE A)**	Description: The western edge of the landfill. Vehicle tracks/ruts noted on slope. **(FEATURE A)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 8.3 (FOX-M W P-8 se.jpg)	Photo 9 (FOX-M W P-9.jpg)
Description: View southwest along southern edge of landfill.	Description: Vegetation surrounds the West Landfill. Ponded water observed near the southwest corner. **(FEATURE D)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 10 (FOX-M W P-10.jpg)	Photo 11 (FOX-M W P-11.jpg)
Description: View across the vegetation on the south side of the landfill.	Description: Linear depression observed on the landfill cap. **(FEATURE F)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 12 (FOX-M W P-12 nw.jpg)	Photo 13 (FOX-M W P-13 east.jpg)
Description: View along southwestern extents of landfill.	Description: View from southern limit of landfill, looking uphill toward road.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

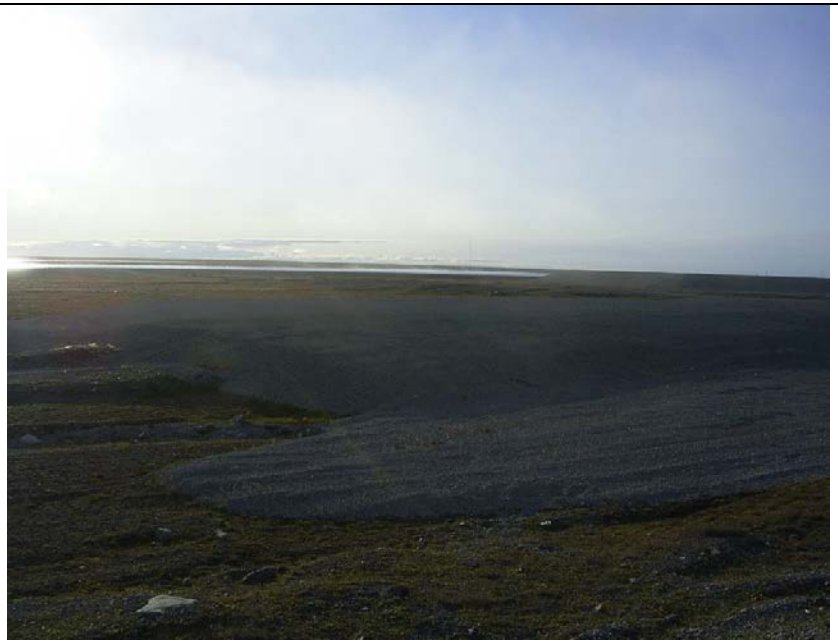
Photo 14.1 (FOX-M W P-14 north.jpg)	Photo 14.2 (FOX-M W P-14 nw.jpg)
Description: View from road toward West Landfill. People standing next to soil sample location FM-W-7.	Description: View from road toward West Landfill.
	
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 15 (FOX-M W P-15.jpg)	Photo 16 (FOX-M W P-16 north.jpg)
Description: Minor settlement observed at the southeast corner of the landfill. **(FEATURE C)**	Description: View north along eastern edge of landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 17.1 (FOX-M W P-17 north.jpg)	Photo 17.2 (FOX-M W P-17 nw.jpg)
Description: View north along eastern edge of landfill from the southeast corner.	Description: View of eastern edge and landfill cap from the southeast corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 17.3 (FOX-M W P-17 west.jpg)	Photo 18 (FOX-M W P-18.jpg)
Description: View across landfill cap from southeast corner.	Description: Minor tension crack along western slope. **(FEATURE E)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 19 (FOX-M W P-19.jpg)	Photo 20 (FOX-M W P-20.jpg)
Description: View from western edge of landfill toward soil sample location FM-W-5.	Description: Soil sample FM-W-5.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 21 (FOX-M W P-21.jpg)	Photo 22 (FOX-M W P-22.jpg)
Description: After collection and backfill of FM-W-5	Description: Soil sample collection at FM-W-6.
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 23 (FOX-M W P-23.jpg)	Photo 24 (FOX-M W P-24.jpg)
Description: After collection and backfill at FM-W-6.	Description: Soil sample collection at FM-W-7
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

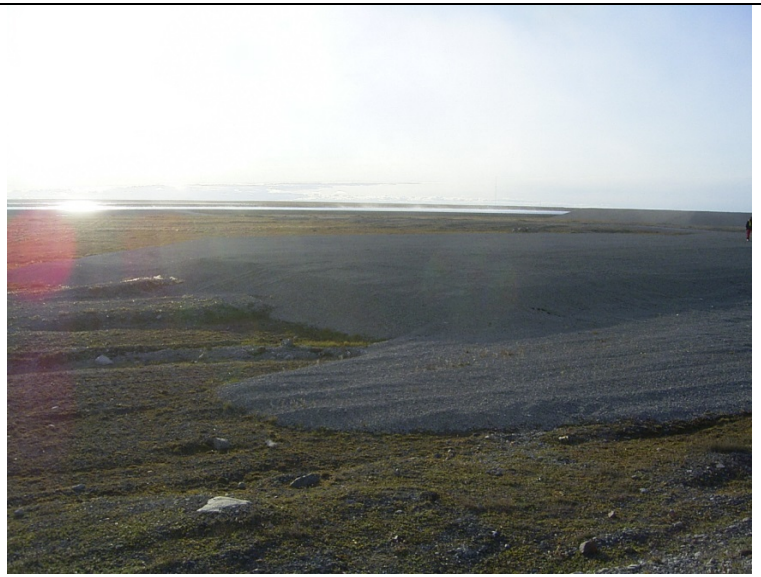
Photo 25 (FOX-M W P-25.jpg)	Photo 26 (FOX-M W P-26.jpg)
Description: After collection and backfill of FM-W-7.	Description: View toward soil sample location FM-W-8 and the southeastern corner of the landfill.
	
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

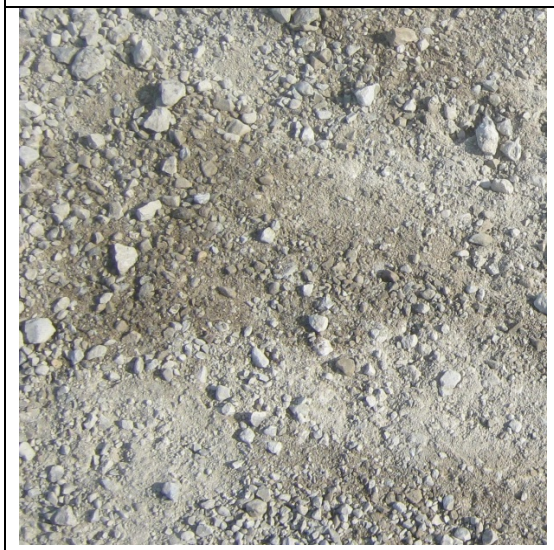
Photo 27 (FOX-M W P-27.jpg)	Photo 28 (FOX-M W P-28 north.jpg)
Description: After collection and backfill of FM-W-8.	Description: Vehicle tracks/ruts on southern slope of the landfill near the southeast corner.
	
Date: August 14, 2014	Date: August 14, 2014

TABLE 6.4: LANDFILL VISUAL INSPECTION PHOTO LOG (G-217 WEST LANDFILL)

Photo 29 (FOX-M W P-29.jpg)	Photo 30 (FOX-M W P-30.jpg)
Description: The eastern slope of the landfill.	Description: Vehicle tracks/ruts on the eastern slope of the landfill.
Date: August 14, 2014	Date: August 14, 2014

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Vegetation	None noted on 2012 landfill drawing.	Vegetation consisting of grasses was observed on the northwest and southeast landfill berms. (Feature B, G)	Vegetation is slowly establishing itself on the landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Debris Exposed	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Presence/Condition of Monitoring Instruments	None noted on 2012 landfill drawing.	No monitoring instruments are present at this landfill.	No monitoring instruments are present at this landfill.
Other Features of Note	Vehicle tracks/ruts were noted in two areas of the landfill. Ponded water was noted southwest of the landfill.	Vehicle tracks/ruts are present in numerous places on the landfill. (Feature A) Ponded water was noted southwest of the landfill. (Feature D)	Vehicle tracks are becoming more numerous. Ponded water remains in the same locations.

6.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the G-217 West Landfill indicates that conditions remain very similar. Vegetation may be beginning to colonize the landfill and some new vehicle tracks are present. No other significant changes were observed. Based on these visual inspection results, the performance of the landfill is acceptable.

6.3.2 Soil Sampling

Soil sampling at the G-217 West Landfill was completed on 14 August 2014. As previously reported a total of nine samples including one duplicate sample were procured from four locations as shown in plan on Figure 6.

6.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the G-217 West Landfill are presented in Table 6.6.

TABLE 6.6

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT G-217 WEST LANDFILL

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-W-5-S 14-Aug-14 0-15cm	FM-W-5-D 14-Aug-14 40-50cm	FM-W-5-D (DUP) 14-Aug-14 40-50cm	FM-W-5-D (AVG) 14-Aug-14 40-50cm	FM-W-6-S 14-Aug-14 0-15cm	FM-W-6-D 14-Aug-14 40-50cm	FM-W-7-S 14-Aug-14 0-15cm	FM-W-7-D 14-Aug-14 40-50cm	FM-W-8-S 14-Aug-14 0-15cm	FM-W-8-D 14-Aug-14 40-50cm
Copper	**6.3**	**5.9**	-	**100**	5.9	**6.6+**	**8.0+**	**7.3+**	**7.9+**	**14+**	4.0	1.9	4.1	3.4
Nickel	**5.0**	**5.9**	-	**100**	**8.1+**	**11+**	**13+**	**12+**	**8.8+**	**9.2+**	**8.3+**	2.6	**5.9**	3.4
Cobalt	**5.0**	**5.0**	-	**50**	2.9	3.8	4.5	4.15	2.1	2.4	2.2	0.74	1.5	0.96
Cadmium	**1.0**	**1.0**	-	**5**	<0.10	<0.10	<0.5	<0.5	0.19	0.2	0.24	<0.10	<0.10	<0.10
Lead	**10**	**12**	**200**	**500**	5.4	6.1	6	6.05	**28+**	**32+**	**25+**	2.0	3.8	1.8
Zinc	**15**	**41**	-	**500**	14	**17**	**20**	**18.5**	**200+**	**140+**	**21**	5.9	9.2	5.8
Chromium	**20**	**20**	-	**250**	14	17	20	18.5	12	14	14	4.6	8.4	5.8
Arsenic	**1.0**	**2.1**	-	**30**	**3.1+**	**2.7+**	**4.0+**	**3.35+**	**2.5+**	**2.4+**	**3.5+**	<1.0	**2.4+**	**1.2**
Mercury	-	**0.10**	-	**2**	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.21**	**0.0030**	**1**	**5**	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<50	<50	620	12	<10	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<50	<50	170	<10	<10	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**141**	-	**2500**	15	15	32.5	35	**630+**	22	15	15	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M G-217 West Landfill Background Concentration.
+	Exceeds FOX-M G-217 West Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

A duplicate soil sample was collected in the subsurface at the W-5 sample location and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample results were above 30% for one of eleven parameters. In this case, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

6.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the G-217 West Landfill is provided in Table 6.7. The discussion includes a comparison of results from downgradient soil sampling locations to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage. No upgradient locations have been identified for this landfill.

Table 6.7: Evaluation of 2014 Soil Analytical Data (G-217 West Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	5.9	Detectable concentrations ranged between 1.9 and 14 ug/g, with the highest concentration reported in the subsurface sample collected from the W-7 sample location while the lowest concentration was reported within the subsurface sample at the W-6 sample location. Five of the nine samples analyzed reported concentrations below the BAC while five of nine samples reported a parameter concentration slightly above the BAC.
Nickel	5.9	Detectable concentrations ranged between 2.9 and 13 ug/g, with the highest concentration reported in the subsurface sample collected from the W-5 sample location while the lowest concentration was reported in the subsurface sample at the W-7 sample location. Three of the nine samples analyzed reported concentrations below the BAC while six of nine samples reported a parameter concentration slightly above the BAC.
Cobalt	5.0	Detectable concentrations ranged between 0.74 and 4.5 ug/g, with the highest concentration reported in the subsurface sample at the W-5 sample location while the lowest concentration was reported in the subsurface sample at the W-7 sample location. All nine samples analyzed reported concentrations below the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Cadmium	1.0	Detectable concentrations ranged between 0.19 and 0.24 ug/g, with the highest concentration reported in the subsurface sample at the W-5 sample location while the lowest concentration was reported in the subsurface sample at the W-7 sample location. All nine samples analyzed reported concentrations below the BAC, with 6 of the samples reporting values below the laboratory detection limit.
Lead	10	Detectable concentrations ranged between 1.8 and 32 ug/g, with the highest concentration reported in the subsurface sample at the W-6 sample location and the lowest concentration in the subsurface sample at the W-8 sample location. Six of the nine samples analyzed reported concentrations below the BAC while three of nine samples reported a parameter concentration slightly above the BAC.
Zinc	41	Detectable concentrations ranged between 5.8 and 200 ug/g, with the highest concentration reported in the surface sample at the W-6 sample location and the lowest concentration within the surface and subsurface samples at the W-8 sample location. Seven of the nine samples analyzed reported concentrations below the BAC while two of the nine samples reported concentrations above the BAC.
Chromium	20	Detectable concentrations ranged between 4.6 and 20 ug/g, with the highest concentration reported in the subsurface sample at the W-5 sample location and the lowest concentration in the subsurface sample at the W-7 sample location. All nine samples reported concentrations below or equal to the BAC.
Arsenic	2.1	Detectable concentrations ranged between 1.2 and 4 ug/g, with the highest concentration reported in the subsurface sample at the W-5 sample location and the lowest concentration in the subsurface sample at the W-8 sample location. Two of the nine samples reported concentrations below the BAC, with 5 of these results below the laboratory detection limit, while seven of the nine samples reported concentrations slightly above the BAC.
Mercury	0.10	All nine samples reported concentrations less than the laboratory detection limit (0.050 ug/g and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC.
PCBs	0.003	All nine samples reported concentrations less than the laboratory detection limit (0.1 ug/g and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory). These detection limits are above the BAC, however this is not suspected to indicate the presence of PCBs at these locations.
TPH	141	Detectable concentrations ranged between 22 and 630 ug/g, with the highest concentration reported in the surface sample at the W-6 sample location and the lowest concentration in the subsurface sample at the W-6 sample location. Eight of the nine samples reported modified TPH concentrations below the BAC, while one of the nine samples reported a concentration above the BAC.

6.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 6.8. Trends have been analyzed for downgradient locations as no upgradient locations have been identified for this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 6.8: Evaluation of Soil Result Trends (G-217 West Landfill)

Parameter	2014 Results
Copper	Concentrations show an upward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Nickel	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Cobalt	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Cadmium	Concentrations show a relatively stable trend for downgradient soil locations as concentrations are generally below the laboratory detection limits.
Lead	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Zinc	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are generally below the BAC.
Chromium	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations are clustered around the BAC.
Arsenic	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for downgradient soil locations as concentrations are below the laboratory detection limits.
PCBs	Concentrations show a relatively stable trend for downgradient soil locations as concentrations are below the laboratory detection limits.
TPH	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally below the BAC.

6.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

6.5 RECOMMENDATIONS/NEXT STEPS

Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued. No remedial work is necessary at this time.

7.0 BILLBOARDS LANDFILL

7.1 LANDFILL DESCRIPTION

The Billboards Landfill is located approximately less than 100 m south of the main station area, west of the communications billboards, and has an approximate area of 1,400 m^2. A detailed drawing of this landfill is provided in Figure 7. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 7A.

7.2 SUMMARY OF WORK CONDUCTED

7.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the work plan.

7.2.2 Soil Sampling

Soil samples were collected at four (4) locations as shown on Figure 7. Surface and subsurface samples were collected at each location. There were no deviations from the soil sampling work plan. One duplicate soil sample was collected from the subsurface at sample location BIL-4. Soil sampling completed at the landfill is summarized in Table 7.1.

Table 7.1: Summary of Work Conducted by Soil Sampling Location (Billboards Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-BIL-1	√	√
FM-BIL-2	√	√
FM-BIL-3	√	X
FM-BIL-4	√	√ D

D = duplicate sample collected
√ - sample collected
X – no sample collected

7.2.3 Groundwater Sampling

No groundwater monitoring wells are present at this landfill

7.2.4 Thermal Monitoring

No thermistor installations are present at this landfill.

LEGEND:

- SURVEY CONTROL MONUMENT
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- 7.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- NATURAL STAINING
- PONDED WATER

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 14, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.4, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

STATION AREA
BILLBOARDS LANDFILL

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1	
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 7	

Sheet Size: 11 x 17 (432mm x 279mm)
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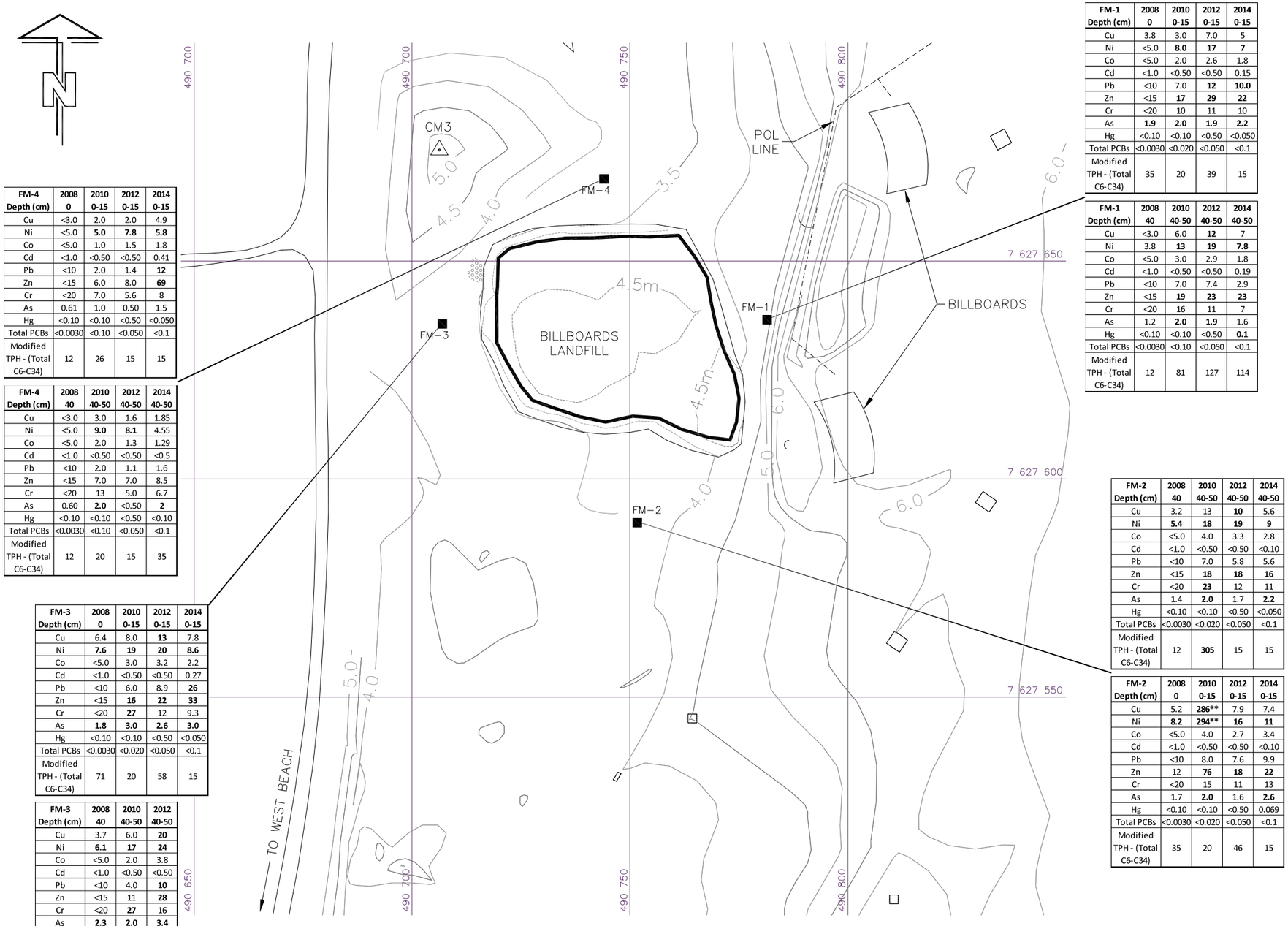
Saved by: Izabela Zdba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 7 - Station Area_Billboards Landfill.dwg



FM-4 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	<3.0	2.0	2.0	4.9
Ni	<5.0	**5.0**	**7.8**	**5.8**
Co	<5.0	1.0	1.5	1.8
Cd	<1.0	<0.50	<0.50	0.41
Pb	<10	2.0	1.4	**12**
Zn	<15	6.0	8.0	**69**
Cr	<20	7.0	5.6	8
As	0.61	1.0	0.50	1.5
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	26	15	15

FM-4 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	3.0	1.6	1.85
Ni	<5.0	**9.0**	**8.1**	4.55
Co	<5.0	2.0	1.3	1.29
Cd	<1.0	<0.50	<0.50	<0.5
Pb	<10	2.0	1.1	1.6
Zn	<15	7.0	7.0	8.5
Cr	<20	13	5.0	6.7
As	0.60	**2.0**	<0.50	**2**
Hg	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	15	35

FM-3 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	6.4	8.0	**13**	7.8
Ni	**7.6**	**19**	**20**	**8.6**
Co	<5.0	3.0	3.2	2.2
Cd	<1.0	<0.50	<0.50	0.27
Pb	<10	6.0	8.9	**26**
Zn	<15	**16**	**22**	**33**
Cr	<20	**27**	12	9.3
As	**1.8**	**3.0**	**2.6**	**3.0**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	71	20	58	15

FM-3 Depth (cm)	2008 40	2010 40-50	2012 40-50
Cu	3.7	6.0	**20**
Ni	**6.1**	**17**	**24**
Co	<5.0	2.0	3.8
Cd	<1.0	<0.50	<0.50
Pb	<10	4.0	**10**
Zn	<15	11	**28**
Cr	<20	**27**	16
As	**2.3**	**2.0**	**3.4**
Hg	<0.10	<0.10	<0.50
Total PCBs	<0.0030	<0.10	<0.050
Modified TPH - (Total C6-C34)	41	26	54

FM-1 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	3.8	3.0	7.0	5
Ni	<5.0	**8.0**	**17**	**7**
Co	<5.0	2.0	2.6	1.8
Cd	<1.0	<0.50	<0.50	0.15
Pb	<10	7.0	**12**	**10.0**
Zn	<15	**17**	**29**	**22**
Cr	<20	10	11	10
As	**1.9**	**2.0**	**1.9**	**2.2**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	35	20	39	15

FM-1 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	6.0	**12**	7
Ni	3.8	**13**	**19**	**7.8**
Co	<5.0	3.0	2.9	1.8
Cd	<1.0	<0.50	<0.50	0.19
Pb	<10	7.0	7.4	2.9
Zn	<15	**19**	**23**	**23**
Cr	<20	16	11	7
As	1.2	**2.0**	**1.9**	1.6
Hg	<0.10	<0.10	<0.50	**0.1**
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	81	127	114

FM-2 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.2	13	**10**	5.6
Ni	**5.4**	**18**	**19**	**9**
Co	<5.0	4.0	3.3	2.8
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	7.0	5.8	5.6
Zn	<15	**18**	**18**	**16**
Cr	<20	**23**	12	11
As	1.4	**2.0**	1.7	**2.2**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	**305**	15	15

FM-2 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	5.2	**286****	7.9	7.4
Ni	**8.2**	**294****	**16**	**11**
Co	<5.0	4.0	2.7	3.4
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	8.0	7.6	9.9
Zn	12	**76**	**18**	**22**
Cr	<20	15	11	13
As	1.7	**2.0**	1.6	**2.6**
Hg	<0.10	<0.10	<0.50	0.069
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	35	20	46	15

LEGEND:

- SURVEY CONTROL MONUMENT
- SOIL SAMPLING LOCATION
- 7.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	8.8	N/A	100
Ni	5.0	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	10	200	500
Zn	15	N/A	500
Cr	20	N/A	250
As	1.8	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.10	1	5
Modified TPH - (Total C6-C34)	170	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.4, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

STATION AREA- BILLBOARDS LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 7A

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:39:32 AM Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 7 - Station Area_Billboards Landfill.dwg

7.3 RESULTS OF THE MONITORING PROGRAM

7.3.1 Visual Inspection

The visual inspection at the Billboards Landfill was completed on 14 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 7.2.

7.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 7.3.

7.3.1.2 Photographic Records

The photograph log for the site is provided in Table 7.4.

7.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 7.5 below for each category observed.

Table 7.5: Visual Inspection Trends (Billboards Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation	None noted on 2012 landfill drawing.	Small shrubs were observed on the outside edges of the landfill. Vegetation appears to be slowly spreading onto the footprint of the landfill from the surrounding area.	Vegetation is slowly becoming present on this landfill.

TABLE 7.2 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Billboards Landfill
DATE OF INSPECTION: 14 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 7.2 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	On outside edge of landfill				<1%	Small shrubs		
Staining	YES	North end of west side of landfill (Feature C)				<1%	Natural red staining		
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water northeast of landfill (Feature B), Vehicle tracks on northeast corner of landfill (Feature A)				<1%	Ponded water, vehicle tracks		

Table 7.3: Preliminary Stability Assessment - FOX-M Billboards Landfill

Feature	Severity Rating	Extent
Settlement	None	None
Erosion	None	None
Frost Action	None	None
Staining	Acceptable	Isolated
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	None	None
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Station Area Billboards Landfill (see Figure 7)

Photo 1 (FOX-M BIL P-1 ne.jpg)	Photo 1.2 (FOX-M BIL P-1 north.jpg)
Description: View northeast towards Billboards Landfill from beyond the southwest corner. Ponded water observed. **(FEATURE B)**	Description: View north towards Billboards landfill from beyond the southwest corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 2.1 (FOX-M BIL P-2 east.jpg)	Photo 2.2 (FOX-M BIL P-2 se.jpg)
Description: View east from control monument (CM-3)	Description: View southeast from CM-3.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 3 (FOX-M BIL P-3.jpg)	Photo 4.1 (FOX-M BIL P-4 east.jpg)
Description: View east toward the western slope of the landfill. Previously identified staining is the mossed area seen. **(FEATURE C)**	Description: View east along northern slope of the Billboards Landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 4.2 (FOX-M BIL P-4 se.jpg)	Photo 4.3 (FOX-M BIL P-4 south.jpg)
Description: View across the landfill cap towards the southeast corner.	Description: View south along the eastern top of slope.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 5 (FOX-M BIL P-5.jpg)	Photo 6 (FOX-M BIL P-6 ne.jpg)
Description: Ponded water observed adjacent to the northwest corner of the landfill. **(FEATURE B)**	Description: View across the northwest corner of the Billboards Landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 7 (FOX-M BIL P-7 sw.jpg)	Photo 8.1 (FOX-M BIL P-8 se.jpg)
Description: View of the ponded water on the north side of the landfill. Truck is parked on the access road west of soil monitoring location FM-BIL-3. **(FEATURE B)**	Description: View across the northeastern corner of the landfill. Vehicle tracks visible on landfill. **(FEATURE A)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 8.2 (FOX-M BIL P-8 south.jpg)	Photo 8.3 (FOX-M BIL P-8 sw.jpg)
Description: View south across the Billboards Landfill.	Description: View across the northwestern corner of the landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 9.1 (FOX-M BIL P-9 east.jpg)	Photo 9.2 (FOX-M BIL P-9 ne.jpg)
Description: View along the southern extent of the landfill.	Description: View across the landfill from the southwest corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 9.3 (FOX-M BIL P-9 north.jpg)	Photo 10 (FOX-M BIL P-10.jpg)
Description: View across the landfill.	Description: The standing water on the south side of the landfill. **(FEATURE B)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 11 (FOX-M BIL P-11.jpg)	Photo 12 (FOX-M BIL P-12 east.jpg)
Description: Standing water on the south side of the landfill north of soil sampling location FM-BIL-2. **(FEATURE B)**	Description: The southern extents of the landfill and adjacent standing water (mossed area). **(FEATURE B)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 13.1 (FOX-M BIL P-13 nw.jpg)	Photo 13.2 (FOX-M BIL P-13 west.jpg)
Description: The Billboards Landfill view from adjacent to southern billboard.	Description: The southern half of the Billboards Landfill. View from adjacent to the southern billboard.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 14.1 (FOX-M BIL P-14 south.jpg)	Photo 14.2 (FOX-M BIL P-14 west.jpg)
Description: View south toward southeastern corner of landfill (right hand side). Slope on left is part of the pad which supports the billboards.	Description: View from adjacent to the northern billboard toward the landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 15 (FOX-M BIL P-15.jpg)	Photo 16 (FOX-M BIL P-16.jpg)
Description: Soil sample collection of FM-BIL-1.	Description: After collection and backfill of FM-BIL-1.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 17 (FOX-M BIL P-17.jpg)	Photo 18 (FOX-M BIL P-18.jpg)
Description: Digging the test pit for soil sample FM-BIL-2.	Description: After sample collection and backfill of FM-BIL-2.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 19 (FOX-M BIL P-19.jpg)	Photo 20 (FOX-M BIL P-20.jpg)
Description: Digging test pit at FM-BIL-3.	Description: The backfill material at FM-BIL-3.
Date: August 14, 2014	Date: August 14, 2014

TABLE 7.4: LANDFILL VISUAL INSPECTION PHOTO LOG (BILLBOARDS LANDFILL)

Photo 21 (FOX-M BIL P-21.jpg)	Photo 22 (FOX-M BIL P-22.jpg)
Description: Sample collection of FM-BIl-4.	Description: After soil sample collection and backfill of FM-BIL-4.
Date: August 14, 2014	Date: August 14, 2014

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Staining	Staining identified at north end of west side of landfill.	Natural reddish staining was observed on the north end of the west side of the landfill. (Feature C)	Natural staining continues to be present at one location at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Debris Exposed	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Presence/Condition of Monitoring Instruments	No monitoring instruments are present at this landfill.	No monitoring instruments are present at this landfill.	No monitoring instruments are present at this landfill.
Other Features of Note	Areas of ponded water were identified north and south of the landfill.	An area of vehicle tracks were observed on the northeast corner of the landfill. (Feature A) Ponded water was located on the north and south sides of the landfill. (Feature B)	Vehicle tracks are a new feature at this landfill. Ponded water is located in the same areas.

7.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Billboards Landfill indicates that conditions remain very similar. Vegetation may be beginning to colonize the landfill and some new vehicle tracks are present. No other significant changes were observed. Based on these visual inspection results, the performance of the landfill is acceptable.

7.3.2 Soil Sampling

Soil sampling at the Billboards Landfill was completed on 14 August 2014. As previously reported a total of nine samples including one duplicate sample were procured from four locations as shown in plan on Figure 7.

7.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the Billboards Landfill are presented in Table 7.6. A duplicate soil sample was collected from subsurface soil at sample location BIL-4 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the

TABLE 7.6

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT BILLBOARDS LANDFILL

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-BIL-1-S 14-Aug-14 0-15cm	FM-BIL-1-D 14-Aug-14 40-50cm	FM-BIL-2-S 14-Aug-14 0-15cm	FM-BIL-2-D 14-Aug-14 40-50cm	FM-BIL-3-S 14-Aug-14 0-15cm	FM-BIL-4-S 14-Aug-14 0-15cm	FM-BIL-4-D 14-Aug-14 40-50cm	FM-BIL-4-D (DUP) 14-Aug-14 40-50cm	FM-BIL-4-D (AVG) 14-Aug-14 40-50cm
Copper	**6.3**	**8.8**	**-**	**100**	5.3	**6.9**	**7.4**	5.6	**7.8**	4.9	1.7	2.0	1.85
Nickel	**5.0**	**5.0**	**-**	**100**	**6.6+**	**7.8+**	**11+**	**8.6+**	**8.6+**	**5.8+**	3.1	**6+**	4.55
Cobalt	**5.0**	**5.0**	**-**	**50**	1.8	1.8	3.4	2.8	2.2	1.8	0.97	1.6	1.285
Cadmium	**1.0**	**1.0**	**-**	**5**	0.15	0.19	<0.10	<0.10	0.27	0.41	<0.10	<0.5	<0.5
Lead	**10**	**10**	**200**	**500**	10	2.9	9.9	5.6	**26+**	12	1.2	2	1.6
Zinc	**15**	**15**	**-**	**500**	**22+**	**23+**	**22+**	**16+**	**33+**	**69+**	8	9	8.5
Chromium	**20**	**20**	**-**	**250**	9.7	7	13	11	9.3	8.1	4.4	9	6.7
Arsenic	**1.0**	**1.8**	**-**	**30**	**2.2+**	**1.6**	**2.6+**	**2.2+**	**3.0+**	**1.5**	<1.0	**2.0+**	**2.0+**
Mercury	**-**	**0.10**	**-**	**2**	<0.050	0.067	0.069	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10
Total PCBs	**0.21**	**0.10**	**1**	**5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<20	<10	<10	<10	<10	<10	<5	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<20	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	94	<10	<10	<10	<10	<10	<50	<50
PHC F4 (C34-C50)	-	-	-	-	<10	<20	<10	<10	<10	<10	<10	<50	<50
Modifed TPH (Total C6-C34)	-	**170**	-	**2500**	15	114	15	15	15	15	15	32.5	35

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M Billboards Landfill Background Concentration.
+	Exceeds FOX-M Billboards Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

duplicate sample results were above 30% for four of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

7.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Billboards Landfill is provided in Table 7.7. The discussion includes a comparison of results from upgradient (BIL-1) and downgradient (BIL-2, BIL-3, BIL-4) soil sampling locations to the baseline average concentrations (BAC) that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage.

7.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 7.8. Trends have been analyzed for upgradient (BIL-1) and downgradient (BIL-2, BIL-3, BIL-4) soil sampling locations. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

7.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

7.5 RECOMMENDATIONS/NEXT STEPS

Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued. No remedial work is necessary at this time.

Table 7.7: Evaluation of 2014 Soil Analytical Data (Billboards Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	8.8	Detectable concentrations ranged between 5.3 and 6.9 ug/g for upgradient samples and between 1.85 and 7.8 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-3 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. All eight samples reported concentrations below the BAC.
Nickel	5.0	Detectable concentrations ranged between 6.6 and 7.8 ug/g for upgradient samples and between 4.55 and 11 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-2 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. One of eight samples reported a concentration below the BAC while seven of eight samples reported a concentration above the BAC.
Cobalt	5.0	Detectable concentrations were 1.8 ug/g for upgradient samples and ranged between 1.29 and 3.4 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-2 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. All eight samples reported concentrations below the BAC.
Cadmium	1.0	Detectable concentrations ranged between 0.15 and 0.19 ug/g for upgradient samples and between 0.27 and 0.41 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-4 sample location while the lowest concentration was reported within the surface sample at the BIL-1 sample location. All eight samples reported concentrations below the BAC.
Lead	10	Detectable concentrations ranged between 2.9 and 10 ug/g for upgradient samples and between 1.6 and 26 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-3 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. Six of eight samples reported a concentration below the BAC while two of eight samples reported a concentration above the BAC.
Zinc	15	Detectable concentrations ranged between 22 and 23 ug/g for upgradient samples and between 8.5 and 69 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-4 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. Two of eight samples reported a concentration below the BAC while six of eight samples reported a concentration above the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Chromium	20	Detectable concentrations ranged between 7 and 9.7 ug/g for upgradient samples and between 6.7 and 13 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-2 sample location while the lowest concentration was reported within the subsurface sample at the BIL-4 sample location. All eight samples reported concentrations below the BAC.
Arsenic	1.8	Detectable concentrations ranged between 1.6 and 2.2 ug/g for upgradient samples and between 1.5 and 3.0 ug/g for downgradient samples, with the highest concentration reported in the surface sample collected from the BIL-3 sample location while the lowest concentration was reported within the surface sample at the BIL-4 sample location. Three of eight samples reported a concentration below the BAC while five of eight samples reported a concentration above the BAC.
Mercury	0.10	Detectable concentrations of 0.067 and 0.069 ug/g were reported with the highest concentration reported in the surface sample collected from the downgradient BIL-2 sample location while the lowest concentration was reported within the subsurface sample at the upgradient BIL-1 sample location. Six of eight samples reported concentrations below the laboratory detection limit and all sample concentrations were below the BAC.
PCBs	0.10	All eight samples reported concentrations less than the laboratory detection limit (0.010 ug/g and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC for upgradient and downgradient samples.
TPH	170	One sample reported detectable concentrations of PHC fractions F3, resulting in modified TPH concentrations ranging from 15 to 114 ug/g for upgradient samples and between 15 and 32.5 ug/g for downgradient samples, with the highest concentration in the subsurface sample at the BIL-1 sample location and the lowest concentration in six of eight of the samples. All eight samples reported concentrations below the BAC.

Table 7.8: Evaluation of Soil Result Trends (Billboards Landfill)

Parameter	2014 Results
Copper	Concentrations show a upward trend for upgradient soil locations and a downward trend for downgradient soil locations. Concentrations are generally below the BAC.
Nickel	Concentrations show a upward trend for upgradient soil locations and a downward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Cobalt	Concentrations show a downward trend for upgradient and downgradient soil locations. Concentrations are clustered around the BAC.
Cadmium	Concentrations show a downward trend for upgradient and downgradient soil locations. Concentrations are generally below the BAC or below laboratory detection limits.
Lead	Concentrations show a upward trend for upgradient and downgradient soil locations. Concentrations are clustered around the BAC.
Zinc	Concentrations show a upward trend for upgradient and downgradient soil locations. Concentrations are generally above the BAC.
Chromium	Concentrations show a downward trend for upgradient and downgradient soil locations. Concentrations are generally below the BAC.
Arsenic	Concentrations show a slight upward trend for upgradient and downgradient soil locations. Concentrations are generally above the BAC.
Mercury	Concentrations show a generally stable trend for upgradient and downgradient soil locations. Concentrations are generally below laboratory detection limits.
PCBs	Concentrations show a generally stable trend for upgradient and downgradient soil locations. Concentrations are below laboratory detection limits.
TPH	Concentrations show a slight upward trend for upgradient soil locations and a slight downward trend for downgradient soil locations. Concentrations are generally below around the BAC.

8.0 HAZMAT STORAGE EAST LANDFILL

8.1 LANDFILL DESCRIPTION

The Hazmat Storage East Landfill is on the east side of the East Beach area access road, roughly across the road from the former Hazmat Storage Pad, and has an approximate area of 1,200 m^2. The landfill consists of an area of existing debris. A detailed drawing of this landfill is provided in Figure 8. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 8A.

8.2 SUMMARY OF WORK CONDUCTED

8.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the work plan.

8.2.2 Soil Sampling

Soil samples were collected at four (4) locations as shown on Figure 8. Surface and subsurface samples were collected at each location, except no subsurface sample was collected at sample location HAZ-10 as soil at this location consisted of coarse-grained gravel and cobbles. One duplicate soil sample was collected from surficial soils at sample location HAZ-11. Soil sampling completed at the landfill is summarized in Table 8.1.

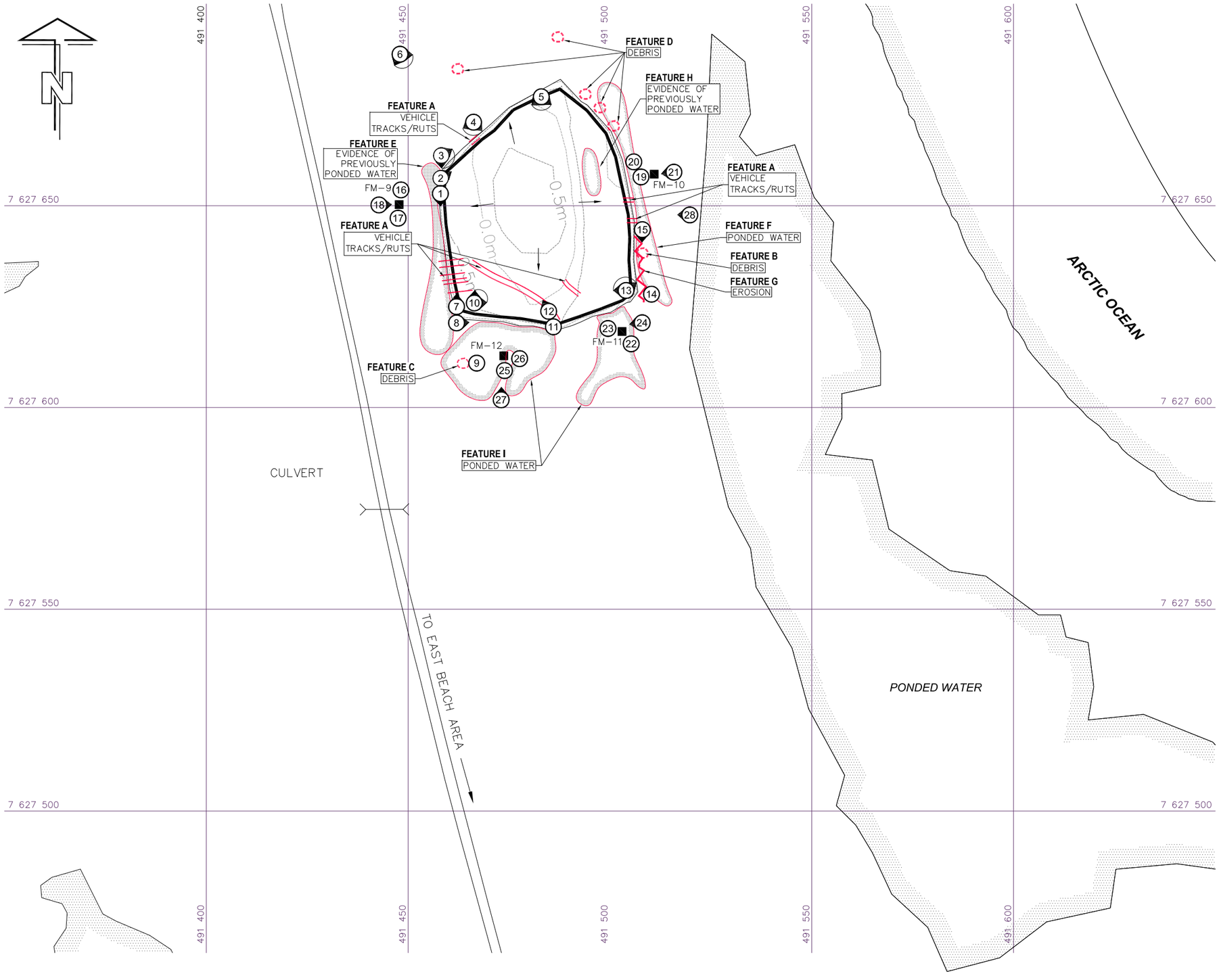
Table 8.1: Summary of Work Conducted by Soil Sampling Location (Hazmat Storage East Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-HAZ-9	√	√
FM-HAZ-10	√	X
FM-HAZ-11	√ D	√
FM-HAZ-12	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected

8.2.3 Groundwater Sampling

No groundwater monitoring wells are present at this landfill



LEGEND:

- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- 0.5m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- EXPOSED DEBRIS
- EROSION CHANNEL
- PONDED WATER

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 15, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.5, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

HAZMAT STORAGE - EAST LANDFILL

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 8

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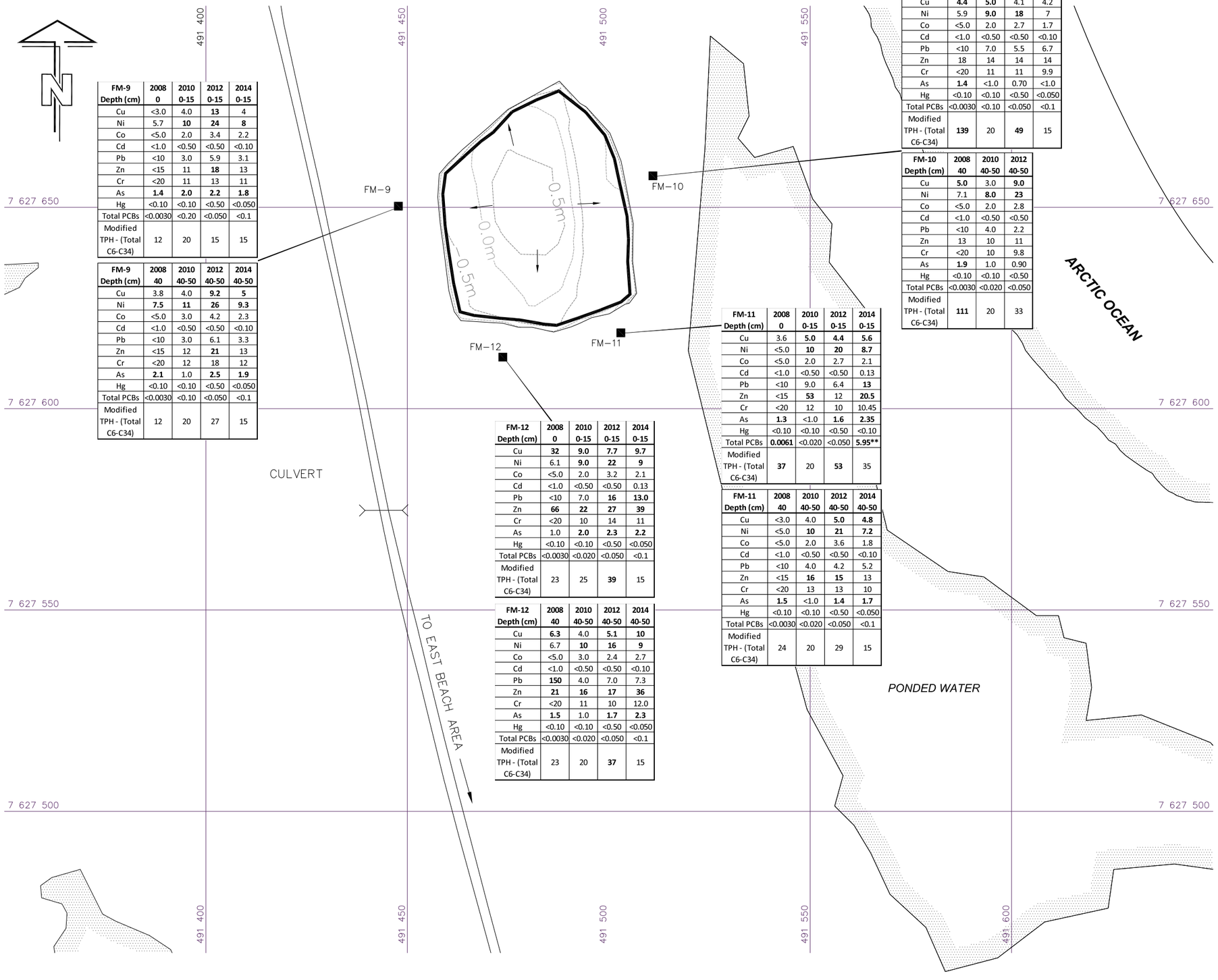
PLOT: March-02-15 10:10:27 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 8 - Hazmat Storage_East Landfill.dwg

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:40:52 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 8 - Hazmat Storage_East Landfill.dwg



FM-9 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	<3.0	4.0	**13**	4
Ni	5.7	**10**	**24**	**8**
Co	<5.0	2.0	3.4	2.2
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	3.0	5.9	3.1
Zn	<15	11	**18**	13
Cr	<20	11	13	11
As	**1.4**	**2.0**	**2.2**	**1.8**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.20	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	15	15

FM-9 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.8	4.0	**9.2**	**5**
Ni	**7.5**	**11**	**26**	**9.3**
Co	<5.0	3.0	4.2	2.3
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	3.0	6.1	3.3
Zn	<15	12	**21**	13
Cr	<20	12	18	12
As	**2.1**	1.0	**2.5**	**1.9**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	27	15

FM-10 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	**4.4**	**5.0**	4.1	4.2
Ni	5.9	**9.0**	**18**	7
Co	<5.0	2.0	2.7	1.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	7.0	5.5	6.7
Zn	18	14	14	14
Cr	<20	11	11	9.9
As	**1.4**	<1.0	0.70	<1.0
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**139**	20	**49**	15

FM-10 Depth (cm)	2008 40	2010 40-50	2012 40-50
Cu	**5.0**	3.0	**9.0**
Ni	7.1	**8.0**	**23**
Co	<5.0	2.0	2.8
Cd	<1.0	<0.50	<0.50
Pb	<10	4.0	2.2
Zn	13	10	11
Cr	<20	10	9.8
As	**1.9**	1.0	0.90
Hg	<0.10	<0.10	<0.50
Total PCBs	<0.0030	<0.020	<0.050
Modified TPH - (Total C6-C34)	**111**	20	33

FM-11 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	3.6	**5.0**	**4.4**	**5.6**
Ni	<5.0	**10**	**20**	**8.7**
Co	<5.0	2.0	2.7	2.1
Cd	<1.0	<0.50	<0.50	0.13
Pb	<10	9.0	6.4	**13**
Zn	<15	**53**	12	**20.5**
Cr	<20	12	10	10.45
As	**1.3**	<1.0	**1.6**	**2.35**
Hg	<0.10	<0.10	<0.50	<0.10
Total PCBs	**0.0061**	<0.020	<0.050	**5.95****
Modified TPH - (Total C6-C34)	**37**	20	**53**	35

FM-11 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	<3.0	4.0	**5.0**	**4.8**
Ni	<5.0	**10**	**21**	**7.2**
Co	<5.0	2.0	3.6	1.8
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	4.2	5.2
Zn	<15	**16**	**15**	13
Cr	<20	13	13	10
As	**1.5**	<1.0	**1.4**	**1.7**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	24	20	29	15

FM-12 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	**32**	**9.0**	**7.7**	**9.7**
Ni	6.1	**9.0**	**22**	**9**
Co	<5.0	2.0	3.2	2.1
Cd	<1.0	<0.50	<0.50	0.13
Pb	<10	7.0	**16**	**13.0**
Zn	**66**	**22**	**27**	**39**
Cr	<20	10	14	11
As	1.0	**2.0**	**2.3**	**2.2**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	23	25	**39**	15

FM-12 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	**6.3**	4.0	**5.1**	**10**
Ni	6.7	**10**	**16**	**9**
Co	<5.0	3.0	2.4	2.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	**150**	4.0	7.0	7.3
Zn	**21**	**16**	**17**	**36**
Cr	<20	11	10	12.0
As	**1.5**	1.0	**1.7**	**2.3**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	23	20	**37**	15

LEGEND:

- ■ SOIL SAMPLING LOCATION
- 0.5m CONTOURS IN 0.5m INTERVALS
- ← OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	4.4	N/A	100
Ni	7.2	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	10	200	500
Zn	15	N/A	500
Cr	20	N/A	250
As	1.2	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.0030	1	5
Modified TPH - (Total C6-C34)	37	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.5, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
HAZMAT STORAGE - EAST LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 8A

8.2.4 Thermal Monitoring

No thermistor installations are present at this landfill.

8.3 RESULTS OF THE MONITORING PROGRAM

8.3.1 Visual Inspection

The visual inspection at the Hazmat Storage East Landfill was completed on 15 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 8.2.

8.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 8.3.

8.3.1.2 Photographic Records

The photograph log for the site is provided in Table 8.4.

8.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 8.5 below for each category observed.

Table 8.5: Visual Inspection Trends (Hazmat Storage East Landfill)

Item	Biogenie 2012 Observations	SENES 2014 Observations	Trend
Settlement	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Erosion	An erosion channel was noted at the base of the berm on the east side of the landfill in the 2012 landfill drawing.	One erosion channel was observed at the base of the berm on the east side of the landfill. (Feature G)	One erosion channel is present outside the landfill but it is not negatively affecting the performance of the landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.

TABLE 8.2 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Hazmat Storage East Landfill
DATE OF INSPECTION: 15 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 8.2 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	YES	At southeast corner of landfill (Feature G)	2m	0.2m	0.05m	<1%	Erosion channel at base of berm	P-14	
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	NO								
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES						Large metal and wood debris	P-6, P-9, P-21	Debris not believed to have originated within landfill
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water in multiple areas around landfill (Feature E, F, H, I), vehicle tracks on landfill berms (Feature A)						P-4.3, P-7, P-13.2, P-15, P-21, P-24,	

Table 8.3: Preliminary Stability Assessment - FOX-M Hazmat Storage East Landfill

Feature	Severity Rating	Extent
Settlement	None	None
Erosion	Acceptable	Isolated
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	Acceptable	Occasional
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Hazmat Storage East Landfill (see Figure 8)

Photo 1 (FOX-M HAZ P-1south.jpg)	Photo 2 (FOX-M HAZ P-2.jpg)
Description: View south along eastern edge of Hazmat Storage – East Landfill.	Description: Surface material at the northeast corner of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 3.1 (FOX-M HAZ P-3 ne.jpg)	Photo 3.2 (FOX-M HAZ P-3 se.jpg)
Description: View northeast along the northern slope of the landfill.	Description: Landfill toe near the northeastern corner of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 3.3 (FOX-M HAZ P-3 south.jpg)	Photo 4.1 (FOX-M HAZ P-4 south.jpg)
Description: View south from northeastern corner of landfill.	Description: Ruts along the top of slope at the northern end of the landfill. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 4.2 (FOX-M HAZ P-4 west.jpg)	Photo 4.3 (FOX-M HAZ P-4.jpg)
Description: The northwest corner of the landfill.	Description: Close-up of ruts at the northern end of the landfill. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 5.1 (FOX-M HAZ P-5 se.jpg)	Photo 5.2 (FOX-M HAZ P-5 sw.jpg)
Description: View south across landfill cap.	Description: View southwest across landfill cap.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 6 (FOX-M HAZ P-6 se.jpg)	Photo 7 (FOX-M HAZ P-7 north.jpg)
Description: View southeast toward Hazmat Storage – East Landfill. Debris such as scrap wood and metal strapping observed. **(FEATURE D)**	Description: View north along western slope of landfill. Vehicle tracks/ruts observed on slope. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 8 (FOX-M HAZ P-8 east.jpg)	Photo 9 (FOX-M HAZ P-9.jpg)
Description: View east along southern slope of landfill.	Description: Metal debris observed south of southwest corner of landfill. **(FEATURE C)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 10.1 (FOX-M HAZ P-10.1 north.jpg)	Photo 10.2 (FOX-M HAZ P-10.2 ne.jpg)
Description: View north along western side of landfill cap from southwest corner.	Description: View northeast across landfill cap from southwest corner.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 10.3 (FOX-M HAZ P-10.3 east.jpg)	Photo 10.4 (FOX-M HAZ P-10.4 east.jpg)
Description: View east across landfill cap from southwest corner.	Description: The southern extent of the landfill viewed from the southwest corner.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 11 (FOX-M HAZ P-11.jpg)	Photo 12 (FOX-M HAZ P-12 nw.jpg)
Description: Surface material at the southern end of the landfill cap.	Description: Vehicle tracks observed at the southern end of the landfill. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 13.1 (FOX-M HAZ P-13 north.jpg)	Photo 13.2 (FOX-M HAZ P-13 west.jpg)
Description: The eastern side of the landfill.	Description: The southern end of the landfill. Ponded water observed adjacent to southern end. **(FEATURE I)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 14 (FOX-M HAZ P-14.jpg)	Photo 15 (FOX-M HAZ P-15 south.jpg)
Description: Erosion noted along eastern edge of landfill. **(FEATURE G)**	Description: Looking south along eastern edge of landfill. Ruts and erosion observed. **(FEATURE A, G)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 16 (FOX-M HAZ P-16.jpg)	Photo 17 (FOX-M HAZ P-17.jpg)
Description: Soil sample collection of FM-HAZ-9.	Description: After collection and backfill of FM-HAZ-9.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 18 (FOX-M HAZ P-18 east.jpg)	Photo 19 (FOX-M HAZ P-19.jpg)
Description: View east toward northern end of landfill from FM-HAZ-9.	Description: Soil sample collection from FM-HAZ-10.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 20 (FOX-M HAZ P-20.jpg)	Photo 21 (FOX-M HAZ P-21.jpg)
Description: After sample collection and backfill of FM-HAZ-10.	Description: View over ponded water and surface debris toward FM-HAZ-10. **(FEATURE F, B)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 22 (FOX-M HAZ P-22.jpg)	Photo 23 (FOX-M HAZ P-23.jpg)
Description: Soil sample collection from FM-HAZ-11.	Description: After soil sample collection and backfill of FM-HAZ-11.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 24 (FOX-M HAZ P-14 west.jpg)	Photo 25 (FOX-M HAZ P-25.jpg)
Description: View west from FM-HAZ-11 at ponded water around landfill. **(FEATURE I)**	Description: Soil sample collection of FM-HAZ-12.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 26 (FOX-M HAZ P-26.jpg)	Photo 27 (FOX-M HAZ P-27.jpg)
Description: After collection and backfill of FM-HAZ-12.	Description: View north toward FM-HAZ-12 and landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 8.4: LANDFILL VISUAL INSPECTION PHOTO LOG (HAZMAT STORAGE EAST LANDFILL)

Photo 28 (FOX-M HAZ P-28 west.jpg)	
Description: View west toward eastern slope of landfill. Ruts observed on top of slope. **(FEATURE A)**	
Date: August 15, 2014	

Item	Biogenie 2012 Observations	SENES 2014 Observations	Trend
Vegetation	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	No active seepage points were observed.	None observed at this landfill.
Debris Exposed	Four instances of debris were noted on the north end of the landfill on the 2012 landfill drawing.	Large metal and wood debris were observed around the landfill. (Feature B, C, D)	Debris was observed around the landfill in similar locations. This debris is not negatively affecting the performance of the landfill.
Presence/Condition of Monitoring Instruments	No monitoring instruments are present at this landfill.	No monitoring instruments have been installed at this landfill.	No monitoring instruments are present at this landfill.
Other Features of Note	Vehicle tracks and ruts identified at multiple locations on the landfill berms in the 2012 landfill drawing. Ponded water noted in four locations around the landfill.	Ponded water was observed surrounding the landfill in a number of areas (Feature E, F, H, I). Vehicle tracks and ruts were present on the berms of the landfill in a number of areas (Feature A).	Ponded water and vehicle tracks were present in the same locations and are not negatively affecting the performance of the landfill.

8.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Hazmat Storage East Landfill indicates that conditions remain generally similar at this landfill. some additional vehicle tracks are present on the landfill. This trend is considered minor and not of concern to the stability of the landfill at the present time. No other tangible changes in the physical condition of the landfill were observed.

8.3.2 Soil Sampling

Soil sampling at the Hazmat Storage East Landfill was completed on 15 August 2014. As previously reported a total of eight samples including one duplicate sample were procured from four locations as shown in plan on Figure 8.

8.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the Hazmat Storage East Landfill are presented in Table 8.6.

A duplicate soil sample was collected from surficial soils at sample location HAZ-11 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample were above 30% for three of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

8.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Hazmat Storage East Landfill is provided in Table 8.7. The discussion includes a comparison of results from downgradient soil sampling locations to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage. No upgradient locations have been identified at this landfill.

8.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 8.8. Trends have been analyzed for downgradient locations as no upgradient locations have been identified at this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

8.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

8.5 RECOMMENDATIONS/NEXT STEPS

During the next monitoring event at the site, it is recommended that additional soil samples be collected in the vicinity of the PCB exceedance at HAZ-11 soil sample location to horizontally delineate the extent of contamination and provide insight into whether this result is due to

TABLE 8.6

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT HAZMAT STORAGE EAST LANDFILL

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-HAZ-9-S 15-Aug-14 0-15cm	FM-HAZ-9-D 15-Aug-14 40-50cm	FM-HAZ-10-S 15-Aug-14 0-15cm	FM-HAZ-11-S 15-Aug-14 0-15cm	FM-HAZ-11-S (DUP) 15-Aug-14 0-15cm	FM-HAZ-11-S (AVG) 15-Aug-14 0-15cm	FM-HAZ-11-D 15-Aug-14 40-50cm	FM-HAZ-12-S 15-Aug-14 0-15cm	FM-HAZ-12-D 15-Aug-14 40-50cm
Copper	**6.3**	**4.4**	**-**	**100**	4	**4.5+**	4.2	**5.2+**	**6.0+**	**5.6+**	**4.8+**	**9.7+**	**10+**
Nickel	**5.0**	**7.2**	**-**	**100**	**8+**	**9.3+**	**7**	**6.4**	**11+**	**8.7+**	**7.2**	**8.8+**	**9+**
Cobalt	**5.0**	**5.0**	**-**	**50**	2.2	2.3	1.7	1.6	2.6	2.1	1.8	2.1	2.7
Cadmium	**1.0**	**1.0**	**-**	**5**	<0.10	<0.10	<0.10	0.13	<0.5	0.13	<0.10	0.13	<0.10
Lead	**10**	**10**	**200**	**500**	3.1	3.3	6.7	**14+**	**12+**	**13+**	5.2	**13+**	7.3
Zinc	**15**	**15**	**-**	**500**	13	13	14	**20+**	**21+**	**20.5+**	13	**39+**	**36+**
Chromium	**20**	**20**	**-**	**250**	11	12	9.9	8.9	12	10.45	9.5	11	12
Arsenic	**1.0**	**1.2**	**-**	**30**	**1.8+**	**1.9+**	<1.0	**1.7+**	**3.0+**	**2.35+**	**1.7+**	**2.2+**	**2.3+**
Mercury	**N/A**	**0.10**	**-**	**2**	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050
Total PCBs	**0.21**	**0.0030**	**1**	**5**	<0.1	<0.1	<0.1	**8.8+****	**3.1+***	**5.95+****	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<10	<10	<5	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<10	<10	<50	<50	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<10	<10	<50	<50	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**37**	-	**2500**	15	15	15	15	32.5	35	15	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M Hazmat Storage East Landfill Background Concentration.
+	Exceeds FOX-M Hazmat Storage East Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

contaminant migration from the landfill. Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued, however no remedial work is necessary at this time.

Table 8.7: Evaluation of 2014 Soil Analytical Data (Hazmat Storage East Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	4.4	Detectable concentrations ranged between 4 and 10 ug/g, with the highest concentration reported in the surface sample collected from the HAZ-9 sample location while the lowest concentration was reported within the subsurface sample at the HAZ-12 sample location. Two of eight samples analyzed reported concentrations below the BAC while six of eight samples reported a parameter concentration slightly above the BAC.
Nickel	7.2	Detectable concentrations ranged between 7 and 9.3 ug/g, with the highest concentration reported in the surface sample collected from the HAZ-10 sample location while the lowest concentration was reported within the subsurface sample at the HAZ-9 sample location. Three of eight samples analyzed reported concentrations below or equal to the BAC while five of eight samples reported a parameter concentration slightly above the BAC.
Cobalt	5.0	Detectable concentrations ranged between 1.7 and 2.7 ug/g, with the highest concentration reported in the subsurface sample collected from the HAZ-12 sample location while the lowest concentration was reported within the surface samples at the HAZ-10 sample location. All eight samples reported concentrations below the BAC.
Cadmium	1.0	Two detectable concentrations of 0.13 ug/g were reported in surface soil at the HAZ-11 and HAZ-12 sample locations. All eight samples reported concentrations below the BAC.
Lead	10	Detectable concentrations ranged between 3.1 and 13 ug/g, with the highest concentration reported in the surface sample collected from the HAZ-11 sample location while the lowest concentration was reported within the surface sample at the HAZ-9 sample location. Five of eight samples analyzed reported concentrations below the BAC while three of eight samples reported a parameter concentration slightly above the BAC.
Zinc	15	Detectable concentrations ranged between 13 and 39 ug/g, with the highest concentration reported in the surface sample collected from the HAZ-12 sample location while the lowest concentration was reported within the surface and subsurface samples at the HAZ-9 sample location and the subsurface sample at the HAZ-11 sample location. Four of eight samples analyzed reported concentrations below the BAC while four of eight samples reported a parameter concentration slightly above the BAC.
Chromium	20	Detectable concentrations ranged between 9.5 and 12 ug/g, with the highest concentration reported in the subsurface samples collected from the HAZ-9 and HAZ-12 sample locations while the lowest concentration was reported within the subsurface sample at the HAZ-11 sample location. All eight samples reported concentrations below the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Arsenic	1.2	Detectable concentrations ranged between 1.7 and 2.35 ug/g, with the highest concentration reported in the surface sample collected from the HAZ-11 sample location while the lowest concentration was reported within the surface sample at the HAZ-9 sample location. One of eight samples reported a concentration below the laboratory detection limit and below the BAC while seven of eight samples analyzed reported concentrations slightly above the BAC.
Mercury	0.10	All eight samples reported concentrations less than the laboratory detection limit (0.050 ug/g and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC.
PCBs	0.0030	A detectable concentration of 5.95 ug/g was reported in the surface sample collected from the HAZ-11 sample location. Six of eight samples reported concentrations below the laboratory detection limit but above the BAC (this BAC is derived from a lower laboratory detection limit from a previous investigation). Two of eight samples (including a duplicate sample) reported concentrations above the BAC, and the average concentration from these duplicate samples is above the DEW Line Cleanup Tier I and Tier II Criteria.
TPH	37	No detectable concentrations of PHC fractions F1, F2, or F3 were detected in any of the eight samples, resulting in modified TPH concentrations between 15 and 32.5 depending on laboratory detection limits. These concentrations are below the BAC.

Table 8.8: Evaluation of Soil Result Trends (Hazmat Storage East Landfill)

Parameter	2014 Results
Copper	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are generally above the BAC.
Nickel	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Cobalt	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Cadmium	Concentrations show a relatively stable trend for downgradient soil locations as all but two concentrations have been below laboratory detection limits.
Lead	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Zinc	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Chromium	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Arsenic	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for downgradient soil locations as all concentrations have been below laboratory detection limits.
PCBs	Concentrations show a very strong upward trend for downgradient soil locations. This is due to one 2014 concentration that is above the DEW Line Cleanup Tier II Criteria.
TPH	Concentrations show a downward trend for downgradient soil locations. Concentrations are generally below the BAC.

9.0 COMMUNICATIONS NORTHWEST LANDFILL

9.1 LANDFILL DESCRIPTION

The Communications Northwest Landfill is located off the northwest corner of the tropospheric communications infrastructure pad, and has an approximate area of 2,600 m^2. The landfill consists of an existing area of buried debris. A detailed drawing of this landfill is provided in Figure 9. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 9A.

9.2 SUMMARY OF WORK CONDUCTED

9.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the work plan.

9.2.2 Soil Sampling

Soil samples were collected at four (4) locations as shown on Figure 9. Surface and subsurface samples were collected at each location. There were no deviations from the soil sampling work plan. One duplicate soil sample was collected from surficial soils at the CNW-13 sampling location. Soil sampling completed at the landfill is summarized in Table 9.1.

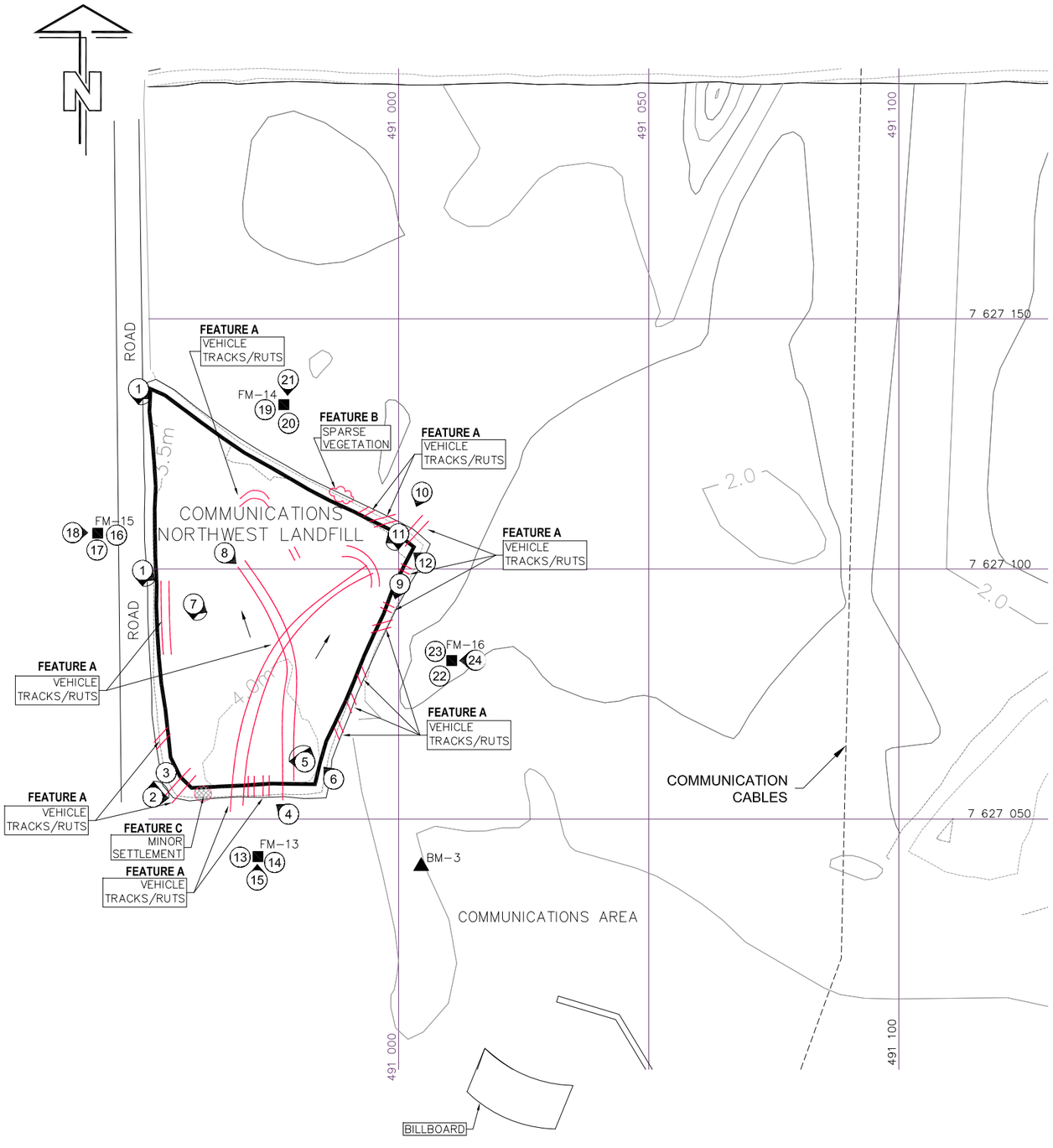
Table 9.1: Summary of Work Conducted by Soil Sampling Location (Communications Northwest Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-CNW-13	√ D	√
FM-CNW-14	√	√
FM-CNW-15	√	√
FM-CNW-16	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected

9.2.3 Groundwater Sampling

No groundwater monitoring wells are present at this landfill



LEGEND:

- PERMANENT BENCHMARK
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- AREA OF SETTLEMENT
- VEGETATION

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 14, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.7, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

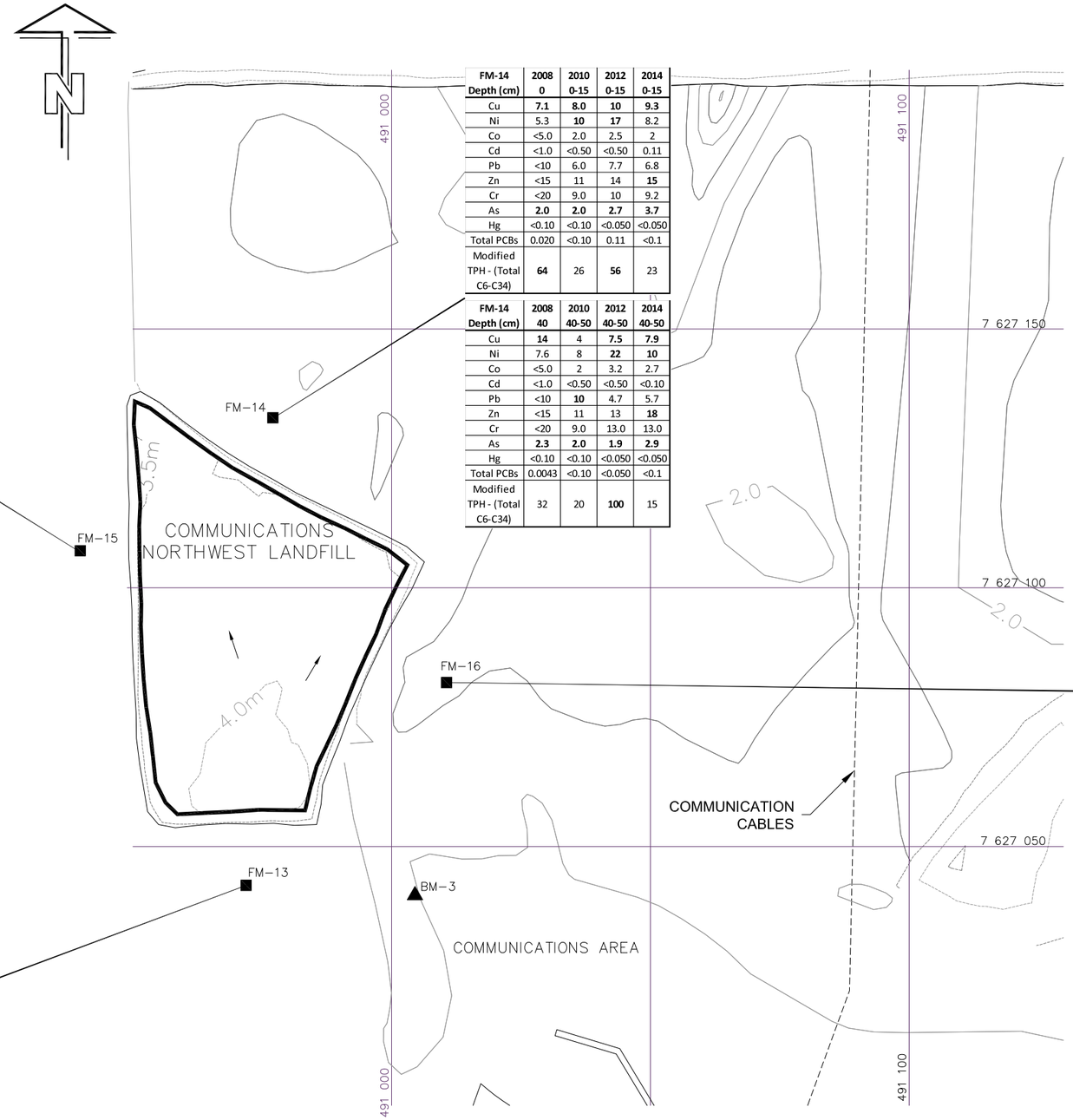
2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

COMMUNICATIONS NORTHWEST LANDFILL

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 9

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-26-15 5:09:01 PM
SENES FILE NO.: 350600-515-1 FOX-M_Fig 9 - Communications Northwest Landfill.dwg Saved by: Izabela Ziba



FM-14 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	**7.1**	**8.0**	**10**	**9.3**
Ni	5.3	**10**	**17**	8.2
Co	<5.0	2.0	2.5	2
Cd	<1.0	<0.50	<0.50	0.11
Pb	<10	6.0	7.7	6.8
Zn	<15	11	14	**15**
Cr	<20	9.0	10	9.2
As	**2.0**	**2.0**	**2.7**	**3.7**
Hg	<0.10	<0.10	<0.050	<0.050
Total PCBs	0.020	<0.10	0.11	<0.1
Modified TPH - (Total C6-C34)	**64**	26	**56**	23

FM-14 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	**14**	4	**7.5**	**7.9**
Ni	7.6	8	**22**	**10**
Co	<5.0	2	3.2	2.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	**10**	4.7	5.7
Zn	<15	11	13	**18**
Cr	<20	9.0	13.0	13.0
As	**2.3**	**2.0**	**1.9**	**2.9**
Hg	<0.10	<0.10	<0.050	<0.050
Total PCBs	0.0043	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	32	20	**100**	15

FM-15 Depth (cm)	2010 0-15	2012 0-15	2014 0-15
Cu	3.0	**6.1**	**8.4**
Ni	7.0	**19**	5.1
Co	1.0	2.9	0.7
Cd	<0.50	<0.50	0.16
Pb	3.0	4.3	2.8
Zn	6.0	**16**	7
Cr	7.0	15	4
As	**2.0**	1.6	**2.0**
Hg	<0.10	<0.0050	<0.050
Total PCBs	<0.20	<0.050	<0.2
Modified TPH - (Total C6-C34)	39	**185**	**150**

FM-15 Depth (cm)	2010 40-50	2012 40-50	2014 40-50
Cu	4.0	**6.9**	4.6
Ni	8.0	**20**	7.7
Co	2.0	3.3	2.0
Cd	<0.50	<0.50	0.21
Pb	3.0	5.2	3.4
Zn	9.0	**19**	13
Cr	9.0	18	13
As	1.0	**1.9**	**1.7**
Hg	<0.10	<0.0050	<0.050
Total PCBs	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	20	**111**	15

FM-16 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.3	**7.0**	**9.4**	**30**
Ni	7.1	**12**	**24**	**9**
Co	<5.0	2.0	4.1	2.4
Cd	<1.0	<0.50	<0.50	0.11
Pb	<10	4.0	**13**	**260***
Zn	<15	13	**21**	**21**
Cr	<20	14	17	**61**
As	**1.9**	<1.0	**3.3**	**8.6**
Hg	<0.10	<0.10	<0.050	<0.050
Total PCBs	<0.0030	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	**83**	**44**	**228**	**64**

FM-16 Depth (cm)	2008 30	2010 30	2012 40-50	2014 40-50
Cu	4.2	**9.0**	5.9	**7.0**
Ni	6.7	**17**	**21**	7
Co	<5.0	2.0	2.9	2.1
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	5.0	9.7	**12**
Zn	24	12	14	**15**
Cr	<20	**27**	12	11
As	1.1	**2.0**	**1.9**	**3.0**
Hg	<0.10	<0.10	<0.050	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	22	39	**116**	15

FM-13 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	2.8	5.0	**6.3**	4.85
Ni	5.1	**9.0**	**23**	8.1
Co	<5.0	2.0	3.5	2.15
Cd	<1.0	<0.50	<0.50	0.25
Pb	<10	9.0	8.6	5.5
Zn	**15**	**15**	**20**	**17.5**
Cr	<20	10	14	10.15
As	1.3	**2.0**	**2.8**	**3.2**
Hg	<0.10	<0.10	<0.050	<0.10
Total PCBs	0.014	<0.20	<0.050	<0.1
Modified TPH - (Total C6-C34)	31	20	30	35

FM-13 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.6	5.0	4.5	4
Ni	5.0	**11**	**21**	**8.5**
Co	<5.0	3.0	2.8	2.2
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	5.0	3.1	4.0
Zn	<15	12	11	13
Cr	<20	11	10	11
As	1.3	**2.0**	**1.7**	**2.6**
Hg	<0.10	<0.10	<0.050	<0.050
Total PCBs	0.0031	<0.10	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	28	24	15

LEGEND:

- PERMANENT BENCHMARK
- SOIL SAMPLING LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	6.0	N/A	100
Ni	8.3	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	10	200	500
Zn	15	N/A	500
Cr	20	N/A	250
As	1.7	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.10	1	5
Modified TPH - (Total C6-C34)	40	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.7, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants
AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
COMMUNICATIONS NORTHWEST LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By:	Approved By:	Project No:
I.S.Z.	C.F.G.	350600-515-1
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 9A

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:41:52 AM
SENES FILE NO.: 350600-515-1 FOX-M_Fig 9 - Communications Northwest Landfill.dwg Saved by: Izabela Ziba

9.2.4 Thermal Monitoring

No thermistor installations are present at this landfill.

9.3 RESULTS OF THE MONITORING PROGRAM

9.3.1 Visual Inspection

The visual inspection at the Communications Northwest Landfill was completed on 15 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 9.2.

9.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 9.3.

9.3.1.2 Photographic Records

The photograph log for the site is provided in Table 9.4.

9.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 9.5 below for each category observed.

Table 9.5: Visual Inspection Trends (Communications Northwest Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	None noted on 2012 landfill drawing.	Minor settlement observed on south landfill berm (Feature C).	One new area of minor settlement identified during new monitoring event.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.

TABLE 9.2 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Communications Northwest Landfill
DATE OF INSPECTION: 14 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 9.2 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	On west side of south berm (Feature C)	0.3	0.3	0.1	<1%	Small depression		
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	On landfill berms (Feature B)				1-2%	Small shrubs	P-6, P-9, P-10, P-11.1,	
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Vehicle tracks/ruts in numerous places on berms and landfill cap (Feature A)				5%	Vehicle tracks/ruts	P-1. P-2.1, P-2.2, P-3, P-5.3, P-8, P-9, P-10, P-12	

Table 9.3: Preliminary Stability Assessment - FOX-M Comm. Northwest Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	None	None
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	None	None
Debris exposure	None	None
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Communications Northwest Landfill (see Figure 9)

Photo 1 (FOX-M CNW P-1 se.jpg)	Photo 2.1 (FOX-M CNW P-2 east.jpg)
Description: View southeast across road to the Communications Northwest Landfill. Vehicle tracks/ruts observed along the eastern slope of the landfill, running parallel to the road as seen in photo. **(FEATURE A)**	Description: View east along southern landfill slope. Photo taken from southwest corner. Vehicle tracks/ruts and minor settlement observed on the south landfill slope. **(FEATURE A, C)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 2.2 (FOX-M CNW P-2 north.jpg)	Photo 3 (FOX-M CNW P-3.jpg)
Description: View north along western landfill slope adjacent to road. Photo taken from southwest corner. Vehicle tracks/ruts can be seen on the slope. **(FEATURE A)**	Description: A close-up of the vehicle tracks/ruts observed on the slope near the southwestern corner of the landfill. **(FEATURE A)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 4 (FOX-M CNW P-4 nw.jpg)	Photo 5.1 (FOX-M CNW P-5 north.jpg)
Description: View toward vehicle tracks/ruts on the southern slope of the landfill. **(FEATURE A)**	Description: View north along eastern edge of landfill.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 5.2 (FOX-M CNW P-5 nw.jpg)	Photo 5.3 (FOX-M CNW P-5 west.jpg)
Description: View northwest across the landfill cap.	Description: View west across landfill cap. Vehicle tracks/ruts can be seen on the southern slope (left hand side of the photo). The truck is parked on the road near monitoring location FM-CNW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 6 (FOX-M CNW P-6 nw.jpg)	Photo 7.1 (FOX-M CNW P-7 se.jpg)
Description: View of the southeast corner of the Communications Northwest Landfill.	Description: View toward billboards across the southern half of the landfill cap.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 7.2 (FOX-M CNW P-7 south.jpg)	Photo 8 (FOX-M CNW P-8.jpg)
Description: View south across the landfill cap.	Description: Vehicle tracks/ruts observed on the landfill cap.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 9 (FOX-M CNW P-9 sw.jpg)	Photo 10 (FOX-M CNW P-10 sw.jpg)
Description: The eastern slope of the landfill. Vehicle tracks/ruts can be seen at the top of the slope. **(FEATURE A)**	Description: The northeast corner of the landfill. Vehicle tracks/ruts can be seen running downhill from the top of the slope. Spare vegetation observed on landfill berm. **(FEATURE A, B)**
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 11.1 (FOX-M CNW P-11 south.jpg)	Photo 11.2 (FOX-M CNW P-11 sw.jpg)
Description: View south along eastern top of slope. Photo taken from northeast corner.	Description: View southwest across landfill cap. Photo taken from northeast corner.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 12 (FOX-M CNW P-12 nw.jpg)	Photo 13 (FOX-M CNW P-13.jpg)
Description: View northwest along northern slope of landfill. Field book placed in vehicle tracks/ruts. Photo taken from northeast corner.	Description: Test pit for soil collection at FM-CNW-13.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 14 (FOX-M CNW P-14.jpg)	Photo 15 (FOX-M CNW P-15 north.jpg)
Description: After soil sample collection and backfill at FM-CNW-13.	Description: View north toward landfill from FM-CNW-13.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 16 (FOX-M CNW P-16.jpg)	Photo 17 (FOX-M CNW P-17.jpg)
Description: Soil sample collection at FM-CNW-15.	Description: After sample collection and backfill at FM-CNW-15.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 18 (FOX-M CNW P-18 east.jpg)	Photo 19 (FOX-M CNW P-19.jpg)
Description: View east across road toward Communications Northwest Landfill. Photo taken from FM-CNW-15.	Description: Soil sample collection at FM-CNW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 20 (FOX-M CNW P-20.jpg)	Photo 21 (FOX-M CNW P-21 south.jpg)
Description: After collection and backfill at FM-CNW-14.	Description: View south from FM-CNW-14.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 22 (FOX-M CNW P-22.jpg)	Photo 23 (FOX-M CNW P-23.jpg)
Description: Soil sample collection at FM-CNW-16.	Description: After collection and backfill at FM-CNW-16.
Date: August 14, 2014	Date: August 14, 2014

TABLE 9.4: LANDFILL VISUAL INSPECTION PHOTO LOG (COMMUNICATIONS NORTHWEST LANDFILL)

Photo 24 (FOX-M CNW P-24 west.jpg)	
Description: View west toward landfill from FM-CNW-16.	
Date: August 14, 2014	

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Vegetation	None noted on 2012 landfill drawing.	Sparse vegetation was observed, primarily along the berms of the landfill. (Feature B)	Vegetation is establishing itself on the landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	No active seepage points observed.	None observed at this landfill.
Debris Exposed	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Presence/Condition of Monitoring Instruments	No monitoring instruments are present at this landfill.	No monitoring instruments are present at this landfill.	No monitoring instruments are present at this landfill.
Other Features of Note	Vehicle tracks and ruts were identified in numerous places on landfill berms and cap.	Vehicle tracks and ruts in numerous places on landfill berms and cap. More tracks and ruts were present than were observed in 2012. (Feature A)	The number of vehicle tracks on the landfill is increasing, however this has not yet affected the performance of the landfill.

9.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Communications Northwest Landfill indicates that some additional vehicle tracks are present on the berms and cap of the landfill. This trend is considered minor and not of concern to the stability of the landfill at the present time. Vegetation appears to be establishing itself on the berms of the landfill. No other tangible changes in the physical condition of the landfill were observed.

9.3.2 Soil Sampling

Soil sampling at the Communications Northwest Landfill was completed on 15 August 2014. As previously reported a total of nine samples including one duplicate sample were procured from four locations as shown in plan on Figure 9.

9.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the Communications Northwest Landfill are presented in Table 9.6.

TABLE 9.6

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT COMMUNICATIONS NORTHWEST LANDFILL

PARAMETERS	Background Concentration (_)	Baseline Average Concentration (+)	DEW Line Cleanup Tier I Criteria (*)	DEW Line Cleanup Tier II Criteria (**)	FM-CNW-13-S 15-Aug-14 0-15cm	FM-CNW-13-S (DUP) 15-Aug-14 0-15cm	FM-CNW-13-S (AVG) 15-Aug-14 0-15cm	FM-CNW-13-D 15-Aug-14 40-50cm	FM-CNW-14-S 15-Aug-14 0-15cm	FM-CNW-14-D 15-Aug-14 40-50cm	FM-CNW-15-S 15-Aug-14 0-15cm	FM-CNW-15-D 15-Aug-14 40-50cm	FM-CNW-16-S 15-Aug-14 0-15cm	FM-CNW-16-D 15-Aug-14 40-50cm
Copper	**6.3**	**6.0**	**-**	**100**	4.7	5	4.85	4.4	**9.3+**	**7.9+**	**8.4+**	4.6	**30+**	**7+**
Nickel	**5.0**	**8.3**	**-**	**100**	**6.2**	**10+**	**8.1+**	**8.5+**	**8.2**	**10+**	**5.1**	**7.7**	**8.5+**	**7.1**
Cobalt	**5.0**	**5.0**	**-**	**50**	1.6	2.7	2.15	2.2	2	2.7	0.73	2	2.4	2.1
Cadmium	**1.0**	**1.0**	**-**	**5**	0.25	<0.5	0.25	<0.10	0.11	<0.10	0.16	0.21	0.11	<0.10
Lead	**10**	**10**	**200**	**500**	6	5	5.5	4	6.8	5.7	2.8	3.4	**260+***	**12+**
Zinc	**15**	**15**	**-**	**500**	**18+**	**17+**	**17.5+**	13	15	**18+**	7.2	13	**21+**	15
Chromium	**20**	**20**	**-**	**250**	8.3	12	10.15	11	9.2	13	4.3	13	**61+**	11
Arsenic	**1.0**	**1.7**	**-**	**30**	**2.4+**	**4.0+**	**3.2+**	**2.6+**	**3.7+**	**2.9+**	**2.0+**	**1.7+**	**8.6+**	**3.0+**
Mercury	**N/A**	**0.10**	**-**	**2**	<0.050	<0.1	<0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.21**	**0.10**	**1**	**5**	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<5	<10	<10	<10	<10	<30	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<30	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<50	<50	<10	13	<10	120	<10	54	<10
PHC F4 (C34-C50)	-	-			<10	<50	<50	<10	<10	<10	44	<10	32	<10
Modifed TPH (Total C6-C34)	-	**40**	**-**	**2500**	15	32.5	35	15	23	15	**150+**	15	**64+**	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_	Exceeds FOX-M Communications Northwest Landfill Background Concentration.
+	Exceeds FOX-M Communications Northwest Landfill Baseline Average Concentration.
*	Exceeds DEW Line Cleanup Tier I Criteria.
**	Exceeds DEW Line Cleanup Tier II Criteria.
(DUP)	Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG)	Average concentration of duplicate samples.
<	Not detected.
-	No concentration reported.

A duplicate soil sample was collected from surficial soils at sample location CNW-13 and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample were above 30% for three of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

9.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Communications Northwest Landfill is provided in Table 9.7. The discussion includes a comparison of results from downgradient soil sampling locations to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage. No upgradient locations have been identified at this landfill.

Table 9.7: Evaluation of 2014 Soil Analytical Data (Communications Northwest Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	6.0	Detectable concentrations ranged between 4.4 and 30 ug/g, with the highest concentration reported in the surface sample collected from the CNW-16 sample location while the lowest concentration was reported within the subsurface sample at the CNW-13 sample location. Four of the nine samples analyzed reported concentrations below the BAC while five of nine samples reported a parameter concentration above the BAC.
Nickel	8.3	Detectable concentrations ranged between 5.1 and 10 ug/g, with the highest concentration reported in the subsurface sample collected from the CNW-14 sample location while the lowest concentration was reported within the surface sample at the CNW-15 sample location. Six of the nine samples analyzed reported concentrations below the BAC while three of nine samples reported a parameter concentration above the BAC.
Cobalt	5.0	Detectable concentrations ranged between 0.73 and 2.7 ug/g, with the highest concentration reported in the subsurface sample collected from the CNW-14 sample location while the lowest concentration was reported within the surface sample at the CNW-15 sample location. All nine samples reported concentrations below the BAC.
Cadmium	1.0	Detectable concentrations ranged between 0.11 and 0.25 ug/g, with the highest concentration reported in the surface sample collected from the CNW-13 sample location while the lowest concentration was reported within the surface samples at the CNW-14 and CNW-16 sample locations. All nine samples reported concentrations below the BAC.
Lead	7.1	Detectable concentrations ranged between 2.8 and 260 ug/g, with the highest concentration reported in the surface sample collected from the CNW-16 sample location while the lowest concentration was reported within the surface sample at the CNW-15 sample location. Seven of the nine samples analyzed reported concentrations below the BAC while two of nine samples reported a parameter concentration above the BAC, one of which is above the DEW Line Cleanup Tier I Criteria for lead of 200 ug/g.
Zinc	15	Detectable concentrations ranged between 7.2 and 21 ug/g, with the highest concentration reported in the surface sample collected from the CNW-16 sample location while the lowest concentration was reported within the surface sample at the CNW-15 sample location. Five of the nine samples analyzed reported concentrations equal to or below the BAC while four of nine samples reported a parameter concentration slightly above the BAC.
Chromium	20	Detectable concentrations ranged between 4.3 and 61 ug/g, with the highest concentration reported in the surface sample collected from the CNW-16 sample location while the lowest concentration was reported within the surface sample at the CNW-15 sample location. Eight of the

Parameter	Baseline Average Concentration (ug/g)	2014 Results
		nine samples analyzed reported concentrations equal to or below the BAC while one of nine samples reported a parameter concentration above the BAC.
Arsenic	1.7	Detectable concentrations ranged between 1.7 and 8.6 ug/g, with the highest concentration reported in the surface sample collected from the CNW-16 sample location while the lowest concentration was reported within the subsurface sample at the CNW-15 sample location. One of the nine samples analyzed reported a concentration equal to the BAC while eight of nine samples reported a parameter concentration slightly above the BAC.
Mercury	0.10	All nine samples reported concentrations less than the laboratory detection limit (0.050 ug/g and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC.
PCBs	0.10	All 11 samples reported concentrations less than the laboratory detection limit (0.1 ug/g, 0.2 ug/g, and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory). Eight of nine samples had detection limits equal to or below the BAC while one sample had a detection limit higher than the BAC.
TPH	40	Detectable concentrations of PHC fractions F1, F2, and F3 were detected in three of nine samples, resulting in modified TPH concentrations for the nine samples ranging from 15 to 150 ug/g, with the highest concentration in the surface sample at CNW-15 and the lowest concentration at five sampling locations. Seven of the nine samples reported concentrations below the BAC while two samples reported concentrations above the BAC.

9.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 9.8. Trends have been analyzed for downgradient soil sampling locations as no upgradient locations have been identified at this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 9.8: Evaluation of Soil Result Trends (Communications Northwest Landfill)

Parameter	2014 Results
Copper	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Nickel	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Cobalt	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Cadmium	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations are generally below the laboratory detection limit and the BAC.
Lead	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Zinc	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Chromium	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Arsenic	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Mercury	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations have all been below the laboratory detection limit and the BAC.
PCBs	Concentrations show a relatively stable trend for downgradient soil locations. Concentrations are generally below the laboratory detection limit and the BAC.
TPH	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.

9.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

9.5 RECOMMENDATIONS/NEXT STEPS

During the next monitoring event at the site, it is recommended that additional soil samples be collected in the vicinity of the elevated lead concentration at the CNW-16 soil sample location to horizontally delineate the extent of contamination and provide insight into whether this result is due to contaminant migration from the landfill. Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued, however no remedial work is necessary at this time.

10.0 COMMUNICATIONS NORTH LANDFILL

10.1 LANDFILL DESCRIPTION

The Communications North Landfill extends northward off the north edge of the tropospheric communications infrastructure pad, and has an approximate area of 5,800 m^2. This landfill consists of an existing area of buried debris. A detailed drawing of this landfill is provided in Figure 10. The historical chemical results for soil samples collected at this landfill are shown in plan on Figure 10A.

10.2 SUMMARY OF WORK CONDUCTED

10.2.1 Visual Inspection

The visual inspection of the landfill was completed with no deviations from the work plan.

10.2.2 Soil Sampling

Soil samples were collected at six (6) locations as shown on Figure 10. Surface and subsurface samples were collected at each location, except for the subsurface sample at sample location CNO-18 where soil consisted of coarse-grained gravel and cobbles. One duplicate soil sample was collected from surficial soil at the CNO-18 sample location. Soil sampling completed at the landfill is summarized in Table 10.1.

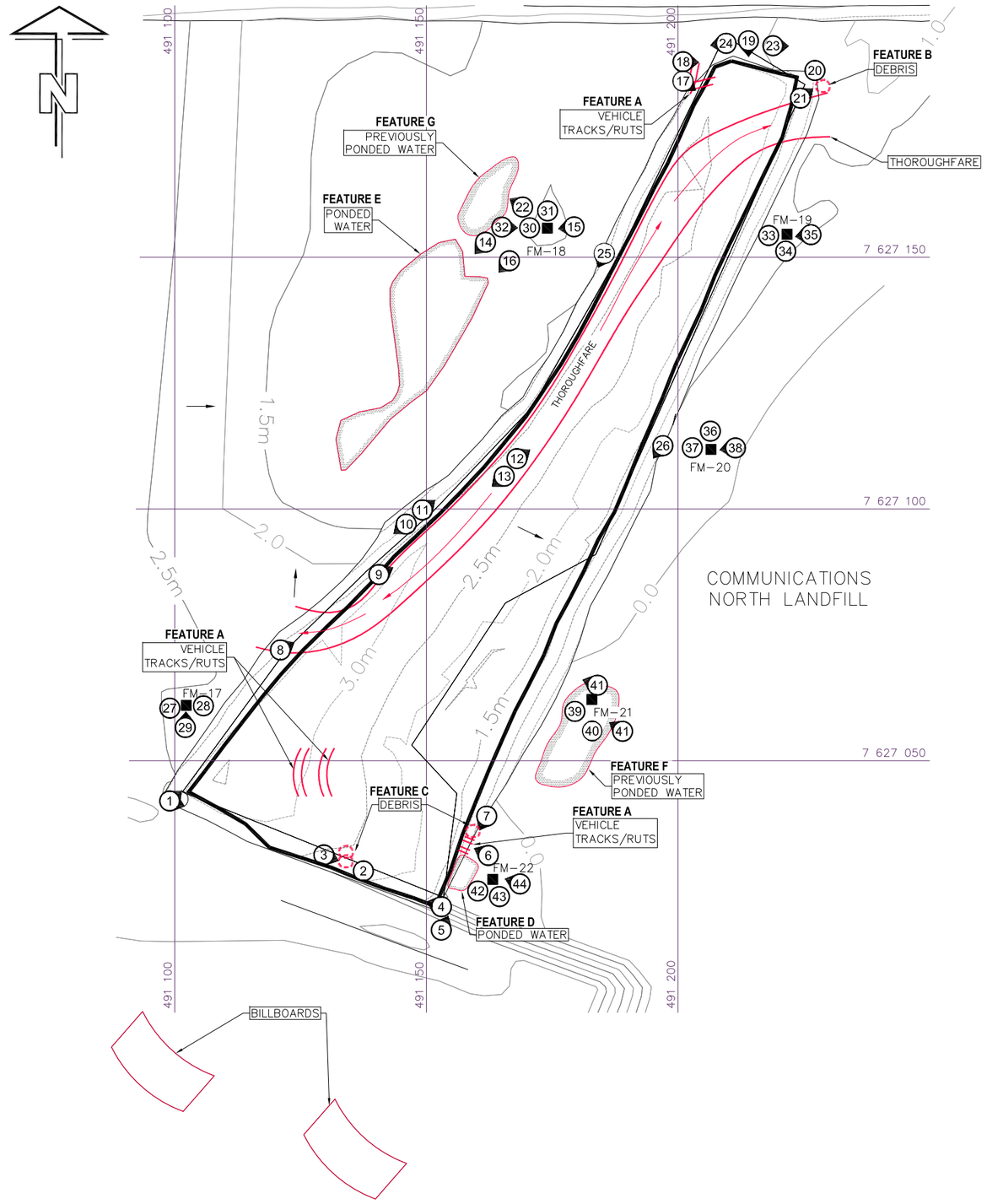
Table 10.1: Summary of Work Conducted by Soil Sampling Location (Communications North Landfill)

Location	Surface Soil Sample Collected	Subsurface Soil Sample Collected
FM-CNO-17	√	√
FM-CNO-18	√[D]	X
FM-CNO-19	√	√
FM-CNO-20	√	√
FM-CNO-21	√	√
FM-CNO-22	√	√

D = duplicate sample collected
√ - sample collected
X – no sample collected

10.2.3 Groundwater Sampling

No groundwater monitoring wells are present at this landfill



LEGEND:

- SOIL SAMPLING LOCATION
- 10 PHOTOGRAPH VIEWPOINT LOCATION
- 2.0m CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION
- VEHICLE TRACKS/RUTS
- PONDED WATER
- EXPOSED DEBRIS

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. PHOTOGRAPHS TAKEN AUG. 15, 2014.
3. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.6, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT

COMMUNICATIONS NORTH LANDFILL

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1	
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 10	

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: March-02-15 10:12:29 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 10 - Communications Northt Landfill.dwg

Sheet Size: 11 x 17 (432mm x 279mm)
PLOT: February-27-15 10:42:51 AM
Saved by: Izabela Ziba
SENES FILE NO.: 350600-515-1 FOX-M_Fig 10 - Communications North Landfill.dwg

FM-18 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.2	4.0	4.2	2.4
Ni	**8.1**	**11**	**21**	6.9
Co	<5.0	2.0	2.8	0.995
Cd	<1.0	<0.20	<0.50	0.12
Pb	<10	4.0	6.3	1.8
Zn	<15	**15**	14	6.3
Cr	<20	14	11	4.7
As	**1.9**	**2.0**	**1.9**	**3**
Hg	<0.10	<0.10	<0.50	<0.10
Total PCBs	<0.0030	<0.020	<0.050	<0.05
Modified TPH - (Total C6-C34)	12	20	**60**	35

FM-18 Depth (cm)	2008 40	2010 40-50	2012 40-50
Cu	<3.0	4.0	4.8
Ni	5.7	**12**	**21**
Co	<5.0	3.0	3.3
Cd	<1.0	<0.50	<0.50
Pb	<10	4.0	9.8
Zn	<15	12	**16**
Cr	<20	15	12
As	**1.9**	**2.0**	**2.0**
Hg	<0.10	<0.10	<0.50
Total PCBs	<0.0030	<0.020	<0.50
Modified TPH - (Total C6-C34)	25	20	**59**

FM-19 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	3.5	5.0	4.6	5.6
Ni	7.2	**12**	**21**	**9.0**
Co	<5.0	3.0	3.2	2.2
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	4.9	4.9
Zn	<15	10	13	14
Cr	<20	16	12	11
As	1.7	1.0	**2.2**	**2.5**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	19	20	24	15

FM-19 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.8	**7.0**	4.6	**5.9**
Ni	**7.8**	**15**	**23**	**11**
Co	<5.0	3.0	3.0	2.4
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	3.8	4.6
Zn	<15	**22**	12	**19**
Cr	<20	**20**	11	13
As	**2.6**	1.0	**2.0**	**2.8**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	16	30	15	15

FM-17 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.2	**6.0**	4.8	5
Ni	6.9	**15**	**19**	**10**
Co	<5.0	3.0	2.7	2.7
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	5.0	3.8	5.0
Zn	<15	14	13	**17**
Cr	<20	**21**	11	13
As	1.7	**2.0**	1.5	**2.5**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	0.0036	<0.20	<0.050	<0.1
Modified TPH - (Total C6-C34)	26	20	36	15

FM-17 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.4	5.0	4.8	**41**
Ni	6.1	**13**	**21**	**11**
Co	<5.0	3.0	3.1	2.5
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	4.0	4.6
Zn	<15	12	13	14
Cr	<20	15	12	12
As	**1.8**	**2.0**	**2.0**	1.7
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	27	36	15

FM-20 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.1	5.0	**6.2**	**6.9**
Ni	**8.3**	**14**	**22**	**11**
Co	<5.0	3.0	4.8	3.1
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	3.0	5.6	5.6
Zn	<15	11	**18**	**17**
Cr	<20	**20**	15	13
As	1.5	<1.0	1.6	**2.0**
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	30	15

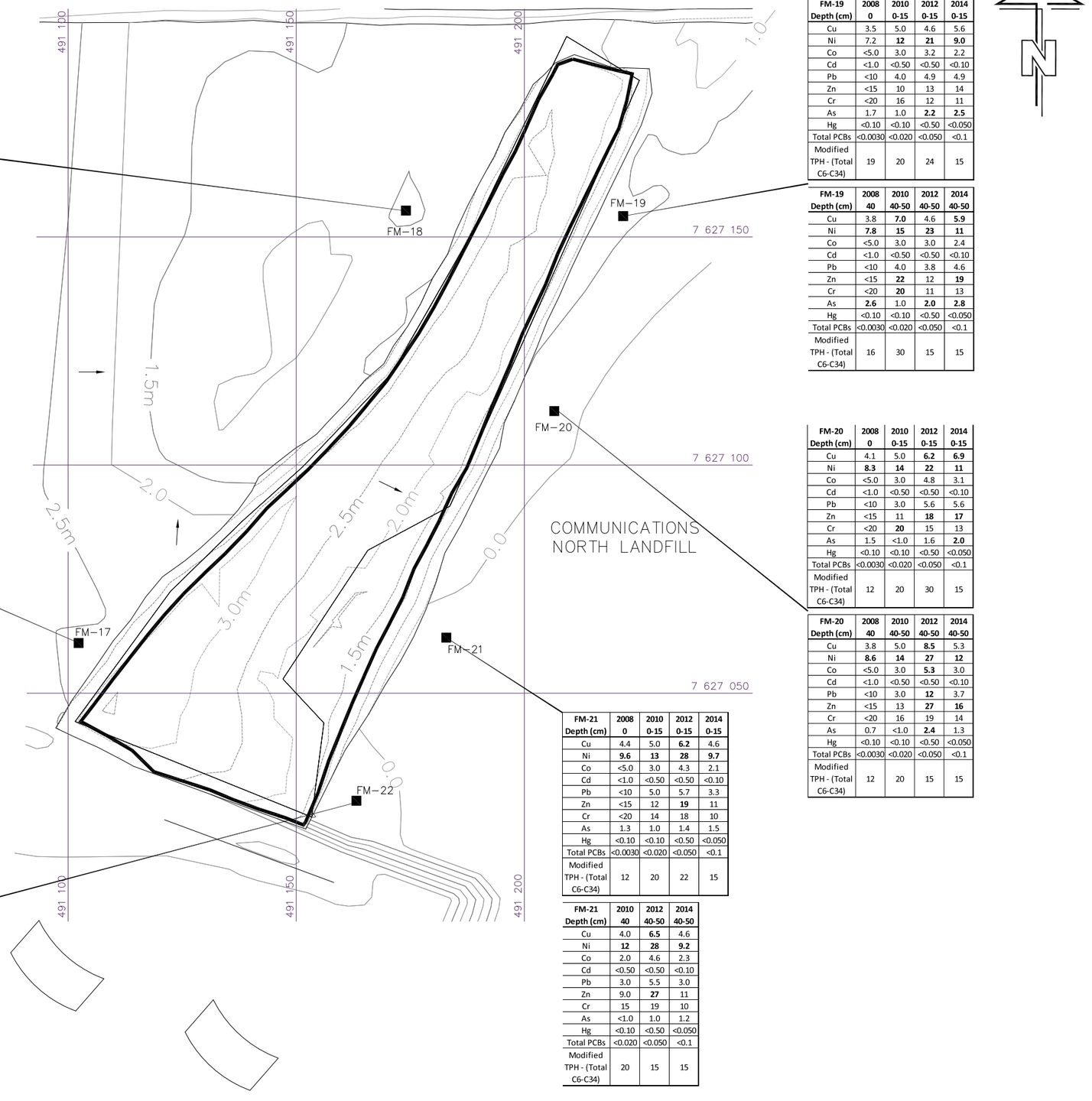
FM-20 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.8	5.0	**8.5**	5.3
Ni	**8.6**	**14**	**27**	**12**
Co	<5.0	3.0	**5.3**	3.0
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	3.0	**12**	3.7
Zn	<15	13	**27**	**16**
Cr	<20	16	19	14
As	0.7	<1.0	**2.4**	1.3
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	15	15

FM-21 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.4	5.0	**6.2**	4.6
Ni	**9.6**	**13**	**28**	**9.7**
Co	<5.0	3.0	4.3	2.1
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	5.0	5.7	3.3
Zn	<15	12	**19**	11
Cr	<20	14	18	10
As	1.3	1.0	1.4	1.5
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	22	15

FM-21 Depth (cm)	2010 40	2012 40-50	2014 40-50
Cu	4.0	**6.5**	4.6
Ni	**12**	**28**	**9.2**
Co	2.0	4.6	2.3
Cd	<0.50	<0.50	<0.10
Pb	3.0	5.5	3.0
Zn	9.0	**27**	11
Cr	15	19	10
As	<1.0	1.0	1.2
Hg	<0.10	<0.50	<0.050
Total PCBs	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	20	15	15

FM-22 Depth (cm)	2008 0	2010 0-15	2012 0-15	2014 0-15
Cu	4.1	**6.0**	5.2	4.2
Ni	7.1	**13**	**22**	**8.8**
Co	<5.0	3.0	3.3	2.1
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	4.0	4.0	3.0
Zn	<15	12	**16**	12
Cr	<20	14	16	11
As	**2.1**	**2.0**	1.3	1.2
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	15	20	15	15

FM-22 Depth (cm)	2008 40	2010 40-50	2012 40-50	2014 40-50
Cu	3.2	5.0	3.3	4.3
Ni	6.8	**12**	**20**	**9.6**
Co	<5.0	2.0	2.8	2.2
Cd	<1.0	<0.50	<0.50	<0.10
Pb	<10	3.0	2.7	2.9
Zn	<15	13	13	13
Cr	<20	13	11	12
As	1.3	1.0	0.80	1.4
Hg	<0.10	<0.10	<0.50	<0.050
Total PCBs	<0.0030	<0.020	<0.050	<0.1
Modified TPH - (Total C6-C34)	12	20	15	15



LEGEND:

- SOIL SAMPLING LOCATION
- 2.0m — CONTOURS IN 0.5m INTERVALS
- OVERLAND FLOW DIRECTION

Parameter	Baseline Average Concentration	DEW Line Tier I Cleanup Criteria	DEW Line Tier II Cleanup Criteria
Cu	5.7	N/A	100
Ni	7.6	N/A	100
Co	5.0	N/A	50
Cd	1.0	N/A	5
Pb	10	200	500
Zn	15	N/A	500
Cr	20	N/A	250
As	1.8	N/A	130
Hg	0.10	N/A	2.0
Total PCB	0.032	1	5
Modified TPH - (Total C6-C34)	40	N/A	2500

All Concentrations in mg/kg

Bold Concentration is Equal to or Exceeds Baseline Average Concentration

* Concentration Exceeds DEW Line Tier I Cleanup Criteria

** Concentration Exceeds DEW Line Tier II Cleanup Criteria

\- No Concentration Reported

N/A Not Applicable

NOTES:

1. LOCATIONS AND SCALE OF FEATURES ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 17N.

REFERENCE:

Biogenie, Project No.: CD2655_200_203, Fig FOX-M.6, Dec. 2012

0 20 40 metres

SCALE 1:1000

SENES Consultants AN ARCADIS COMPANY

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

2014 DEW LINE MONITORING PROGRAM

FOX-M HALL BEACH, NUNAVUT
COMMUNICATIONS NORTH LANDFILL

SOIL CONTAMINANT DISTRIBUTION PLAN

Drawn By: I.S.Z.	Approved By: C.F.G.	Project No: 350600-515-1	
Date: FEB. 2015	Scale: 1:1000	Drawing No: FIGURE 10A	

10.2.4 Thermal Monitoring

No thermistor installations are present at this landfill.

10.3 RESULTS OF THE MONITORING PROGRAM

10.3.1 Visual Inspection

The visual inspection at the Communications North Landfill was completed on 15 August 2014. The visual inspection checklist completed during the site inspection is provided in Table 10.2.

10.3.1.1 Stability Assessment

The stability assessment completed during the site inspection is provided in Table 10.3.

10.3.1.2 Photographic Records

The photograph log for the site is provided in Table 10.4.

10.3.1.3 Trend Analysis

The observations obtained during the visual inspection from the current 2014 monitoring event were compared to the observations obtained during the previous 2012 monitoring event, as identified on the landfill drawings from the 2012 monitoring report, and are presented in Table 10.5 below for each category observed.

TABLE 10.2 - VISUAL INSPECTION CHECKLIST

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: FOX-M
LANDFILL DESIGNATION: Communications North Landfill
DATE OF INSPECTION: 15 August 2014
DATE OF PREVIOUS INSPECTION: 2012
INSPECTED BY: S. Borcsok, J. Mauchan
REPORT PREPARED BY: S. Borcsok
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

TABLE 10.2 - VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	Spare vegetation observed across landfill				<1%	Small shrubs		
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	North and south ends of landfill (Feature B, C)					Metal/wood debris		
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Vehicle tracks on cap and berms of landfill (Feature A), landfill used as roadway across site, ponded water west/east of landfill (Feature D, E, F, G)				<1%	Vehicle tracks, ponded water		

Table 10.3: Preliminary Stability Assessment - FOX-M Communications North Landfill

Feature	Severity Rating	Extent
Settlement	None	None
Erosion	None	None
Frost Action	None	None
Staining	None	None
Vegetation Stress	None	None
Seepage/Ponded Water	Acceptable	Occasional
Debris exposure	Acceptable	Occasional
Overall Landfill Performance: ACCEPTABLE		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Communications North Landfill (see Figure 10)

Photo 1.1 (FOX-M CNO P-1ne.jpg)	Photo 1.2 (FOX-M CNO P-1 north.jpg)
Description: View northeast across the Communications North Landfill. Photo taken from southwest corner.	Description: View looking north toward soil monitoring location FM-CNO-17.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 2 (FOX-M CNO P-2.jpg)	Photo 3.1 (FOX-M CNO P-3 east.jpg)
Description: Minor debris such as scrap wood and pieces of metal observed at the south end of the landfill. **(FEATURE C)**	Description: View east from the southern end of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 3.2 (FOX-M CNO P-3.jpg)	Photo 4 (FOX-M CNO P-4 west.jpg)
Description: An example of the metal debris at the south end of the landfill. **(FEATURE C)**	Description: View west from southeastern corner of landfill. The slope on the left demarcates the southern end of the landfill and is the pad on which billboards are located.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 5 (FOX-M CNO P-5 north.jpg)	Photo 6 (FOX-M CNO P-6.jpg)
Description: View north from adjacent to the southeast corner of the landfill. Photo taken from billboard pad. Cooler is located at soil monitoring location FM-CNO-22.	Description: Vehicle tracks/ruts on the eastern slope near FM-CNO-22. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 7 (FOX-M CNO P-7.jpg)	Photo 8 (FOX-M CNO P-8 ne.jpg)
Description: Close-up view of ruts near FM-CNO-22. Very small metal and wood pieces observed. **(FEATURE A, C)**	Description: View northeast of the Communications North Landfill thoroughfare.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 9 (FOX-M CNO P-9 ne.jpg)	Photo 10 (FOX-M CNO P-10 sw.jpg)
Description: View northeast along western edge of landfill, looking along the thoroughfare.	Description: View southwest toward the southern thoroughfare entrance, looking along the western edge of the landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 11 (FOX-M CNO P-11 ne.jpg)	Photo 12 (FOX-M CNO P-12 ne.jpg)
Description: View northeast along western edge of landfill and thoroughfare. Vehicle tracks observed along the thoroughfare. **(FEATURE A)**	Description: View northeast along thoroughfare from approximate midpoint.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 13 (FOX-M CNO P-13 sw.jpg)	Photo 14 (FOX-M CNO P-14 sw.jpg)
Description: View southwest along thoroughfare from approximate midpoint.	Description: Ponded water west of the landfill. **(FEATURE E)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 15 (FOX-M CNO P-15 west.jpg)	Photo 16 (FOX-M CNO P-16 sw.jpg)
Description: View from landfill toward soil monitoring location FM-CNO-18.	Description: Ponded water west of landfill. Photo taken from near FM-CNO-18. **(FEATURE E)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 17 (FOX-M CNO P-17.jpg)	Photo 18 (FOX-M CNO P-18.jpg)
Description: Vehicle tracks/ruts observed at the northwestern corner of the landfill cap. **(FEATURE A)**	Description: View of the northwestern corner of the landfill cap where vehicle ruts/tracks were observed. **(FEATURE A)**
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 19 (FOX-M CNO P-19 south.jpg)	Photo 20 (FOX-M CNO P-20.jpg)
Description: View south looking toward Communications North Landfill.	Description: Landfill surface cover material. Photo taken at the northeast corner of the landfill cap.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

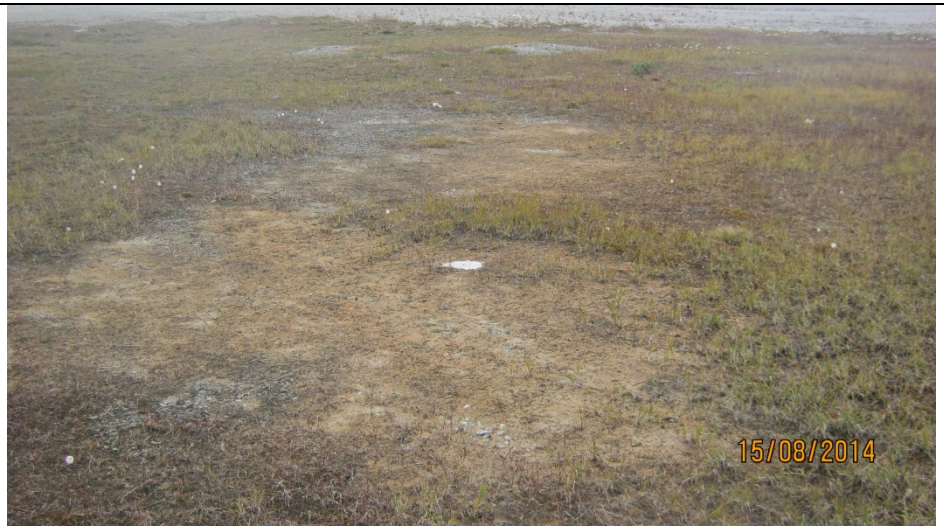
Photo 21 (FOX-M CNO P-21.jpg)	Photo 22 (FOX-M CNO P-22.jpg)
Description: View down the slope at the northeast corner of the landfill cap. Minor amounts of scrap wood were observed on the slope. **(FEATURE B)**	Description: The previously ponded water area west of FM-CNO-18. **(FEATURE G)**
	
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 23 (FOX-M CNO P-23 east.jpg)	Photo 24 (FOX-M CNO P-24.jpg)
Description: View from the beyond the northern end of the landfill, looking east. The thoroughfare seen in the distance enters the landfill at the northeast corner.	Description: The surface material covering. Photo taken at the northwestern corner of the landfill cap.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 25 (FOX-M CNO P-25 sw.jpg)	Photo 26 (FOX-M CNO P-26 south.jpg)
Description: View south along western slope of landfill.	Description: View south along eastern side of landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 27 (FOX-M CNO P-27.jpg)	Photo 28 (FOX-M CNO P-28.jpg)
Description: Digging test pit at FM-CNO-17.	Description: After sample collection and backfill at FM-CNO-17.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

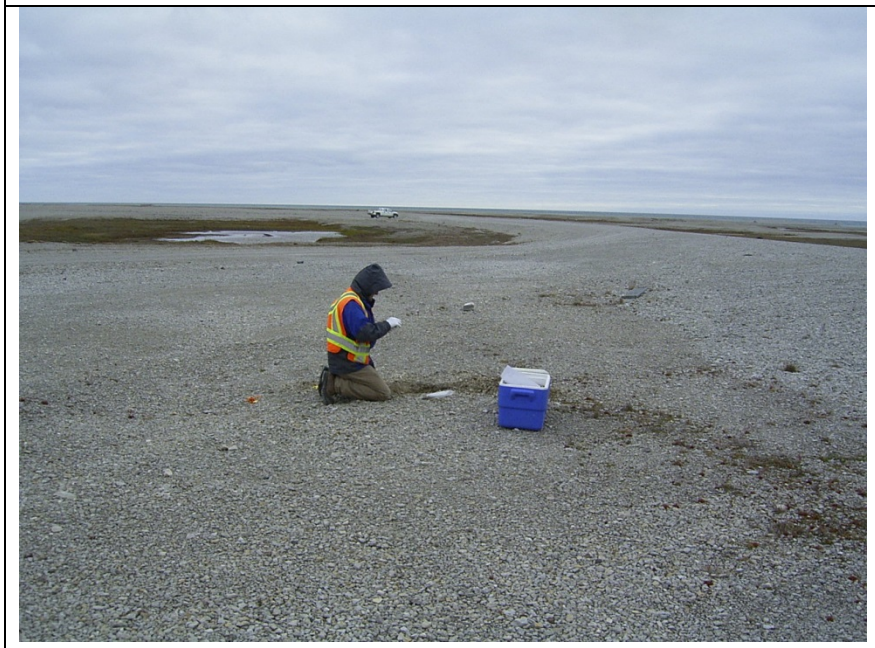
Photo 29 (FOX-M CNO P-29 north.jpg)	Photo 30 (FOX-M CNO P-30.jpg)
Description: View north during sample collection at FM-CNO-17. Photo taken from south of the monitoring location. Truck seen in the distance is parked at northern end of the landfill.	Description: The test pit dug at FM-CNO-18.
	
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 31 (FOX-M CNO P-31.jpg)	Photo 32 (FOX-M CNO P-32 east.jpg)
Description: The material at FM-CNO-18 consisted mainly of gravel.	Description: View east toward FM-CNO-18 and the Communications North Landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 33 (FOX-M CNO P-33.jpg)	Photo 34 (FOX-M CNO P-34.jpg)
Description: Soil sample collection at FM-CNO-19.	Description: After sample collection and backfill at FM-CNO-19.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 35 (FOX-M CNO P35 west.jpg)	Photo 36 (FOX-M CNO P-36.jpg)
Description: View west toward FM-CNO-19 and the Communications North Landfill.	Description: Soil sample collection at FM-CNO-20.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 37 (FOX-M CNO P-37.jpg)	Photo 38 (FOX-M CNO P-38 west.jpg)
Description: After soil sample collection and backfill at FM-CNO-20.	Description: View west toward FM-CNO-20 and the Communications North Landfill.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

Photo 39 (FOX-M CNO P-39.jpg)	Photo 40 (FOX-M CNO P-40.jpg)
Description: Digging the test pit at FM-CNO-21.	Description: Photo taken during backfill of FM-CNO-21.
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

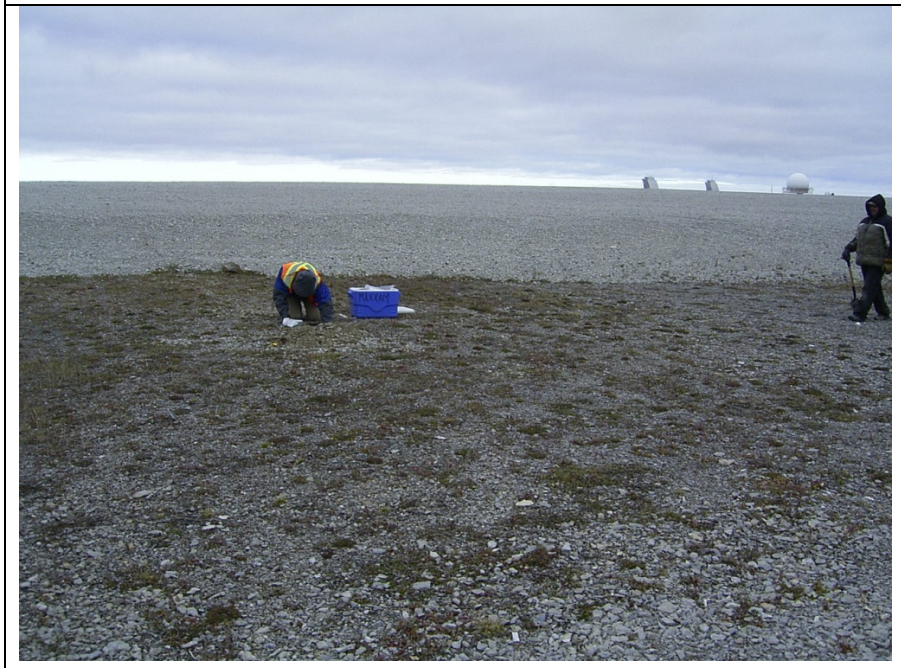
Photo 41 (FOX-M CNO P-41 nw.jpg)	Photo 42 (FOX-M CNO P-42.jpg)
Description: View west toward FM-CNO-21 and the eastern side of the Communications North Landfill. Photo taken during soil sampling at FM-CNO-21.	Description: The test pit at FM-CNO-22
	
Date: August 15, 2014	Date: August 15, 2014

TABLE 10.4: LANDFILL INSPECTION PHOTO LOG (COMMUNICATIONS NORTH LANDFILL)

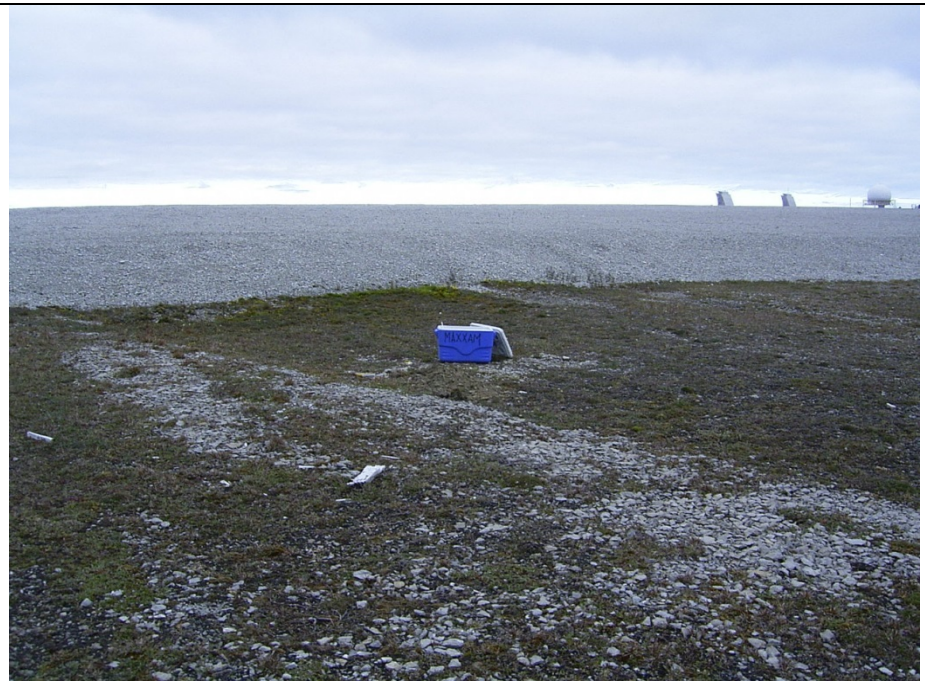
Photo 43 (FOX-M CNO P-43.jpg)	Photo 44 (FOX-M CNO P-44 nw.jpg)
Description: After soil sample collection and backfill at FM-CNO-22.	Description: View west toward FM-CNO-22 and the eastern side of the Communications North Landfill.
	
Date: August 15, 2014	Date: August 15, 2014

Table 10.5: Visual Inspection Trends (Communications North Landfill)

Item	BIOGENIE 2012 Observations	SENES 2014 Observations	Trend
Settlement	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Erosion	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Frost Action	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Sloughing and Cracking	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Animal Burrows	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation	None noted on 2012 landfill drawing.	Sparse vegetation consisting of small shrubs was observed sporadically across the landfill.	Vegetation is slowly establishing itself on the landfill.
Staining	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Vegetation Stress	None noted on 2012 landfill drawing.	None observed.	None observed at this landfill.
Seepage Points	None noted on 2012 landfill drawing.	No active seepage points observed.	None observed at this landfill.
Debris Exposed	Debris was noted at the north and south ends of the landfill on the 2012 landfill drawing.	Small pieces of metal and wood debris were observed at the north and south ends of the landfill. (Feature B, C)	Small metal and wood debris is present at the landfill but did not originate within the landfill.
Presence/Condition of Monitoring Instruments	No monitoring installations were noted on the 2012 landfill drawing.	No monitoring installations are present at this landfill.	None observed at this landfill.
Other Features of Note	Vehicle tracks were noted on the berms and cap of the landfill. Ponded water was noted west and east of the landfill.	Vehicle tracks were observed on the berms and top of the landfill (Feature A). This landfill was observed to be used as part of a roadway around the area. Ponded water was noted west and east of the landfill (Feature D, E, F, G).	Vehicle tracks were more numerous in 2014. Some areas of ponded water were dry in 2014. Areas of ponded water are likely weather dependent.

10.3.1.4 Discussion of Results/Trends

A comparison of the visual inspection results of the 2012 and 2014 monitoring events at the Communications Northwest Landfill indicates that some additional vehicle tracks are present on the berms and cap of the landfill. This trend is considered minor and not of concern to the stability of the landfill at the present time. Vegetation appears to be establishing itself on the landfill. No other tangible changes in the physical condition of the landfill were observed.

10.3.2 Soil Sampling

Soil sampling at the Communications North Landfill was completed on 15 August 2014. As previously reported a total of twelve samples including one duplicate sample were procured from six locations as shown in plan on Figure 10.

10.3.2.1 Laboratory Analytical Results

The analytical results for soil samples collected at the Communications North Landfill are presented in Table 10.6.

A duplicate soil sample was collected from surficial soil at the CNO-18 sample location and was submitted to AGAT, a secondary laboratory for QA/QC purposes. The RPDs for the duplicate sample were above 30% for four of eleven parameters. In these cases, parameter concentrations were very low and small differences in reported concentrations resulted in large RPD values. The duplicate sample results are believed to be consistent.

10.3.2.2 Discussion of Results – Comparison to Baseline/Background

A discussion of the analytical results for each parameter analyzed in soil samples collected at the Communications North Landfill is provided in Table 10.7. The discussion includes a comparison of results from downgradient soil locations to the baseline average concentrations that have been determined for each landfill from soil chemistry at the landfill area prior to and during remediation. Upgradient locations are those near the landfill that are not influenced by migration of contaminants through the landfill, and downgradient locations are at the toe of the landfill or from areas of preferential drainage. No upgradient locations have been identified at this landfill.

TABLE 10.6

RESULTS OF ANALYSIS FOR PARAMETERS IN SOIL AT COMMUNICATIONS NORTH LANDFILL

PARAMETERS	Background Concentration	Baseline Average Concentration	DEW Line Cleanup Tier I Criteria	DEW Line Cleanup Tier II Criteria	FM-CNO-17-S	FM-CNO-17-D	FM-CNO-18-S	FM-CNO-18-S (DUP)	FM-CNO-18-S (AVG)	FM-CNO-19-S	FM-CNO-19-D	FM-CNO-20-S	FM-CNO-20-D	FM-CNO-21-S	FM-CNO-21-D	FM-CNO-22-S	FM-CNO-22-D
	(_)	(+)	(*)	(**)	15-Aug-14 0-15cm	15-Aug-14 40-50cm	15-Aug-14 0-15cm	15-Aug-14 0-15cm	15-Aug-14 0-15cm	15-Aug-14 0-15cm	15-Aug-14 40-50cm	15-Aug-14 0-15cm	15-Aug-14 40-50cm	15-Aug-14 0-15cm	15-Aug-14 40-50cm	15-Aug-14 0-15cm	15-Aug-14 40-50cm
Copper	**6.3**	**5.7**	-	**100**	5.3	**41+**	2.8	2.0	2.4	5.6	**5.9+**	**6.9+**	5.3	4.6	4.6	4.2	4.3
Nickel	**5.0**	**7.6**	-	**100**	**9.7+**	**11+**	**5.8**	**8+**	**6.9**	**9+**	**11+**	**11+**	**12+**	**9.7+**	**9.2+**	**8.8+**	**9.6+**
Cobalt	**5.0**	**5.0**	-	**50**	2.7	2.5	0.99	1	0.995	2.2	2.4	3.1	3	2.1	2.3	2.1	2.2
Cadmium	**1.0**	**1.0**	-	**5**	<0.10	<0.10	0.12	<0.5	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Lead	**10**	**10**	**200**	**500**	5	4.6	1.6	2	1.8	4.9	4.6	5.6	3.7	3.3	3	3	2.9
Zinc	**15**	**15**	-	**500**	**17+**	14	6.3	<5	6.3	14	**19+**	**17+**	**16+**	11	11	12	13
Chromium	**20**	**20**	-	**250**	13	12	6.4	3	4.7	11	13	13	14	10	10	11	12
Arsenic	**1.0**	**1.8**	-	**30**	**2.5+**	**1.7**	<1.0	**3.0+**	**3.0+**	**2.5+**	**2.8+**	**2.0+**	**1.3**	**1.5**	**1.2**	**1.2**	**1.4**
Mercury	**N/A**	**0.10**	-	**2**	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total PCBs	**0.21**	**0.032**	**1**	**5**	<0.1	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PHC F1 (C6-C10)	-	-	-	-	<10	<10	<10	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	-	-	-	-	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10
PHC F4 (C34-C50)	-	-	-	-	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10
Modifed TPH (Total C6-C34)	-	**40**	-	**2500**	15	15	15	35	35	15	15	15	15	15	15	15	15

NOTES:

All parameter values in µg/g (ppm) unless otherwise indicated.

_ Exceeds FOX-M Communications North Landfill Background Concentration.
\+ Exceeds FOX-M Communications North Landfill Baseline Average Concentration.
* Exceeds DEW Line Cleanup Tier I Criteria.
** Exceeds DEW Line Cleanup Tier II Criteria.

(DUP) Duplicate sample analyzed by AGAT Laboratories for QA/QC purposes.
(AVG) Average concentration of duplicate samples.
< Not detected.
\- No concentration reported.

Table 10.7: Evaluation of 2014 Soil Analytical Data (Communications North Landfill)

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Copper	5.7	Detectable concentrations ranged between 2.4 and 41 ug/g, with the highest concentration reported in the subsurface sample collected from the CNO-17 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. Nine of the twelve samples analyzed reported concentrations below the BAC while three of twelve samples reported a parameter concentration above the BAC.
Nickel	7.6	Detectable concentrations ranged between 6.9 and 12 ug/g, with the highest concentration reported in the subsurface sample collected from the CNO-20 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. One of the twelve samples analyzed reported concentrations below the BAC while eleven of twelve samples reported a parameter concentration above the BAC.
Cobalt	3.6	Detectable concentrations ranged between 0.995 and 3.1 ug/g, with the highest concentration reported in the surface sample collected from the CNO-20 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. All twelve samples reported concentrations below the BAC.
Cadmium	1.0	One detectable concentration of 0.12 ug/g was reported in the surface sample from the CNO-18 sample location. All twelve samples reported concentrations below the BAC.
Lead	10	Detectable concentrations ranged between 1.8 and 5.6 ug/g, with the highest concentration reported in the surface sample collected from the CNO-20 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. All twelve samples reported concentrations below the BAC.
Zinc	15	Detectable concentrations ranged between 6.3 and 19 ug/g, with the highest concentration reported in the subsurface sample collected from the CNO-19 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. Eight of the twelve samples analyzed reported concentrations below the BAC while four of twelve samples reported a parameter concentration above the BAC.
Chromium	20	Detectable concentrations ranged between 4.7 and 14 ug/g, with the highest concentration reported in the subsurface sample collected from the CNO-20 sample location while the lowest concentration was reported within the surficial sample at the CNO-18 sample location. All twelve samples reported concentrations below the BAC.

Parameter	Baseline Average Concentration (ug/g)	2014 Results
Arsenic	1.8	Detectable concentrations ranged between 1.2 and 3 ug/g, with the highest concentration reported in the surface sample collected from the CNO-18 sample location while the lowest concentration was reported within the subsurface sample at the CNO-21 sample location and the surface sample at the CNO-22 sample location. Seven of the twelve samples analyzed reported concentrations below the BAC while five of twelve samples reported a parameter concentration above the BAC.
Mercury	0.10	All twelve samples reported concentrations less than the laboratory detection limit (0.050 ug/g and 0.10 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC.
PCBs	0.1	All twelve samples reported concentrations less than the laboratory detection limit (0.1 ug/g and 0.05 ug/g for the duplicate sample submitted to the secondary laboratory) and BAC.
TPH	17	No detectable concentrations of PHC fractions F1, F2 or F3 were detected in the twelve samples, resulting in modified TPH concentrations between 15 and 35 g/g, depending on detection limits.

10.3.2.3 Soil Trend Analysis by Parameter and Discussion of Trends

A discussion of the trends observed for parameter concentrations in soil from 2008 to 2014 are presented in Table 10.8. Trends have been analyzed for downgradient locations as no upgradient locations have been identified at this landfill. Note that these trend analyses were performed on six datasets, however a minimum of seven data sets are recommended to establish a statistical trend.

Table 10.8: Evaluation of Soil Result Trends (Communications North Landfill)

Parameter	2014 Results
Copper	Concentrations show an upward trend for downgradient soil locations. Concentrations are clustered around the BAC.
Nickel	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Cobalt	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally below the BAC.
Cadmium	Concentrations show a relatively stable trend for downgradient soil locations, as all all but one reported concentration have been below laboratory detection limits.
Lead	Concentrations show a slight downward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Zinc	Concentrations show an upward trend for downgradient soil locations. Concentrations are generally above the BAC.
Chromium	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally above the BAC.

Parameter	2014 Results
Arsenic	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally clustered around the BAC.
Mercury	Concentrations show a relatively stable trend for downgradient soil locations, as all all reported concentrations have been below laboratory detection limits.
PCBs	Concentrations show a relatively stable trend for downgradient soil locations, as all all but one reported concentration have been below laboratory detection limits.
TPH	Concentrations show a slight upward trend for downgradient soil locations. Concentrations are generally above the BAC.

10.4 CONCLUSIONS/OVERALL PERFORMANCE OF THE LANDFILL

Based on the findings of the 2014 landfill monitoring program and comparison of these findings to the results of the 2012 monitoring program, the performance of the landfill is considered to be acceptable.

10.5 RECOMMENDATIONS/NEXT STEPS

Regular monitoring of this landfill as per the monitoring schedule shown in Table 1.1 should be continued. No remedial work is necessary at this time.

APPENDIX A

RANGE OF THE REPORT AND LIMITATION OF RESPONSIBILITIES

RANGE OF THE REPORT AND LIMITATION OF RESPONSIBILITIES

This landfill monitoring program was commissioned as part of an ongoing program assessing the performance of landfills present at the subject site. The visual observations, test data, chemical analyses and conclusions given in this landfill monitoring report are considered to provide a fair representation of the surface and subsurface conditions within or adjacent to each landfill subject to monitoring. It should be noted, however, that any conclusions regarding the performance of these landfills are based on interpretation of conditions observed during the landfill monitoring program and at specific locations and sampling depths.

This monitoring report, prepared for Public Works and Government Services (PWGSC) and the Department of National Defence (DND), does not provide certification or warranty, expressed or implied, that the monitoring program uncovered all potential issues of environmental or geotechnical concern at the landfills inspected. The material in the report reflects SENES' best judgement in light of the information available at the time of report preparation in November 2014. Changes to soil and/or groundwater quality in the areas investigated can occur following the date of testing. Any use which a third party makes of, or any reliance on, or decisions based on this report or of parts thereof made by them, is the sole responsibility of such third parties unless otherwise agreed-to by duly authorized representatives from SENES, PWGSC and DND.

APPENDIX B

FIELD NOTES

APPENDIX B.1 – Thermistor Inspection Reports
APPENDIX B.2 – Monitoring Well Inspection Reports
APPENDIX B.3 – Visual Inspection Reports

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: SBNES	Inspection Date: 16 Aug 2014
Prepared By: JM/SB	

Thermistor Information

Site Name: FOX-M	Thermistor Location	Tier II Disposal Facility	
Thermistor Number: VT-1	Inclination	VERT	
Install Date: ~~29 Aug 2007~~	First Date Event	~~29 Aug 2007~~	Last Date Event
Coordinates and Elevation	N 7626709	E 490946	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07050014	3.62	Cable Serial Number ~~TS07050014~~	B-9.2
Thermistor Type VL-16			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	some peeling red paint
Cover	☑	☐	not locked
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date	Sept/11	/	29 Aug/14
Battery Levels	Main 11.34	/ 11.34	Aux 13.14/13.50

Downloaded August 16, 2011 DEE

Manual Ground Temperature Readings

Bead	ohms V	Degrees C
1	1.0689	4.1534
2	1.0646	4.0137
3	1.0075	2.1404
4	0.9530	0.3430
5	0.9224	-0.6745
6	0.8889	-1.7988
7	0.8597	-2.7857
8	0.8293	-3.8260

Bead	ohms V	Degrees C
9	0.8065	-4.6111
10	0.7831	-5.4280
11	0.7608	-6.2135
12	0	381.0742
13	↓	↓
14		
15		
16		

Observations and Proposed Maintenance

Desiccant needs replacing
Cap pin removed easily
Ground wire cut off
-31:00 clock reading

Inspected 16 Aug/14
Downloaded data 29 Aug/14

Thermistor Annual Maintenance Report

29 Aug 114

Contractor Name: SENES	Inspection Date: 16 Aug 114
Prepared By: SB/JM	

Thermistor Information

Site Name: Fox M	Thermistor Location Tray II Disposal Facility		
Thermistor Number: VT-2	Inclination VERT		
Install Date: ~~29 Aug 07~~	First Date Event ~~30 Aug 07~~	Last Date Event	
Coordinates and Elevation	N 7626750	E 490980	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 0706009	3.04	Cable Serial Number TS07060009 (VT-2)	B-2,2
Thermistor Type RX-16, EL-16			

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑ Dented	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date	Sept 111	/ 29 Aug 114
Battery Levels	Main 11.34 / 11.34	Aux 13.38 / 13.75

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.0573	3.7740
2	0.9987	1.8519
3	0.9414	-0.0419
4	0.8993	-1.4483
5	0.8584	-2.8298
6	0.8103	-4.4815
7	0.7811	-5.4976
8	0	381.0742

Bead	ohms	Degrees C
9	0	381.0742
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Cap pin not secure
Dessicant needs replacing
-1:07:01 clock

Inspected 16 Aug 2014
Data downloaded 29 Aug 12014

Thermistor Annual Maintenance Report

29 Aug 2014

Contractor Name: SENES	Inspection Date: 16 Aug 2014
Prepared By: S. Borcsok	

Thermistor Information FOX-M

Site Name: VT-3 Tier II		Thermistor Location Tier II LF	
Thermistor Number: VT-3		Inclination VERT	
Install Date: ~~28 Aug 09~~		First Date Event ~~31 Aug 09~~	Last Date Event
Coordinates and Elevation	N 762 6739	E 491 058	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 06030090		Cable Serial Number TS06030090(VT-3)	P1-P16
Thermistor Type VL-16			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	some minor cracks on outer rubber casing
Beads	☐	☐	
Battery Installation Date	Sept / 2011		
Battery Levels	Main 11.34 / 11.34	Aux	13.14 / 13.50

Manual Ground Temperature Readings

Bead	ohms V	Degrees C
1	1.0537	3.6566
2	0.9975	1.8117
3	0.9465	0.1278
4	0.9143	-0.9447
5	0.8786	-2.1446
6	0.8522	-3.0427
7	0.8273	-3.8942
8	0.8059	-4.6323

Bead	ohms V	Degrees C
9	0.7828	-5.4387
10	0.7620	-6.1729
11	0.7492	-6.6286
12	∞	381.0742
13		
14		
15		
16		

Observations and Proposed Maintenance

not locked
ground is broken at logger end.

Inspected 16 Aug 14
Data downloaded 29 Aug 14

-4969 days, 45:35 clock

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: SENES	Inspection Date: 16 Aug/14
Prepared By: SB/JM	

Thermistor Information

Site Name: FOX-M	Thermistor Location Tier II Landfill		
Thermistor Number: VT-4	Inclination VERT		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 762684	E 491004	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07060020	3.05	Cable Serial Number ~~TS07060020~~ (CUT-4)	
Thermistor Type UL-16			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date	~~Sept/11~~		/ 29 Aug/14
Battery Levels	Main 11.34	/ 11.34	Aux 13.38 / 13.75

Manual Ground Temperature Readings

Bead	ohms V	Degrees C
1	1.0636	3.9787
2	1.0120	2.2883
3	0.9542	0.3834
4	0.9259	-0.5574
5	0.8780	-2.1652
6	0.8436	-3.3344
7	0.8119	-4.4234
8	0	381.0742

Bead	ohms V	Degrees C
9	0	381.0742
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Dessicant needs replacing
Cap pin not secure
-48:26 clock

Inspected 16 Aug/14
Data downloaded 29 Aug/14

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: SENES	Inspection Date: 16 Aug/14
Prepared By: SB/JM	

Thermistor Information

Site Name: FOX M	Thermistor Location Tier II Disposal Facility		
Thermistor Number: VT-5	Inclination Vert		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 762 6806	E 490974	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07060023	1.23 + 2.17	Cable Serial Number TS07060023	
Thermistor Type RX-16 . UL-16			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date	Sept/11		/ 29 August/14
Battery Levels	Main 11.34 / 11.34	Aux	13.50 / 13.63

Manual Ground Temperature Readings

Bead	ohms V	Degrees C
1	1.0689	4.1534
2	1.0050	2.0577
3	0.9433	0.0214
4	0.9070	-1.1899
5	0.8576	-2.8583
6	0.8278	-3.8759
7	0.8023	-4.7595
8	0	381.0742

Bead	ohms	Degrees C
9	0	381.0742
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Desiccant needs replacing
Cap pin not secure
-5 1:46 clock

Inspected 16 Aug/14
Data downloaded 29 Aug/14

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: SENES	Inspection Date: 16 Aug /14
Prepared By: S. Borcsok	

Thermistor Information

Site Name: FOX-M		Thermistor Location EAST BEACH LANDFILL	
Thermistor Number: VT-6		Inclination VERT	
Install Date:		First Date Event	Last Date Event
Coordinates and Elevation	N 7626447	E 490894	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 0706 0018	1.01 + 3.46	Cable Serial Number TS07060018 (VT-6)	
Thermistor Type UL-16			

Thermistor Inspection

Memory: Wrapped

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date	5 Sept/11		/ 29 Aug/14
Battery Levels	Main 11.34	/ 11.34	Aux 12.77 / 13.58

Manual Ground Temperature Readings

Bead	ohms V	Degrees C
1	1.0830	4.6151
2	1.0489	3.4992
3	0.9872	1.4725
4	0.9391	-0.1205
5	0.9156	-0.9039
6	0.8878	-1.8357
7	0.8603	-2.7649
8	0.8327	-3.7081

Bead	ohms V	Degrees C
9	0.8094	-4.5106
10	0	381.0742
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Cappin not on cap, pin not secure
Dessicant needs replacing
-1:43:14 clock

Inspected 16 Aug 14
Data downloaded 29 Aug/14

Housing serial # 070610

Thermistor Annual Maintenance Report

29 Aug 14

Contractor Name: SENES	Inspection Date: 16 Aug 14
Prepared By: S. Barcsok	

Thermistor Information

Site Name: FOX-M	Thermistor Location EAST BEACH LANDFILL		
Thermistor Number: VT-7	Inclination VERT		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 7626744	E 491381	Elev 3.5m (with man cap)
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07010006	1.11 + 3.47	Cable Serial Number TS07010006 (VT-7)	
Thermistor Type			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☐✓	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☐✓	☐	
Battery Installation Date	Sept/11		/ 29 Aug/14
Battery Levels	Main 11.34 / 11.34	Aux	13.38 / 13.75

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.0774	4.4304
2	1.0588	3.8214
3	1.0050	2.0577
4	0.9536	0.3607
5	0.9253	-0.5778
6	0.8955	-1.5765
7	0.8627	-2.6846
8	0.8338	-3.6688

Bead	ohms	Degrees C
9	0.8049	-4.6667
10	0	381.0742
11	↓	↓
12		
13		
14		
15		
16	↓	↓

Observations and Proposed Maintenance

Ground not attached - attachment pt. is stuck and won't rotate
No lock, cap pin can fall out
Dessicant needs replacing
-42:04 clock

Inspected 16 Aug/14
Data downloaded
29 Aug/14

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: SENES	Inspection Date: 16 Aug/14
Prepared By: S. Borcsok	

Thermistor Information

Site Name: FOX-M	Thermistor Location EASTBEACH LANDFILL		
Thermistor Number: VT-8	Inclination VERT		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 7626817	E491368	Elev 1m
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07040022	3.42+1.17	Cable Serial Number TS07040022	
Thermistor Type			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			29 Aug/14
Battery Levels	Main 11.34	/ 11.34	Aux 13.02 / 13.38

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.0927	4.9319
2	1.0658	4.0511
3	0.9928	1.6585
4	0.9492	0.0493
5	0.9143	-0.9447
6	0.8821	-2.0261
7	0.8541	-2.9778
8	0.8266	-3.9179

Bead	ohms	Degrees C
9	0.8065	-4.6111
10	0	381.0742
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

LOCK ON BUT NEEDS ~~BOLT OF SECURE LOCK~~ PIN OR ZIPTIE TO SECURE
Lock ADDED
-42:30 clock

Inspected 16 Aug/14
Data downloaded 29 Aug/14

Thermistor Annual Maintenance Report

Contractor Name: SENES	Inspection Date: 16 Aug/14 / 29 Aug/14
Prepared By: S. Borcsok	

Thermistor Information

Site Name: FOX-M	Thermistor Location EAST BEACH LANDFILL		
Thermistor Number: VT-9	Inclination		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 7627038	E 491577	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 0706 0017	0.97 & 3.76	Cable Serial Number T507 0600 17	
Thermistor Type RX-16, UL-16			

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑ Slightly dented	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date	Sept/11	/ 29 Aug/14
Battery Levels	Main 11.34 / 11.32	Aux 13.26 / 13.75

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.0750	4.3531
2	1.0830	4.6151
3	1.0384	3.1544
4	0.9706	0.9237
5	0.9317	-0.3668
6	0.9022	-1.3510
7	0.8651	-2.6017
8	0.8375	-3.5433

Bead	ohms	Degrees C
9	0.8097	-4.5000
10	0	381.0742
11	↓	↓
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Desiccants needs replacing
Cap pin not secure, no lock
Ground cable attachment would not turn
-50:38 clock

Inspected 16 Aug/14
Data downloaded 29 Aug/14

Thermistor Annual Maintenance Report

29 Aug/14

Contractor Name: DCS/SENES	Inspection Date: 16 Aug/14
Prepared By: J. Maughan / S. Borcsok	

Thermistor Information

Site Name: FOX-M	Thermistor Location EAST BEACH NORTH LANDFILL		
Thermistor Number: VT-10	Inclination VERT		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 7627284	E 491603	Elev 8m
Length of Cable (m)	Cable Lead Above Ground (m) 4.57	Nodal Points	
Datalogger Serial # 07060003	1.15+3.42 ↗	Cable Serial Number	P1-P16 T5070600
Thermistor Type RX-16 Rev J-C / UC-16			

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐ NO LOCK
Cover	☑	☐
Data Logger	☐	☐ Ground Cable was not Connected
Cable	☑	☐
Beads	☑?	☐
Battery Installation Date	Not Installed Today	/ 29 Aug/14
Battery Levels	Main 11.34 / 11.34	Aux 13.14 / 13.50

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.1079	5.3311
2	1.0681	4.1285
3	0.9993	1.8720
4	0.9471	0.1456
5	0.9200	-0.7560
6	0.8927	-1.6714
7	0.8603	-2.7649
8	0.8357	-3.6034

Bead	ohms	Degrees C
9	0.8126	-4.3996
10	0	381.0742
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

ADD LOCK
CHANGE DESSICANT PACK
-51:59 clock

Inspected 16 August 14
Data downloaded 29 Aug/14

Thermistor Annual Maintenance Report

29 Aug 17

Contractor Name: SENES	Inspection Date: 16 Aug 17
Prepared By: JM/SB	

Thermistor Information

Site Name: FOX-M	Thermistor Location EAST BERM NORTH LANDFILL		
Thermistor Number: VT-11	Inclination VERT		
Install Date:	First Date Event		Last Date Event
Coordinates and Elevation	N 7627318	E 491568	Elev
Length of Cable (m)	Cable Lead Above Ground (m)	Nodal Points	
Datalogger Serial # 07060002	3.48 + 1.14	Cable Serial Number	P1-P16, B-8.2 1507060002
Thermistor Type UL-16			

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			29 Aug 17
Battery Levels	Main	11.34 / 11.54	Aux 13.26 / 13.75

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	1.1104	5.5108
2	1.0876	4.7648
3	0.9993	1.8720
4	0.9536	0.3607
5	0.9205	-0.7382
6	0.8895	-1.7792
7	0.8589	-2.8298
8	0.8303	-3.7893

Bead	ohms	Degrees C
9	0.8071	-4.5926
10	0	381.0742
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

NO LOCK
REPLACE DESSICANT PACK
-43:57 clock

Inspected 16 Aug 17
Data downloaded 29 Aug 17

Monitoring Well Sampling Record

Site Name:	Fox-M		
Date of Sampling Event:	14Aug/14	Time:	420pm
Names of Samplers:	SM/SB		
Landfill Name:	Non Haz	Samples Collected:	None
Monitoring Well ID:	MW-12	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	53cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A dry	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth from top of pipe (cm)= (i.e. depth to frozen ground)	1.33	Evidence of sludge or siltation:	None
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	NO	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	14 Aug/14	Time:	425pm
Names of Samplers:	SM/SB		
Landfill Name:	Non Haz	Samples Collected:	No
Monitoring Well ID:	MW-13	PHC F1	\
Sample Number:		Inorganic Elements	\
Condition of Well:	OK	PHC F2-F4	\
		PCBs	\
Measured Data		Duplicate Collected?	\
Well pipe height above ground (cm)=	58		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= m (from top of pipe)	1.38	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= m (i.e. depth to frozen ground)	1.63	Evidence of sludge or siltation:	NO
Thickness of water column	25		
Static volume of water in well	0.57		
Depth to free product surface	1.19m		
Free product thickness (mm)=	19cm	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	Y	Interface Meter Decontaminated	
Number washes:	2		
Number rinses:	2		
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Well is north of jet fuel line, flexible part of line is known to break.

Monitoring Well Sampling Record

Site Name:	Fox-M		
Date of Sampling Event:	14Aug/14	Time:	4pm
Names of Samplers:	SM/SB		
Landfill Name:	Non Here	Samples Collected:	NO
Monitoring Well ID:	MW-14	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	No lock PHC F2-F4	
		3-plugs broken PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40	Standing Water around Standpipe	
Diameter of well (cm)=			
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
			Interface
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Meter
Static water level (cm)= (below ground surface)	N/A		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1,12 (From top of pipe)	Evidence of sludge or siltation:	None
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	N/A	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)			
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	Fox-M		
Date of Sampling Event:	14 Aug 14	Time:	410pm
Names of Samplers:	JM/SB		
Landfill Name:	Non Haz	Samples Collected:	YES
Monitoring Well ID:	MW-15	PHC F1	✓
Sample Number:	FM-NH-MW-15	Inorganic Elements	✓
Condition of Well:	OK	PHC F2-F4	✓
		PCBs	✓
Measured Data		Duplicate Collected?	✓
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	96	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	168 (from top of pipe)	Evidence of sludge or siltation:	None
Thickness of water column	72		
Static volume of water in well	1.46L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing/ Footvalve
Volume Purged Water=	6L		
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	7.89		
Final Conductivity (uS/cm)=	582		
Final Temperature (degC)=	3.7		

V

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:		Time:	3pm
Names of Samplers:	S. Borcsak		
	J. Mauchan		
Landfill Name:	Non Haz	Samples Collected:	
Monitoring Well ID:	FM-NH-MW-16	PHC F1	
Sample Number:	" "	Inorganic Elements	
Condition of Well:	Cap Broken	Standing Water PHC F2-F4	
		Around Standpipe PCBs	
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	58		
Diameter of well (cm)=	5cm		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	N/A		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.42m	Evidence of sludge or siltation:	None
Thickness of water column	0		
Static volume of water in well	0		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15Aug/14	Time:	5:40pm
Names of Samplers:	JM/SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-20	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK, no lock	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	39cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.11m	Evidence of sludge or siltation:	NO
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	NO	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	NO		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	5:35pm
Names of Samplers:	SM/SB		
Landfill Name:	East Beach	Samples Collected:	No
Monitoring Well ID:	MW-21	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	42cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.36m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	5:30pm
Names of Samplers:	JM/SB		
Landfill Name:	East Beach	Samples Collected:	No
Monitoring Well ID:	MW-22	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK, no lock	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	52cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	0.67m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	JM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	No		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	5:25pm
Names of Samplers:	JM/SB		
Landfill Name:	EastBeach	Samples Collected:	NO
Monitoring Well ID:	MW-23	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40 cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.20m	Evidence of sludge or siltation:	NO
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	NO	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15Aug/14	Time:	5:20pm
Names of Samplers:	JM/SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-24	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK, no lock	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	42cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.15m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug 14	Time:	5:15pm
Names of Samplers:	SM / SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-25	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK, no loc k	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	45cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth ~~(cm)~~= (i.e. depth to frozen ground)	1.35m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	FM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	5:10pm
Names of Samplers:	JM/SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-26	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	35cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (~~cm~~)= (i.e. depth to frozen ground)	1.23m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	5:05pm
Names of Samplers:			
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-27	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	Cap can be completely removed	PHC F2-F4	
	from casing,	PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	45cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.24m	Evidence of sludge or siltation:	NO
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15Aug/14	Time:	5pm
Names of Samplers:	JM/SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-28	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	49cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.20m	Evidence of sludge or siltation:	NO
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	N	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	16 Aug/14	Time:	8:10am
Names of Samplers:	SM/SB		
Landfill Name:	East Beach	Samples Collected:	YES
Monitoring Well ID:	MW-29	PHC F1	✓
Sample Number:	FM-EB-MW-29	Inorganic Elements	✓
Condition of Well:	OK, rusty lock	NEW LOCK INSTALLED PHC F2-F4	✓
		PCBs	✓
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	39cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)		[redacted]	
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	0.78m	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.20m	Evidence of sludge or siltation:	NO
Thickness of water column	0.42m		
Static volume of water in well	0.85L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water=	Depth-3L	4L purged	& Footvalve
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	7.44		
Final Conductivity (uS/cm)=	603		
Final Temperature (degC)=	2.7		

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	16 Aug 17	Time:	8:30am
Names of Samplers:	JM		
	SB		
Landfill Name:	East Beach	Samples Collected:	✓
Monitoring Well ID:	MW-30	PHC F1	✓
Sample Number:	FM-EB-MW -30	Inorganic Elements	✓
Condition of Well:	OK	~~NEW LOCK ENGRAVED~~ PHC F2-F4	✓
	Soil Around Well is Very Soft	PCBs	✓
Measured Data		Duplicate Collected?	✓
Well pipe height above ground (cm)=	36cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	0.52m	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.22m	Evidence of sludge or siltation:	NO
Thickness of water column	0.70m		
Static volume of water in well	1.42L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing + Footvalve
Volume Purged Water=	7L		
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	7.70		
Final Conductivity (uS/cm)=	1052		
Final Temperature (degC)=	1.6		

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15Aug'19	Time:	5:45pm
Names of Samplers:	SM/SB		
Landfill Name:	East Beach	Samples Collected:	NO
Monitoring Well ID:	MW-31	PHC F1	
Sample Number:		Inorganic Elements	
Condition of Well:	Ok	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	40cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	N/A (Dry)	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (~~cm~~)= (i.e. depth to frozen ground)	1.19m	Evidence of sludge or siltation:	No
Thickness of water column	N/A		
Static volume of water in well	N/A		
Free product thickness (mm)=	0	Measurement method:	I/M
Purging: (Y/N)	No	Purging/Sampling Equipment:	N/A
Volume Purged Water=			
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=			
Final Conductivity (uS/cm)=			
Final Temperature (degC)=			

Monitoring Well Sampling Record

Site Name:	FOX-M		
Date of Sampling Event:	15 Aug/14	Time:	530pm
Names of Samplers:	JM/SB		
Landfill Name:	Tier II	Samples Collected:	
Monitoring Well ID:	MW-1	PHC F1	
Sample Number:	FM-T2-MW-1	Inorganic Elements	
Condition of Well:	OK	PHC F2-F4	
		PCBs	
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	56		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	116	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	205	Evidence of sludge or siltation:	No
Thickness of water column	89		
Static volume of water in well	1.8L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing/ Footvalve
Volume Purged Water=	8L		
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	7.57		
Final Conductivity (uS/cm)=	400		
Final Temperature (degC)=	3.5		

Monitoring Well Sampling Record

Site Name:	Fox-M		
Date of Sampling Event:	15Aug14	Time:	715pm
Names of Samplers:	JM/SB		
Landfill Name:	TIER II	Samples Collected:	✓
Monitoring Well ID:	MW-2	PHC F1	✓
Sample Number:		Inorganic Elements	✓
Condition of Well:	OK	PHC F2-F4	✓
		PCBs	✓
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	54cm		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	1.09m	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.96m	Evidence of sludge or siltation:	NO
Thickness of water column	0.87m		
Static volume of water in well	1.76L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing and Footvalve
Volume Purged Water=	8L		
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	7.41		
Final Conductivity (uS/cm)=	502		
Final Temperature (degC)=	2.4		

Monitoring Well Sampling Record

Site Name:	Fox-4		
Date of Sampling Event:	15 Aug 14	Time:	7:55pm
Names of Samplers:			
Landfill Name:	Tier 2	Samples Collected:	NO (F1 ONLY)
Monitoring Well ID:	MW-3	PHC F1	YES (1 VIAL)
Sample Number:	FM-T2-MW-3	Inorganic Elements	NO
Condition of Well:	OK	Coring and Cap have bullet holes PHC F2-F4	NO
		PCBs	NO
Measured Data		Duplicate Collected?	NO
Well pipe height above ground (cm)=	55		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)		Well went dry after ~300mL purged very slow recovery, returned on 16 Aug 14 and collected 1 40mL vial for F1 analysis	
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	1.06	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.86	Evidence of sludge or siltation:	NO
Thickness of water column	0.80m		
Static volume of water in well	1.6L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water=	0.3L		and Footvalve
Decontamination required: (Y/N)	N		
Number washes:			
Number rinses:			
Final pH=	NOT MEASURED AS INSUFFICIENT WATER AVAILABLE		
Final Conductivity (uS/cm)=	"	"	
Final Temperature (degC)=	"	"	

Monitoring Well Sampling Record

Site Name:	Fab-04		
Date of Sampling Event:	15 Aug	Time:	420pm
Names of Samplers:	SB		
	JM		
Landfill Name:	Tier 2	Samples Collected:	ALL YES
Monitoring Well ID:	MW-4	PHC F1	✓
Sample Number:	FM-T2-MW-4	Inorganic Elements	✓
Condition of Well:	Well Capt	Plug off PHC F2-F4	✓
Standpipe Leaved Lighter Alan Casing		PCBs	✓
Measured Data		Duplicate Collected?	No
Well pipe height above ground (cm)=	86cm (79 to top of casing)		
Diameter of well (cm)=	5		
Depth of well installation (cm)=			
(from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)=			
(from ground surface)			
Depth to water surface (cm)=	1.09m	Measurement method: (meter, tape, etc)	Interface Meter
(from top of pipe)			
Static water level (cm)=			
(below ground surface)			
Measured well refusal depth (cm)=	2.22m	Evidence of sludge or siltation:	No
(i.e. depth to frozen ground)			
Thickness of water column	1.13m		
Static volume of water in well	2.29L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water=	10L		and Footvalve
Decontamination required: (Y/N)	N		
Number washes:	0		
Number rinses:	0		
Final pH=	7.69		
Final Conductivity (uS/cm)=	433		
Final Temperature (degC)=	3.4		

Monitoring Well Sampling Record

Site Name:	Fox Hill		
Date of Sampling Event:	15 Aug 17	Time:	445pm
Names of Samplers:	JM/SB		
Landfill Name:	Tier 2	Samples Collected:	Y
Monitoring Well ID:	MW-5	PHC F1	✓
Sample Number:	FH-T2-MW-5	Inorganic Elements	✓
Condition of Well:	OK	broken J-plug PHC F2-F4	✓
		PCBs	✓
Measured Data		Duplicate Collected?	
Well pipe height above ground (cm)=	60		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)			
Length screened section (cm)=			
Depth to top of screen (cm)= (from ground surface)			
Depth to water surface (cm)= (from top of pipe)	0.83m	Measurement method: (meter, tape, etc)	Interface Probe
Static water level (cm)= (below ground surface)			
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	1.81m	Evidence of sludge or siltation:	None
Thickness of water column	0.98m		
Static volume of water in well	1.98L		
Free product thickness (mm)=	0	Measurement method:	IM
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra Tubing
Volume Purged Water=	8L		and Footvalve
Decontamination required: (Y/N)	N		
Number washes:	0		
Number rinses:	0		
Final pH=	7.60		
Final Conductivity (uS/cm)=	462		
Final Temperature (degC)=	3.6		

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Tier II DISPOSAL FACILITY
DATE OF INSPECTION:	16 August 2014
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	Jason Mauchan / Stephen Borcsok
REPORT PREPARED BY:	Stephen Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	NE of VT-03 thermistor	0.3m	0.3m	0.1m	<1%	Small Depression		
Erosion	YES	NE of VT-03 Thermistor	1m	0.1m	0.1m	<1%	Erosion Channel		
Frost Action	No								
Sloughing and Cracking	No								
Animal Burrows	No								
Vegetation	YES	Edges of landfill at bottom of berms				<1%	Small shrubs		
Staining	No								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	N and of landfill on berms				<1%	Metal debris		Did not originate within landfill
Presence/Condition – Monitoring Instruments	YES	5 thermistors 5 monitoring wells as per dwg				~~10%~~	Thermistors Monitoring Wells		
Features of Note.	YES	Vehicle tracks on berms and cap Ponded water east and west of landfill				10%			

SITE: FOX-M

LANDFILL: TIER II DISPOSAL FACILITY

Preliminary Stability Assessment **Landfill:** FOX-M Tier II Disposal Facility

Feature	Severity Rating	Extent
Settlement	ACCEPTABLE	ISOLATED
Erosion	ACCEPTABLE	ISOLATED
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE	OCCASIONAL
Debris exposure	ACCEPTABLE	OCCASIONAL
Overall Landfill Performance		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	East Beach Landfill
DATE OF INSPECTION:	16 August 14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	Jason Mauchan / Stephen Borcsok
REPORT PREPARED BY:	Stephen Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	Far south end of landfill, N end of N Landfill				<1%	Small Depressions		
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	E side of landfill, NE of MW-27				<1%	Small shrubs		
Staining	NO	Sparse veg. otherwise							
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	E of N Landfill S of S Landfill					Metal/ Wood debris		Debris also not originate within landfill
Presence/Condition – Monitoring Instruments	YES	6 Thermistors 12 Monitoring Wells as per drawing					Thermistors Wells		
Features of Note.	YES	Ponded water on landward side of South Landfill. Vehicle tracks/ruts throughout area.					Ponded Water Vehicle Tracks		

Preliminary Stability Assessment **Landfill:** FOX-M East Beach Landfill

Feature	Severity Rating	Extent
Settlement	ACCEPTABLE	OCCASIONAL
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE	OCCASIONAL
Debris exposure	ACCEPTABLE	OCCASIONAL
Overall Landfill Performance		

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Non Hazardous Waste Landfill
DATE OF INSPECTION:	14 Aug 14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	S. Borcsok / J. Mauchan
REPORT PREPARED BY:	S. Borcsok / J. Mauchan
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	On west side of south berm	0.5m	0.5m	0.2m		Small depression		
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	On berms near SE landfill corner				<1%	Small shrubs		
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	YES	5 Monitoring Wells around landfill as per diagram.					Monitoring Wells		
Features of Note.	YES	On berms + cap of landfill.					Vehicle Tracks		

SITE: FOX-M

LANDFILL: NON-HAZARDOUS WASTE LANDFILL

Preliminary Stability Assessment **Landfill:** FOX-M NON-HAZARDOUS WASTE

Feature	Severity Rating	Extent
Settlement	ACCEPTABLE	ISOLATED
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	ACCEPTABLE	ISOLATED
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	NONE	NONE
Debris exposure	NONE	NONE
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	West Landfill (G-217)
DATE OF INSPECTION:	14 Aug 14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	S. Borcsok / J. Mauchan
REPORT PREPARED BY:	S. Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	Small depression at SE corner Linear depression on cap	0.3m	0.3m	0.1m	<1%	Small hole Linear depression		
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	YES	West side of landfill				<1%	Tension Crack		
Animal Burrows	NO								
Vegetation	YES	NW corner of landfill					Grasses		
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water southeast of landfill. Tire ruts in multiple locations on cap and berms					Ponded water Vehicle ruts		

SITE: FOX-M

LANDFILL: G-217 West Landfill

G-217

Preliminary Stability Assessment **Landfill:** FOX-M WEST LANDFILL

Feature	Severity Rating	Extent
Settlement	ACCEPTABLE	OCCASIONAL
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE	OCCASIONAL
Debris exposure	NONE	NONE
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Billboards Landfill
DATE OF INSPECTION:	14 August 14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	S. Borcsok / J. Mauchan
REPORT PREPARED BY:	S. Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	NO								
Frost Action	No								
Sloughing and Cracking	No								
Animal Burrows	NO								
Vegetation	YES	Outside edge of landfill				<1%	Small shrubs		
Staining	YES	North end of west side of landfill.				<1%	Natural red staining		
Vegetation Stress	No								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water ~~[illegible]~~ north and south of landfill vehicle tracks on NE corner					Ponded Water Vehicle Tracks		

SITE: FOX-M LANDFILL: BILLBOARDS

Preliminary Stability Assessment **Landfill:** FOX-M BILLBOARDS LANDFILL

Feature	Severity Rating	Extent
Settlement	NONE	NONE
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	ACCEPTABLE	ISOLATED
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE/OCCASIONAL	OCCASIONAL
Debris exposure	NONE	NONE
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Hazmat Landfill
DATE OF INSPECTION:	15 Aug/14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	J. Mauchan / S. Borcsok
REPORT PREPARED BY:	S. Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	YES	SE corner of landfill along bottom of berm	~2m	0.2m	0.05m	<1%	Erosion Channel		
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	NO								
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES						Loose metal sheet debris		Debris did not originate in landfill.
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Ponded water around landfill Vehicle tracks on berms					Ponded water Vehicle Tracks		

SITE: FOX-M

LANDFILL: Hazmat Storage East Landfill

Preliminary Stability Assessment **Landfill:** FOX-M HAZMAT STORAGE EAST

Feature	Severity Rating	Extent
Settlement	NONE	NONE
Erosion	ACCEPTABLE	ISOLATED
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE	OCCASIONAL
Debris exposure	ACCEPTABLE	OCCASIONAL
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include: - Debris exposed in erosion channels or areas of differential settlement. - Liner exposed. - Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Communications Northwest Landfill
DATE OF INSPECTION:	14 Aug 14
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	S. Borcsok / J. Mauchan
REPORT PREPARED BY:	S. Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	YES	W side of S berm				<1%			
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	On landfill berms				~2%	Small shrubs		
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	NO								
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	On landfill cap and berms				~5%	Vehicle tracks		

SITE: FOX-M

LANDFILL: COMMUNICATIONS NORTHWEST 2 LANDFILL

Preliminary Stability Assessment **Landfill:** FOX-M COMMUNICATIONS NORTHWEST

Feature	Severity Rating	Extent
Settlement	ACCEPTABLE	ISOLATED
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	NONE	NONE
Debris exposure	NONE	NONE
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
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Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
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DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING

VISUAL INSPECTION CHECKLIST

INSPECTION REPORT – PAGE 1 OF 2

SITE NAME:	FOX-M
LANDFILL DESIGNATION:	Communications North
DATE OF INSPECTION:	15 August 2014
DATE OF PREVIOUS INSPECTION:	2012
INSPECTED BY:	Jason Mauchan / Stephen Borcsok
REPORT PREPARED BY:	Stephen Borcsok
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

VISUAL INSPECTION CHECKLIST - INSPECTION REPORT – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to existing monuments/features and relative to landfill design i.e. surface, berms, toe)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records Focal length, location, view point & direction (relative to magnetic north) Feature of note Scale	Additional Comments
Settlement	NO								
Erosion	NO								
Frost Action	NO								
Sloughing and Cracking	NO								
Animal Burrows	NO								
Vegetation	YES	Sparse vegetation observed across landfill				<1%	Small shrubs		
Staining	NO								
Vegetation Stress	NO								
Seepage Points	NO								
Debris Exposed	YES	North and south ends of landfill				<1%	Small metal/ wood debris		
Presence/Condition – Monitoring Instruments	NO								
Features of Note.	YES	Vehicle tracks on cap and berms. Landfill is used as a roadway Areas of ponded water and previously ponded water				<1%	Vehicle tracks Ponded Water		

SITE: FOX-M

LANDFILL: COMMUNICATIONS NORTH 2 LANDFILL

FOX-M

Preliminary Stability Assessment **Landfill:** Communications North Landfill

Feature	Severity Rating	Extent
Settlement	NONE	NONE
Erosion	NONE	NONE
Frost Action	NONE	NONE
Staining	NONE	NONE
Vegetation Stress	NONE	NONE
Seepage/Ponded Water	ACCEPTABLE	OCCASIONAL
Debris exposure	ACCEPTABLE	OCCASIONAL
Overall Landfill Performance	ACCEPTABLE	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
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Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

APPENDIX C

LABORATORY QA/QC REPORTS AND CERTIFICATES OF ANALYSIS

Your Project #: 350600-515-001
Site Location: FOX-M HALL BEACH

Attention:Stephen Borcsok

Decommissioning Consulting Services Limited
121 Granton Dr
Unit 11
Richmond Hill, ON
L4B 3N4

Your C.O.C. #: na, na page 2 of 8, na page 6 of 8

Report Date: 2014/09/04
Report #: R3145099
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4F1906
Received: 2014/08/21, 12:50

Sample Matrix: Soil
Samples Received: 84

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	9	2014/08/25	2014/08/25	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	41	2014/08/25	2014/08/26	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	34	2014/08/25	2014/08/27	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	18	2014/08/25	2014/08/25	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	56	2014/08/25	2014/08/26	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	10	2014/08/25	2014/08/27	OTT SOP-00001	CCME CWS
Strong Acid Leachable Metals by ICPMS (1)	26	2014/08/26	2014/08/26	CAM SOP-00447	EPA 6020 m
Strong Acid Leachable Metals by ICPMS (1)	41	2014/08/26	2014/08/27	CAM SOP-00447	EPA 6020 m
Strong Acid Leachable Metals by ICPMS (1)	17	2014/08/26	2014/08/28	CAM SOP-00447	EPA 6020 m
Polychlorinated Biphenyl in Solids (1, 2)	18	2014/08/25	2014/08/26	CAM SOP-00307	EPA 8082 m
Polychlorinated Biphenyl in Solids (1, 2)	19	2014/08/26	2014/08/26	CAM SOP-00307	EPA 8082 m
Polychlorinated Biphenyl in Solids (1, 2)	17	2014/08/26	2014/08/27	CAM SOP-00307	EPA 8082 m
Polychlorinated Biphenyl in Solids (1, 2)	4	2014/08/26	2014/08/30	CAM SOP-00307	EPA 8082 m
Polychlorinated Biphenyl in Solids (1, 2)	6	2014/08/27	2014/09/03	CAM SOP-00307	EPA 8082 m
Polychlorinated Biphenyl in Solids (1, 2)	20	2014/08/28	2014/09/03	CAM SOP-00307	EPA 8082 m
MOISTURE	84	N/A	2014/08/26	CAM SOP-00445	McKeague 2nd ed 1978

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Water	7	N/A	2014/08/22	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2014/08/25	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	7	2014/08/26	2014/08/26	OTT SOP-00001	CCME Hydrocarbons
Mercury (low level) (1)	7	2014/08/27	2014/08/27	CAM SOP-00453	EPA 7470 m
Polychlorinated Biphenyl in Water (1)	7	2014/08/25	2014/08/26	CAM SOP-00309	EPA 8082 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 350600-515-001
Site Location: FOX-M HALL BEACH

Attention:Stephen Borcsok

Decommissioning Consulting Services Limited
121 Granton Dr
Unit 11
Richmond Hill, ON
L4B 3N4

Your C.O.C. #: na, na page 2 of 8, na page 6 of 8

Report Date: 2014/09/04
Report #: R3145099
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4F1906
Received: 2014/08/21, 12:50

(1) This test was performed by Maxxam Analytics Mississauga
(2) Analysis was conducted according to Maxxam method CAM SOP-00307 and modified where applicable based on the sample matrix.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Keshani Vijh, Project Manager
Email: KVijh@maxxam.ca
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XF6473	XF6474	XF6475	XF6476	XF6477		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number		na	na	na	na	na		
	Units	FM-NH-MW-12-S	FM-NH-MW-12-D	FM-NH-MW-13-S	FM-NH-MW-13-D	FM-NH-MW-14-S	RDL	QC Batch
Inorganics								
Moisture	%	3.2	2.2	4.9	3.1	3.9	0.2	3723425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6478	XF6479	XF6480	XF6481		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number		na	na	na	na		
	Units	FM-NH-MW-14-D	FM-NH-MW-15-S	FM-NH-MW-15-D	FM-NH-MW-16-S	RDL	QC Batch
Inorganics							
Moisture	%	2.5	5.0	43	3.2	0.2	3723425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6482	XF6511	XF6512	XF6513	XF6514	XF6515		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number		na	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	FM-NH-MW-16-D	FM-BIL-1-S	FM-BIL-1-D	FM-BIL-2-S	FM-BIL-2-D	FM-BIL-3-S	RDL	QC Batch
Inorganics									
Moisture	%	3.4	5.2	55	3.8	7.2	14	0.2	3723433

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6516	XF6517	XF6518	XF6519	XF6520	XF6521		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number		na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	FM-BIL-4-D	FM-BIL-4-S	FM-W-5-S	FM-W-5-D	FM-W-6-S	FM-W-6-D	RDL	QC Batch
Inorganics									
Moisture	%	5.5	5.5	14	13	4.9	7.0	0.2	3723433

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6543	XF6544	XF6545	XF6546	XF6547	XF6548	XF6549		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number										
	Units	FM-W-7-S	FM-W-7-D	FM-W-8-S	FM-W-8-D	FM-CNW-13-S	FM-CNW-13-D	FM-CNW-14-S	RDL	QC Batch
Inorganics										
Moisture	%	1.3	10	3.7	7.4	1.4	2.5	26	0.2	3723433

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XF6550		XF6551	XF6552	XF6553	XF6554		
Sampling Date		2014/08/14		2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number									
	Units	FM-CNW-14-D	QC Batch	FM-CNW-15-S	FM-CNW-15-D	FM-CNW-16-S	FM-CNW-16-D	RDL	QC Batch
Inorganics									
Moisture	%	13	3723433	64	17	4.6	5.8	0.2	3723436

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6566	XF6567	XF6568	XF6569	XF6570	XF6571		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	FM-CNO-17-S	FM-CNO-17-D	FM-CNO-18-S	FM-CNO-19-S	FM-CNO-19-D	FM-CNO-20-S	RDL	QC Batch
Inorganics									
Moisture	%	2.7	6.6	14	5.9	14	4.4	0.2	3723436

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6572	XF6573	XF6574	XF6575	XF6576	XF6604		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	FM-CNO-20-D	FM-CNO-21-S	FM-CNO-21-D	FM-CNO-22-S	FM-CNO-22-D	FM-HAZ-9-S	RDL	QC Batch
Inorganics									
Moisture	%	2.8	6.5	6.0	9.3	9.3	5.1	0.2	3723436

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6605	XF6606	XF6607	XF6608		XF6609	XF6610		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15		2014/08/15	2014/08/15		
COC Number										
	Units	FM-HAZ-9-D	FM-HAZ-10-S	FM-HAZ-11-S	FM-HAZ-11-D	QC Batch	FM-HAZ-12-S	FM-HAZ-12-D	RDL	QC Batch
Inorganics										
Moisture	%	5.1	7.4	5.7	5.3	3723436	5.6	5.2	0.2	3723573

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6611	XF6612	XF6613	XF6614	XF6615		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number								
	Units	FM-T2-MW-1-S	FM-T2-MW-1-D	FM-T2-MW-2-S	FM-T2-MW-2-D	FM-T2-MW-3-S	RDL	QC Batch
Inorganics								
Moisture	%	3.6	9.5	6.3	4.3	4.8	0.2	3723573

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XF6935	XF6936	XF6937	XF6938	XF6939		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number								
	Units	FM-T2-MW-3-D	FM-T2-MW-4-S	FM-T2-MW-4-D	FM-T2-MW-5-S	FM-T2-MW-5-D	RDL	QC Batch
Inorganics								
Moisture	%	12	36	14	12	9.7	0.2	3723573

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6982	XF6983	XF6984	XF6985	XF6986		
Sampling Date		2014/08/16	2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	FM-EB-MW-20-S	FM-EB-MW-20-D	FM-EB-MW-21-S	FM-EB-MW-21-D	FM-EB-MW-22-S	RDL	QC Batch
Inorganics								
Moisture	%	4.9	5.0	2.0	2.3	2.4	0.2	3723573

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6987	XF6988	XF6989		XF6990		
Sampling Date		2014/08/16	2014/08/16	2014/08/16		2014/08/16		
COC Number								
	Units	FM-EB-MW-22-D	FM-EB-MW-23-S	FM-EB-MW-23-D	QC Batch	FM-EB-MW-24-D	RDL	QC Batch
Inorganics								
Moisture	%	3.1	2.6	2.8	3723573	4.5	0.2	3723575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6991	XF6992	XF6993	XF7016	XF7017		
Sampling Date		2014/08/16	2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	FM-EB-MW-25-S	FM-EB-MW-25-D	FM-EB-MW-26-S	FM-EB-MW-26-D	FM-EB-MW-27-S	RDL	QC Batch
Inorganics								
Moisture	%	2.6	4.0	3.2	2.9	3.1	0.2	3723575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF7018	XF7019	XF7020	XF7021	XF7022		
Sampling Date		2014/08/16	2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	FM-EB-MW-27-D	FM-EB-MW-28-S	FM-EB-MW-28-D	FM-EB-MW-29-S	FM-EB-MW-29-D	RDL	QC Batch
Inorganics								
Moisture	%	3.1	2.1	3.3	7.3	16	0.2	3723575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
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Sampler Initials: SB

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XF7023	XF7024	XF7025	XF7026		
Sampling Date		2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number							
	Units	FM-EB-MW-30-S	FM-EB-MW-30-D	FM-EB-MW-31-S	FM-EB-MW-31-D	RDL	QC Batch
Inorganics							
Moisture	%	37	4.4	3.3	3.2	0.2	3723575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6473	XF6474	XF6475	XF6476		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na	na		
	Units	Criteria	FM-NH-MW-12-S	FM-NH-MW-12-D	FM-NH-MW-13-S	FM-NH-MW-13-D	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	2.0	2.7	2.2	1.7	1.0	3724844
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	<0.10	<0.10	0.10	3724844
Acid Extractable Chromium (Cr)	ug/g	**87**	10	11	12	9.5	1.0	3724844
Acid Extractable Cobalt (Co)	ug/g	**-**	1.9	2.7	2.1	1.7	0.10	3724844
Acid Extractable Copper (Cu)	ug/g	**91**	16	4.5	4.8	3.8	0.50	3724844
Acid Extractable Lead (Pb)	ug/g	**600**	73	19	41	26	1.0	3724844
Acid Extractable Nickel (Ni)	ug/g	**50**	7.7	8.7	8.3	7.3	0.50	3724844
Acid Extractable Zinc (Zn)	ug/g	**360**	21	13	14	11	5.0	3724844
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	<0.050	0.050	3724844

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6477	XF6478		XF6479		
Sampling Date			2014/08/14	2014/08/14		2014/08/14		
COC Number			na	na		na		
	Units	Criteria	FM-NH-MW-14-S	FM-NH-MW-14-D	QC Batch	FM-NH-MW-15-S	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	2.3	1.5	3724844	3.8	1.0	3725064
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.12	<0.10	3724844	<0.10	0.10	3725064
Acid Extractable Chromium (Cr)	ug/g	**87**	9.4	7.4	3724844	11	1.0	3725064
Acid Extractable Cobalt (Co)	ug/g	**-**	1.8	1.4	3724844	2.7	0.10	3725064
Acid Extractable Copper (Cu)	ug/g	**91**	4.2	2.4	3724844	5.1	0.50	3725064
Acid Extractable Lead (Pb)	ug/g	**600**	13	3.2	3724844	10	1.0	3725064
Acid Extractable Nickel (Ni)	ug/g	**50**	7.0	4.7	3724844	10	0.50	3725064
Acid Extractable Zinc (Zn)	ug/g	**360**	14	8.1	3724844	15	5.0	3725064
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3724844	<0.050	0.050	3725064

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6480	XF6481	XF6482		XF6511		
Sampling Date			2014/08/14	2014/08/14	2014/08/14		2014/08/14		
COC Number			na	na	na		na page 2 of 8		
	Units	Criteria	FM-NH-MW-15-D	FM-NH-MW-16-S	FM-NH-MW-16-D	QC Batch	FM-BIL-1-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.4	3.0	2.0	3725064	2.2	1.0	3724844
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.15	0.21	<0.10	3725064	0.15	0.10	3724844
Acid Extractable Chromium (Cr)	ug/g	**87**	7.9	11	7.9	3725064	9.7	1.0	3724844
Acid Extractable Cobalt (Co)	ug/g	**-**	1.5	2.0	1.6	3725064	1.8	0.10	3724844
Acid Extractable Copper (Cu)	ug/g	**91**	5.4	5.6	3.6	3725064	5.3	0.50	3724844
Acid Extractable Lead (Pb)	ug/g	**600**	11	79	15	3725064	10	1.0	3724844
Acid Extractable Nickel (Ni)	ug/g	**50**	7.9	6.6	5.2	3725064	6.6	0.50	3724844
Acid Extractable Zinc (Zn)	ug/g	**360**	11	28	11	3725064	22	5.0	3724844
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	3725064	<0.050	0.050	3724844

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6512	XF6513	XF6514	XF6515	XF6516		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	Criteria	FM-BIL-1-D	FM-BIL-2-S	FM-BIL-2-D	FM-BIL-3-S	FM-BIL-4-D	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	1.6	2.6	2.2	3.0	<1.0	1.0	3725064
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.19	<0.10	<0.10	0.27	<0.10	0.10	3725064
Acid Extractable Chromium (Cr)	ug/g	**87**	7.0	13	11	9.3	4.4	1.0	3725064
Acid Extractable Cobalt (Co)	ug/g	**-**	1.8	3.4	2.8	2.2	0.97	0.10	3725064
Acid Extractable Copper (Cu)	ug/g	**91**	6.9	7.4	5.6	7.8	1.7	0.50	3725064
Acid Extractable Lead (Pb)	ug/g	**600**	2.9	9.9	5.6	26	1.2	1.0	3725064
Acid Extractable Nickel (Ni)	ug/g	**50**	7.8	11	8.6	8.6	3.1	0.50	3725064
Acid Extractable Zinc (Zn)	ug/g	**360**	23	22	16	33	8.0	5.0	3725064
Acid Extractable Mercury (Hg)	ug/g	**50**	0.067	0.069	<0.050	<0.050	<0.050	0.050	3725064

RDL = Reportable Detection Limit
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Criteria: CCME Industrial
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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6517	XF6518	XF6519		XF6520		
Sampling Date			2014/08/14	2014/08/14	2014/08/14		2014/08/14		
COC Number			na page 2 of 8	na page 2 of 8	na page 2 of 8		na page 2 of 8		
	Units	Criteria	FM-BIL-4-S	FM-W-5-S	FM-W-5-D	QC Batch	FM-W-6-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	1.5	3.1	2.7	3725064	2.5	1.0	3725101
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.41	<0.10	<0.10	3725064	0.19	0.10	3725101
Acid Extractable Chromium (Cr)	ug/g	**87**	8.1	14	17	3725064	12	1.0	3725101
Acid Extractable Cobalt (Co)	ug/g	**-**	1.8	2.9	3.8	3725064	2.1	0.10	3725101
Acid Extractable Copper (Cu)	ug/g	**91**	4.9	5.9	6.6	3725064	7.9	0.50	3725101
Acid Extractable Lead (Pb)	ug/g	**600**	12	5.4	6.1	3725064	28	1.0	3725101
Acid Extractable Nickel (Ni)	ug/g	**50**	5.8	8.1	11	3725064	8.8	0.50	3725101
Acid Extractable Zinc (Zn)	ug/g	**360**	69	14	17	3725064	200	5.0	3725101
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	3725064	<0.050	0.050	3725101

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6521		XF6543		XF6544		
Sampling Date			2014/08/14		2014/08/14		2014/08/14		
COC Number			na page 2 of 8						
	Units	Criteria	FM-W-6-D	QC Batch	FM-W-7-S	QC Batch	FM-W-7-D	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.4	3725064	3.5	3725092	<1.0	1.0	3725064
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.20	3725064	0.24	3725092	<0.10	0.10	3725064
Acid Extractable Chromium (Cr)	ug/g	**87**	14	3725064	14	3725092	4.6	1.0	3725064
Acid Extractable Cobalt (Co)	ug/g	**-**	2.4	3725064	2.2	3725092	0.74	0.10	3725064
Acid Extractable Copper (Cu)	ug/g	**91**	14	3725064	4.0	3725092	1.9	0.50	3725064
Acid Extractable Lead (Pb)	ug/g	**600**	32	3725064	25	3725092	2.0	1.0	3725064
Acid Extractable Nickel (Ni)	ug/g	**50**	9.2	3725064	8.3	3725092	2.6	0.50	3725064
Acid Extractable Zinc (Zn)	ug/g	**360**	140	3725064	21	3725092	5.9	5.0	3725064
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725064	<0.050	3725092	<0.050	0.050	3725064

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6545	XF6546		XF6547	XF6548	XF6549		
Sampling Date			2014/08/14	2014/08/14		2014/08/14	2014/08/14	2014/08/14		
COC Number										
	Units	Criteria	FM-W-8-S	FM-W-8-D	QC Batch	FM-CNW-13-S	FM-CNW-13-D	FM-CNW-14-S	RDL	QC Batch
Metals										
Acid Extractable Arsenic (As)	ug/g	**12**	2.4	1.2	3725101	2.4	2.6	3.7	1.0	3725064
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	3725101	0.25	<0.10	0.11	0.10	3725064
Acid Extractable Chromium (Cr)	ug/g	**87**	8.4	5.8	3725101	8.3	11	9.2	1.0	3725064
Acid Extractable Cobalt (Co)	ug/g	**-**	1.5	0.96	3725101	1.6	2.2	2.0	0.10	3725064
Acid Extractable Copper (Cu)	ug/g	**91**	4.1	3.4	3725101	4.7	4.4	9.3	0.50	3725064
Acid Extractable Lead (Pb)	ug/g	**600**	3.8	1.8	3725101	6.0	4.0	6.8	1.0	3725064
Acid Extractable Nickel (Ni)	ug/g	**50**	5.9	3.4	3725101	6.2	8.5	8.2	0.50	3725064
Acid Extractable Zinc (Zn)	ug/g	**360**	9.2	5.8	3725101	18	13	15	5.0	3725064
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3725101	<0.050	<0.050	<0.050	0.050	3725064

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6550	XF6551	XF6552	XF6553	XF6554		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number									
	Units	Criteria	FM-CNW-14-D	FM-CNW-15-S	FM-CNW-15-D	FM-CNW-16-S	FM-CNW-16-D	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.9	2.0	1.7	8.6	3.0	1.0	3725101
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	0.16	0.21	0.11	<0.10	0.10	3725101
Acid Extractable Chromium (Cr)	ug/g	**87**	13	4.3	13	61	11	1.0	3725101
Acid Extractable Cobalt (Co)	ug/g	**-**	2.7	0.73	2.0	2.4	2.1	0.10	3725101
Acid Extractable Copper (Cu)	ug/g	**91**	7.9	8.4	4.6	30	7.0	0.50	3725101
Acid Extractable Lead (Pb)	ug/g	**600**	5.7	2.8	3.4	260	12	1.0	3725101
Acid Extractable Nickel (Ni)	ug/g	**50**	10	5.1	7.7	8.5	7.1	0.50	3725101
Acid Extractable Zinc (Zn)	ug/g	**360**	18	7.2	13	21	15	5.0	3725101
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	3725101

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6566	XF6567	XF6568		XF6569		
Sampling Date			2014/08/15	2014/08/15	2014/08/15		2014/08/15		
COC Number									
	Units	Criteria	FM-CNO-17-S	FM-CNO-17-D	FM-CNO-18-S	QC Batch	FM-CNO-19-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.5	1.7	<1.0	3725092	2.5	1.0	3725101
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	0.12	3725092	<0.10	0.10	3725101
Acid Extractable Chromium (Cr)	ug/g	**87**	13	12	6.4	3725092	11	1.0	3725101
Acid Extractable Cobalt (Co)	ug/g	**-**	2.7	2.5	0.99	3725092	2.2	0.10	3725101
Acid Extractable Copper (Cu)	ug/g	**91**	5.3	41	2.8	3725092	5.6	0.50	3725101
Acid Extractable Lead (Pb)	ug/g	**600**	5.0	4.6	1.6	3725092	4.9	1.0	3725101
Acid Extractable Nickel (Ni)	ug/g	**50**	9.7	11	5.8	3725092	9.0	0.50	3725101
Acid Extractable Zinc (Zn)	ug/g	**360**	17	14	6.3	3725092	14	5.0	3725101
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	3725092	<0.050	0.050	3725101

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6570	XF6571		XF6572	XF6573		
Sampling Date			2014/08/15	2014/08/15		2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-CNO-19-D	FM-CNO-20-S	QC Batch	FM-CNO-20-D	FM-CNO-21-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.8	2.0	3725101	1.3	1.5	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	3725101	<0.10	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	13	13	3725101	14	10	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.4	3.1	3725101	3.0	2.1	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	5.9	6.9	3725101	5.3	4.6	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	4.6	5.6	3725101	3.7	3.3	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	11	11	3725101	12	9.7	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	19	17	3725101	16	11	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3725101	<0.050	<0.050	0.050	3725039

RDL = Reportable Detection Limit
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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6574	XF6575	XF6576		XF6604	XF6605		
Sampling Date			2014/08/15	2014/08/15	2014/08/15		2014/08/15	2014/08/15		
COC Number										
	Units	Criteria	FM-CNO-21-D	FM-CNO-22-S	FM-CNO-22-D	QC Batch	FM-HAZ-9-S	FM-HAZ-9-D	RDL	QC Batch
Metals										
Acid Extractable Arsenic (As)	ug/g	**12**	1.2	1.2	1.4	3725039	1.8	1.9	1.0	3725101
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	<0.10	3725039	<0.10	<0.10	0.10	3725101
Acid Extractable Chromium (Cr)	ug/g	**87**	10	11	12	3725039	11	12	1.0	3725101
Acid Extractable Cobalt (Co)	ug/g	**-**	2.3	2.1	2.2	3725039	2.2	2.3	0.10	3725101
Acid Extractable Copper (Cu)	ug/g	**91**	4.6	4.2	4.3	3725039	4.0	4.5	0.50	3725101
Acid Extractable Lead (Pb)	ug/g	**600**	3.0	3.0	2.9	3725039	3.1	3.3	1.0	3725101
Acid Extractable Nickel (Ni)	ug/g	**50**	9.2	8.8	9.6	3725039	8.0	9.3	0.50	3725101
Acid Extractable Zinc (Zn)	ug/g	**360**	11	12	13	3725039	13	13	5.0	3725101
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	3725039	<0.050	<0.050	0.050	3725101

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6606	XF6607	XF6608	XF6609		XF6610		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15		2014/08/15		
COC Number										
	Units	Criteria	FM-HAZ-10-S	FM-HAZ-11-S	FM-HAZ-11-D	FM-HAZ-12-S	QC Batch	FM-HAZ-12-D	RDL	QC Batch
Metals										
Acid Extractable Arsenic (As)	ug/g	**12**	<1.0	1.7	1.7	2.2	3725039	2.3	1.0	3725101
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	0.13	<0.10	0.13	3725039	<0.10	0.10	3725101
Acid Extractable Chromium (Cr)	ug/g	**87**	9.9	8.9	9.5	11	3725039	12	1.0	3725101
Acid Extractable Cobalt (Co)	ug/g	**-**	1.7	1.6	1.8	2.1	3725039	2.7	0.10	3725101
Acid Extractable Copper (Cu)	ug/g	**91**	4.2	5.2	4.8	9.7	3725039	10	0.50	3725101
Acid Extractable Lead (Pb)	ug/g	**600**	6.7	14	5.2	13	3725039	7.3	1.0	3725101
Acid Extractable Nickel (Ni)	ug/g	**50**	7.0	6.4	7.2	8.8	3725039	9.0	0.50	3725101
Acid Extractable Zinc (Zn)	ug/g	**360**	14	20	13	39	3725039	36	5.0	3725101
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	<0.050	3725039	<0.050	0.050	3725101

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6611		XF6612	XF6613	XF6614		
Sampling Date			2014/08/15		2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-T2-MW-1-S	QC Batch	FM-T2-MW-1-D	FM-T2-MW-2-S	FM-T2-MW-2-D	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	2.0	3725092	3.2	2.1	<1.0	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	3725092	<0.10	<0.10	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	9.6	3725092	12	12	10	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.0	3725092	2.0	2.2	1.8	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	4.8	3725092	4.5	5.8	5.6	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	4.1	3725092	3.0	7.9	6.3	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	8.3	3725092	8.2	9.0	7.8	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	11	3725092	12	37	140	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725092	<0.050	<0.050	<0.050	0.050	3725039

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6615		XF6935		XF6936		
Sampling Date			2014/08/15		2014/08/15		2014/08/15		
COC Number									
	Units	Criteria	FM-T2-MW-3-S	QC Batch	FM-T2-MW-3-D	QC Batch	FM-T2-MW-4-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	3.7	3725101	2.9	3725039	1.5	1.0	3725092
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	3725101	<0.10	3725039	<0.10	0.10	3725092
Acid Extractable Chromium (Cr)	ug/g	**87**	13	3725101	15	3725039	11	1.0	3725092
Acid Extractable Cobalt (Co)	ug/g	**-**	2.9	3725101	2.7	3725039	1.8	0.10	3725092
Acid Extractable Copper (Cu)	ug/g	**91**	5.7	3725101	5.8	3725039	3.8	0.50	3725092
Acid Extractable Lead (Pb)	ug/g	**600**	6.2	3725101	3.8	3725039	3.3	1.0	3725092
Acid Extractable Nickel (Ni)	ug/g	**50**	11	3725101	11	3725039	7.2	0.50	3725092
Acid Extractable Zinc (Zn)	ug/g	**360**	17	3725101	16	3725039	11	5.0	3725092
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725101	<0.050	3725039	<0.050	0.050	3725092

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6937	XF6938	XF6939	XF6982		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/16		
COC Number								
	Units	Criteria	FM-T2-MW-4-D	FM-T2-MW-5-S	FM-T2-MW-5-D	FM-EB-MW-20-S	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	1.8	1.5	1.5	3.4	1.0	3725092
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	<0.10	0.78	0.10	3725092
Acid Extractable Chromium (Cr)	ug/g	**87**	9.1	17	12	12	1.0	3725092
Acid Extractable Cobalt (Co)	ug/g	**-**	1.5	2.8	2.2	2.4	0.10	3725092
Acid Extractable Copper (Cu)	ug/g	**91**	3.0	30	5.8	**99**	0.50	3725092
Acid Extractable Lead (Pb)	ug/g	**600**	2.3	4.0	2.5	30	1.0	3725092
Acid Extractable Nickel (Ni)	ug/g	**50**	5.6	12	8.4	17	0.50	3725092
Acid Extractable Zinc (Zn)	ug/g	**360**	8.5	19	14	39	5.0	3725092
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	<0.050	0.050	3725092

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6983	XF6984	XF6985	XF6986		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-20-D	FM-EB-MW-21-S	FM-EB-MW-21-D	FM-EB-MW-22-S	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	2.5	2.4	2.0	2.9	1.0	3725092
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.12	<0.10	<0.10	0.12	0.10	3725092
Acid Extractable Chromium (Cr)	ug/g	**87**	10	11	9.4	11	1.0	3725092
Acid Extractable Cobalt (Co)	ug/g	**-**	2.0	1.9	1.9	2.0	0.10	3725092
Acid Extractable Copper (Cu)	ug/g	**91**	15	9.6	3.2	32	0.50	3725092
Acid Extractable Lead (Pb)	ug/g	**600**	7.2	18	2.7	79	1.0	3725092
Acid Extractable Nickel (Ni)	ug/g	**50**	8.5	7.4	7.1	9.1	0.50	3725092
Acid Extractable Zinc (Zn)	ug/g	**360**	14	18	10	35	5.0	3725092
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	<0.050	<0.050	0.050	3725092

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam Job #: B4F1906
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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6987		XF6988		XF6989		
Sampling Date			2014/08/16		2014/08/16		2014/08/16		
COC Number									
	Units	Criteria	FM-EB-MW-22-D	QC Batch	FM-EB-MW-23-S	QC Batch	FM-EB-MW-23-D	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	4.5	3725039	3.8	3725092	3.7	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.31	3725039	<0.10	3725092	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	15	3725039	12	3725092	9.6	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.8	3725039	2.6	3725092	2.3	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	38	3725039	11	3725092	4.4	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	260	3725039	19	3725092	4.7	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	11	3725039	10	3725092	9.0	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	59	3725039	23	3725092	12	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725039	<0.050	3725092	<0.050	0.050	3725039

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF6990		XF6991	XF6992		
Sampling Date			2014/08/16		2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-24-D	QC Batch	FM-EB-MW-25-S	FM-EB-MW-25-D	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	2.2	3725092	2.9	2.7	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	3725092	<0.10	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	9.4	3725092	11	10	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.0	3725092	2.2	2.0	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	6.4	3725092	10	6.9	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	9.2	3725092	180	230	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	7.9	3725092	9.2	8.3	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	13	3725092	21	16	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725092	<0.050	<0.050	0.050	3725039

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF6993		XF7016		XF7017		
Sampling Date			2014/08/16		2014/08/16		2014/08/16		
COC Number									
	Units	Criteria	FM-EB-MW-26-S	QC Batch	FM-EB-MW-26-D	QC Batch	FM-EB-MW-27-S	RDL	QC Batch
Metals									
Acid Extractable Arsenic (As)	ug/g	**12**	3.4	3725092	3.1	3725101	4.0	1.0	3725092
Acid Extractable Cadmium (Cd)	ug/g	**22**	0.28	3725092	0.11	3725101	0.38	0.10	3725092
Acid Extractable Chromium (Cr)	ug/g	**87**	12	3725092	9.9	3725101	10	1.0	3725092
Acid Extractable Cobalt (Co)	ug/g	**-**	2.6	3725092	2.1	3725101	2.5	0.10	3725092
Acid Extractable Copper (Cu)	ug/g	**91**	15	3725092	11	3725101	7.4	0.50	3725092
Acid Extractable Lead (Pb)	ug/g	**600**	26	3725092	18	3725101	7.7	1.0	3725092
Acid Extractable Nickel (Ni)	ug/g	**50**	11	3725092	13	3725101	9.0	0.50	3725092
Acid Extractable Zinc (Zn)	ug/g	**360**	24	3725092	19	3725101	14	5.0	3725092
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	3725092	<0.050	3725101	<0.050	0.050	3725092

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF7018	XF7019		XF7020		
Sampling Date			2014/08/16	2014/08/16		2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-27-D	FM-EB-MW-28-S	QC Batch	FM-EB-MW-28-D	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	4.1	3.5	3725092	2.8	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	0.11	3725092	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	10	12	3725092	8.3	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.5	2.8	3725092	2.0	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	5.6	11	3725092	4.6	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	9.6	13	3725092	5.3	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	9.1	10	3725092	7.6	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	15	17	3725092	10	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3725092	<0.050	0.050	3725039

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XF7021	XF7022		XF7023		
Sampling Date			2014/08/16	2014/08/16		2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-29-S	FM-EB-MW-29-D	QC Batch	FM-EB-MW-30-S	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	2.0	2.4	3725101	2.1	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	3725101	0.25	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	11	11	3725101	14	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.1	2.1	3725101	2.7	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	4.3	4.3	3725101	20	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	4.2	3.9	3725101	30	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	8.2	8.1	3725101	12	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	13	12	3725101	37	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3725101	0.064	0.050	3725039

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

Maxxam ID			XF7024	XF7025		XF7026		
Sampling Date			2014/08/16	2014/08/16		2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-30-D	FM-EB-MW-31-S	QC Batch	FM-EB-MW-31-D	RDL	QC Batch
Metals								
Acid Extractable Arsenic (As)	ug/g	**12**	1.7	3.7	3725101	3.2	1.0	3725039
Acid Extractable Cadmium (Cd)	ug/g	**22**	<0.10	<0.10	3725101	<0.10	0.10	3725039
Acid Extractable Chromium (Cr)	ug/g	**87**	12	11	3725101	11	1.0	3725039
Acid Extractable Cobalt (Co)	ug/g	**-**	2.0	2.3	3725101	2.2	0.10	3725039
Acid Extractable Copper (Cu)	ug/g	**91**	11	8.4	3725101	8.3	0.50	3725039
Acid Extractable Lead (Pb)	ug/g	**600**	8.7	21	3725101	20	1.0	3725039
Acid Extractable Nickel (Ni)	ug/g	**50**	8.4	8.6	3725101	9.0	0.50	3725039
Acid Extractable Zinc (Zn)	ug/g	**360**	18	19	3725101	16	5.0	3725039
Acid Extractable Mercury (Hg)	ug/g	**50**	<0.050	<0.050	3725101	<0.050	0.050	3725039

RDL = Reportable Detection Limit
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Criteria: CCME Industrial
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6473	XF6474	XF6475	XF6476		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na	na		
	Units	Criteria	FM-NH-MW-12-S	FM-NH-MW-12-D	FM-NH-MW-13-S	FM-NH-MW-13-D	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	0.008	<0.005	0.005	3723637
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723637
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723637
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	0.09	0.02	3723637
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	0.06	0.04	3723637
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	0.14	0.04	3723637
F1 (C6-C10)	ug/g	-	<10	41	<10	32	10	3723637
F1 (C6-C10) - BTEX	ug/g	-	<10	41	<10	32	10	3723637
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	84	<10	660	10	3723440
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	14	54	74	10	3723440
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723440
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723440
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	114	117	114	118		3723637
4-Bromofluorobenzene	%	-	94	95	78	97		3723637
D10-Ethylbenzene	%	-	84	85	83	89		3723637
D4-1,2-Dichloroethane	%	-	109	110	111	111		3723637
o-Terphenyl	%	-	87	89	88	91		3723440

RDL = Reportable Detection Limit
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Criteria: CCME Industrial
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6477	XF6478	XF6479	XF6480		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na	na		
	Units	Criteria	FM-NH-MW-14-S	FM-NH-MW-14-D	FM-NH-MW-15-S	FM-NH-MW-15-D	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	0.012	<0.005	<0.005	0.006	0.005	3723637
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723637
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723637
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723637
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723637
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723637
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723637
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723637
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	61	10	3723440
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	240	10	3723440
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	33	10	3723440
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723440
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	116	112	115	115		3723637
4-Bromofluorobenzene	%	-	82	85	91	91		3723637
D10-Ethylbenzene	%	-	85	83	84	88		3723637
D4-1,2-Dichloroethane	%	-	110	106	108	109		3723637
o-Terphenyl	%	-	89	89	88	91		3723440

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6481		XF6482		XF6511		
Sampling Date			2014/08/14		2014/08/14		2014/08/14		
COC Number			na		na		na page 2 of 8		
	Units	Criteria	FM-NH-MW-16-S	QC Batch	FM-NH-MW-16-D	QC Batch	FM-BIL-1-S	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	3723637	<0.005	3723637	<0.005	0.005	3723643
Toluene	ug/g	**0.8**	<0.02	3723637	<0.02	3723637	<0.02	0.02	3723643
Ethylbenzene	ug/g	**20**	<0.01	3723637	<0.01	3723637	<0.01	0.01	3723643
o-Xylene	ug/g	-	<0.02	3723637	<0.02	3723637	<0.02	0.02	3723643
p+m-Xylene	ug/g	-	<0.04	3723637	<0.04	3723637	<0.04	0.04	3723643
Total Xylenes	ug/g	-	<0.04	3723637	<0.04	3723637	<0.04	0.04	3723643
F1 (C6-C10)	ug/g	-	<10	3723637	<10	3723637	<10	10	3723643
F1 (C6-C10) - BTEX	ug/g	-	<10	3723637	<10	3723637	<10	10	3723643
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	3723440	<10	3723446	<10	10	3723446
F3 (C16-C34 Hydrocarbons)	ug/g	-	65	3723440	<10	3723446	<10	10	3723446
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	3723440	<10	3723446	<10	10	3723446
Reached Baseline at C50	ug/g	-	Yes	3723440	Yes	3723446	Yes		3723446
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	114	3723637	113	3723637	113		3723643
4-Bromofluorobenzene	%	-	90	3723637	92	3723637	91		3723643
D10-Ethylbenzene	%	-	81	3723637	82	3723637	78		3723643
D4-1,2-Dichloroethane	%	-	110	3723637	108	3723637	109		3723643
o-Terphenyl	%	-	93	3723440	101	3723446	106		3723446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6512		XF6513	XF6514	XF6515	XF6516		
Sampling Date			2014/08/14		2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na page 2 of 8		na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	Criteria	FM-BIL-1-D	RDL	FM-BIL-2-S	FM-BIL-2-D	FM-BIL-3-S	FM-BIL-4-D	RDL	QC Batch
BTEX & F1 Hydrocarbons										
Benzene	ug/g	**5**	<0.01	0.01	<0.005	<0.005	<0.005	<0.005	0.005	3723643
Toluene	ug/g	**0.8**	<0.04	0.04	<0.02	<0.02	<0.02	<0.02	0.02	3723643
Ethylbenzene	ug/g	**20**	<0.02	0.02	<0.01	<0.01	<0.01	<0.01	0.01	3723643
o-Xylene	ug/g	-	<0.04	0.04	<0.02	<0.02	<0.02	<0.02	0.02	3723643
p+m-Xylene	ug/g	-	<0.08	0.08	<0.04	<0.04	<0.04	<0.04	0.04	3723643
Total Xylenes	ug/g	-	<0.08	0.08	<0.04	<0.04	<0.04	<0.04	0.04	3723643
F1 (C6-C10)	ug/g	-	<20	20	<10	<10	<10	<10	10	3723643
F1 (C6-C10) - BTEX	ug/g	-	<20	20	<10	<10	<10	<10	10	3723643
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	-	<20	20	<10	<10	<10	<10	10	3723446
F3 (C16-C34 Hydrocarbons)	ug/g	-	94	20	<10	<10	<10	<10	10	3723446
F4 (C34-C50 Hydrocarbons)	ug/g	-	<20	20	<10	<10	<10	<10	10	3723446
Reached Baseline at C50	ug/g	-	Yes		Yes	Yes	Yes	Yes		3723446
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	-	113		115	114	115	114		3723643
4-Bromofluorobenzene	%	-	93		89	88	90	90		3723643
D10-Ethylbenzene	%	-	87		84	90	82	85		3723643
D4-1,2-Dichloroethane	%	-	111		111	110	110	111		3723643
o-Terphenyl	%	-	108		106	107	102	101		3723446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6517	XF6518	XF6519	XF6520	XF6521		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	Criteria	FM-BIL-4-S	FM-W-5-S	FM-W-5-D	FM-W-6-S	FM-W-6-D	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723643
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	0.10	<0.02	0.02	3723643
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	0.01	<0.01	0.01	3723643
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	0.03	<0.02	0.02	3723643
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723643
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723643
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	10	3723643
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	10	3723643
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723446
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	620	12	10	3723446
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	170	<10	10	3723446
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes		3723446
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	113	115	116	115	120		3723643
4-Bromofluorobenzene	%	-	79	86	90	91	92		3723643
D10-Ethylbenzene	%	-	78	84	87	87	89		3723643
D4-1,2-Dichloroethane	%	-	110	109	110	112	115		3723643
o-Terphenyl	%	-	102	105	107	108	106		3723446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Report Date: 2014/09/04

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Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6543	XF6544	XF6545	XF6546	XF6547	XF6548		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number										
	Units	Criteria	FM-W-7-S	FM-W-7-D	FM-W-8-S	FM-W-8-D	FM-CNW-13-S	FM-CNW-13-D	RDL	QC Batch
BTEX & F1 Hydrocarbons										
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723643
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723643
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723643
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723643
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723643
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723643
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723643
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723643
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723446
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723446
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723446
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes	Yes		3723446
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	-	114	113	112	115	115	115		3723643
4-Bromofluorobenzene	%	-	89	87	90	87	86	87		3723643
D10-Ethylbenzene	%	-	85	82	81	88	84	86		3723643
D4-1,2-Dichloroethane	%	-	110	108	110	110	109	107		3723643
o-Terphenyl	%	-	103	104	103	106	107	106		3723446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6549	XF6550			XF6551		
Sampling Date			2014/08/14	2014/08/14			2014/08/14		
COC Number									
	Units	Criteria	FM-CNW-14-S	FM-CNW-14-D	RDL	QC Batch	FM-CNW-15-S	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	0.005	3723643	<0.02	0.02	3723643
Toluene	ug/g	**0.8**	<0.02	<0.02	0.02	3723643	<0.06	0.06	3723643
Ethylbenzene	ug/g	**20**	<0.01	<0.01	0.01	3723643	<0.03	0.03	3723643
o-Xylene	ug/g	-	<0.02	<0.02	0.02	3723643	<0.06	0.06	3723643
p+m-Xylene	ug/g	-	<0.04	<0.04	0.04	3723643	<0.1	0.1	3723643
Total Xylenes	ug/g	-	<0.04	<0.04	0.04	3723643	<0.1	0.1	3723643
F1 (C6-C10)	ug/g	-	<10	<10	10	3723643	<30	30	3723643
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	10	3723643	<30	30	3723643
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	10	3723446	<30	30	3723452
F3 (C16-C34 Hydrocarbons)	ug/g	-	13	<10	10	3723446	120	30	3723452
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	10	3723446	44	30	3723452
Reached Baseline at C50	ug/g	-	Yes	Yes		3723446	Yes		3723452
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	115	114		3723643	114		3723643
4-Bromofluorobenzene	%	-	90	85		3723643	90		3723643
D10-Ethylbenzene	%	-	84	82		3723643	92		3723643
D4-1,2-Dichloroethane	%	-	109	108		3723643	108		3723643
o-Terphenyl	%	-	108	103		3723446	104		3723452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6552	XF6553	XF6554	XF6566	XF6567		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-CNW-15-D	FM-CNW-16-S	FM-CNW-16-D	FM-CNO-17-S	FM-CNO-17-D	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723838
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723838
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	10	3723838
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	10	3723838
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723452
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	54	<10	<10	<10	10	3723452
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	32	<10	<10	<10	10	3723452
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes		3723452
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	116	114	114	115	113		3723838
4-Bromofluorobenzene	%	-	90	88	88	89	85		3723838
D10-Ethylbenzene	%	-	86	81	75	84	80		3723838
D4-1,2-Dichloroethane	%	-	112	112	110	112	109		3723838
o-Terphenyl	%	-	101	99	97	97	97		3723452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6568	XF6569	XF6570	XF6571	XF6572		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-CNO-18-S	FM-CNO-19-S	FM-CNO-19-D	FM-CNO-20-S	FM-CNO-20-D	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723838
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723838
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	10	3723838
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	10	3723838
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723452
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723452
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723452
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes		3723452
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	113	114	114	115	113		3723838
4-Bromofluorobenzene	%	-	87	86	90	90	88		3723838
D10-Ethylbenzene	%	-	87	83	81	85	82		3723838
D4-1,2-Dichloroethane	%	-	111	111	110	111	112		3723838
o-Terphenyl	%	-	101	96	99	100	101		3723452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6573	XF6574	XF6575	XF6576	XF6604	XF6605		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number										
	Units	Criteria	FM-CNO-21-S	FM-CNO-21-D	FM-CNO-22-S	FM-CNO-22-D	FM-HAZ-9-S	FM-HAZ-9-D	RDL	QC Batch
BTEX & F1 Hydrocarbons										
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723838
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723838
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723838
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723838
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723838
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723838
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723452
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723452
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	<10	10	3723452
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes	Yes		3723452
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	-	115	117	113	113	117	114		3723838
4-Bromofluorobenzene	%	-	91	92	84	89	90	86		3723838
D10-Ethylbenzene	%	-	84	90	82	82	89	79		3723838
D4-1,2-Dichloroethane	%	-	113	116	110	111	113	111		3723838
o-Terphenyl	%	-	98	100	98	100	99	98		3723452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6606	XF6607	XF6608		XF6609		
Sampling Date			2014/08/15	2014/08/15	2014/08/15		2014/08/15		
COC Number									
	Units	Criteria	FM-HAZ-10-S	FM-HAZ-11-S	FM-HAZ-11-D	QC Batch	FM-HAZ-12-S	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	3723838	<0.005	0.005	3723838
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	3723838	<0.02	0.02	3723838
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	3723838	<0.01	0.01	3723838
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	3723838	<0.02	0.02	3723838
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	3723838	<0.04	0.04	3723838
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	3723838	<0.04	0.04	3723838
F1 (C6-C10)	ug/g	-	<10	<10	<10	3723838	<10	10	3723838
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	3723838	<10	10	3723838
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	3723452	<10	10	3723578
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	3723452	<10	10	3723578
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	3723452	<10	10	3723578
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	3723452	Yes		3723578
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	121	115	114	3723838	114		3723838
4-Bromofluorobenzene	%	-	94	82	92	3723838	92		3723838
D10-Ethylbenzene	%	-	90	87	88	3723838	83		3723838
D4-1,2-Dichloroethane	%	-	119	112	112	3723838	113		3723838
o-Terphenyl	%	-	98	99	96	3723452	76		3723578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6610	XF6611	XF6612	XF6613	XF6614		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-HAZ-12-D	FM-T2-MW-1-S	FM-T2-MW-1-D	FM-T2-MW-2-S	FM-T2-MW-2-D	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723846
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723846
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723846
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723846
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723846
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723846
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	10	3723846
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	10	3723846
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	18	<10	10	3723578
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723578
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723578
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes		3723578
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	111	112	110	113	117		3723846
4-Bromofluorobenzene	%	-	94	93	87	95	95		3723846
D10-Ethylbenzene	%	-	85	80	82	84	87		3723846
D4-1,2-Dichloroethane	%	-	108	110	106	110	112		3723846
o-Terphenyl	%	-	73	71	73	72	74		3723578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6615	XF6935	XF6936	XF6937	XF6938		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-T2-MW-3-S	FM-T2-MW-3-D	FM-T2-MW-4-S	FM-T2-MW-4-D	FM-T2-MW-5-S	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3723846
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723846
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3723846
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3723846
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723846
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3723846
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	<10	10	3723846
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	<10	10	3723846
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723578
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723578
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	<10	10	3723578
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes	Yes		3723578
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	109	110	111	112	113		3723846
4-Bromofluorobenzene	%	-	89	93	92	92	94		3723846
D10-Ethylbenzene	%	-	79	83	95	85	82		3723846
D4-1,2-Dichloroethane	%	-	107	107	107	110	110		3723846
o-Terphenyl	%	-	72	73	75	76	77		3723578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6939	XF6982	XF6983	XF6984		
Sampling Date			2014/08/15	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-T2-MW-5-D	FM-EB-MW-20-S	FM-EB-MW-20-D	FM-EB-MW-21-S	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	0.005	3723846
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723846
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723846
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723846
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723846
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723846
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723846
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723846
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723578
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723578
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723578
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723578
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	112	112	114	109		3723846
4-Bromofluorobenzene	%	-	93	94	95	93		3723846
D10-Ethylbenzene	%	-	88	81	88	79		3723846
D4-1,2-Dichloroethane	%	-	109	109	111	108		3723846
o-Terphenyl	%	-	76	73	74	72		3723578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6985	XF6986	XF6987	XF6988		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-21-D	FM-EB-MW-22-S	FM-EB-MW-22-D	FM-EB-MW-23-S	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	0.005	3723846
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723846
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723846
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723846
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723846
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723846
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723846
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723846
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	80	<10	<10	10	3723578
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723578
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723578
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723578
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	110	111	110	111		3723846
4-Bromofluorobenzene	%	-	91	94	94	92		3723846
D10-Ethylbenzene	%	-	79	84	83	86		3723846
D4-1,2-Dichloroethane	%	-	108	108	108	109		3723846
o-Terphenyl	%	-	74	74	74	71		3723578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6989		XF6990		XF6991		
Sampling Date			2014/08/16		2014/08/16		2014/08/16		
COC Number									
	Units	Criteria	FM-EB-MW-23-D	QC Batch	FM-EB-MW-24-D	QC Batch	FM-EB-MW-25-S	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**5**	<0.005	3723846	<0.005	3723846	<0.005	0.005	3723853
Toluene	ug/g	**0.8**	<0.02	3723846	<0.02	3723846	<0.02	0.02	3723853
Ethylbenzene	ug/g	**20**	<0.01	3723846	<0.01	3723846	<0.01	0.01	3723853
o-Xylene	ug/g	-	<0.02	3723846	<0.02	3723846	<0.02	0.02	3723853
p+m-Xylene	ug/g	-	<0.04	3723846	<0.04	3723846	<0.04	0.04	3723853
Total Xylenes	ug/g	-	<0.04	3723846	<0.04	3723846	<0.04	0.04	3723853
F1 (C6-C10)	ug/g	-	<10	3723846	<10	3723846	<10	10	3723853
F1 (C6-C10) - BTEX	ug/g	-	<10	3723846	<10	3723846	<10	10	3723853
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	3723578	<10	3723581	<10	10	3723581
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	3723578	<10	3723581	<10	10	3723581
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	3723578	<10	3723581	<10	10	3723581
Reached Baseline at C50	ug/g	-	Yes	3723578	Yes	3723581	Yes		3723581
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	-	114	3723846	110	3723846	111		3723853
4-Bromofluorobenzene	%	-	94	3723846	89	3723846	93		3723853
D10-Ethylbenzene	%	-	88	3723846	86	3723846	79		3723853
D4-1,2-Dichloroethane	%	-	111	3723846	107	3723846	108		3723853
o-Terphenyl	%	-	72	3723578	97	3723581	95		3723581

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF6992	XF6993	XF7016	XF7017		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-25-D	FM-EB-MW-26-S	FM-EB-MW-26-D	FM-EB-MW-27-S	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	0.005	3723853
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723853
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723853
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723853
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723853
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723853
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723581
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	110	109	110	108		3723853
4-Bromofluorobenzene	%	-	93	94	87	93		3723853
D10-Ethylbenzene	%	-	81	81	86	83		3723853
D4-1,2-Dichloroethane	%	-	107	108	107	107		3723853
o-Terphenyl	%	-	97	95	95	94		3723581

RDL = Reportable Detection Limit
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Criteria: CCME Industrial
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF7018	XF7019	XF7020	XF7021		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-27-D	FM-EB-MW-28-S	FM-EB-MW-28-D	FM-EB-MW-29-S	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	0.005	3723853
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723853
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723853
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723853
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723853
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723853
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723581
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	111	106	107	108		3723853
4-Bromofluorobenzene	%	-	94	89	88	89		3723853
D10-Ethylbenzene	%	-	77	78	79	81		3723853
D4-1,2-Dichloroethane	%	-	109	104	104	104		3723853
o-Terphenyl	%	-	93	94	92	91		3723581

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF7022	XF7023	XF7024	XF7025		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-29-D	FM-EB-MW-30-S	FM-EB-MW-30-D	FM-EB-MW-31-S	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**5**	<0.005	<0.005	<0.005	<0.005	0.005	3723853
Toluene	ug/g	**0.8**	<0.02	<0.02	<0.02	<0.02	0.02	3723853
Ethylbenzene	ug/g	**20**	<0.01	<0.01	<0.01	<0.01	0.01	3723853
o-Xylene	ug/g	-	<0.02	<0.02	<0.02	<0.02	0.02	3723853
p+m-Xylene	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
Total Xylenes	ug/g	-	<0.04	<0.04	<0.04	<0.04	0.04	3723853
F1 (C6-C10)	ug/g	-	<10	<10	<10	<10	10	3723853
F1 (C6-C10) - BTEX	ug/g	-	<10	<10	<10	<10	10	3723853
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	15	<10	<10	10	3723581
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	<10	<10	<10	10	3723581
Reached Baseline at C50	ug/g	-	Yes	Yes	Yes	Yes		3723581
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	-	108	109	109	108		3723853
4-Bromofluorobenzene	%	-	91	94	88	92		3723853
D10-Ethylbenzene	%	-	80	80	80	80		3723853
D4-1,2-Dichloroethane	%	-	105	105	104	106		3723853
o-Terphenyl	%	-	89	93	91	89		3723581

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XF7026		
Sampling Date			2014/08/16		
COC Number					
	Units	Criteria	FM-EB-MW-31-D	RDL	QC Batch
BTEX & F1 Hydrocarbons					
Benzene	ug/g	**5**	<0.005	0.005	3723853
Toluene	ug/g	**0.8**	<0.02	0.02	3723853
Ethylbenzene	ug/g	**20**	<0.01	0.01	3723853
o-Xylene	ug/g	-	<0.02	0.02	3723853
p+m-Xylene	ug/g	-	<0.04	0.04	3723853
Total Xylenes	ug/g	-	<0.04	0.04	3723853
F1 (C6-C10)	ug/g	-	<10	10	3723853
F1 (C6-C10) - BTEX	ug/g	-	<10	10	3723853
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	-	<10	10	3723581
F3 (C16-C34 Hydrocarbons)	ug/g	-	<10	10	3723581
F4 (C34-C50 Hydrocarbons)	ug/g	-	<10	10	3723581
Reached Baseline at C50	ug/g	-	Yes		3723581
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	-	107		3723853
4-Bromofluorobenzene	%	-	83		3723853
D10-Ethylbenzene	%	-	83		3723853
D4-1,2-Dichloroethane	%	-	105		3723853
o-Terphenyl	%	-	91		3723581

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6473	XF6474	XF6475	XF6476		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na	na		
	Units	Criteria	FM-NH-MW-12-S	FM-NH-MW-12-D	FM-NH-MW-13-S	FM-NH-MW-13-D	RDL	QC Batch
PCBs								
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	69	79	73	78		3723414

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Site Location: FOX-M HALL BEACH
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6477	XF6478	XF6479	XF6480		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na	na		
	Units	Criteria	FM-NH-MW-14-S	FM-NH-MW-14-D	FM-NH-MW-15-S	FM-NH-MW-15-D	RDL	QC Batch
PCBs								
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	75	88	80	77		3723414

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6481	XF6482	XF6511	XF6512	XF6513		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na	na	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	Criteria	FM-NH-MW-16-S	FM-NH-MW-16-D	FM-BIL-1-S	FM-BIL-1-D	FM-BIL-2-S	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	88	82	76	79	89		3723414

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6514	XF6515	XF6516	XF6517	XF6518		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8	na page 2 of 8		
	Units	Criteria	FM-BIL-2-D	FM-BIL-3-S	FM-BIL-4-D	FM-BIL-4-S	FM-W-5-S	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3723414
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	77	79	81	82	76		3723414

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6519	XF6520	XF6521	XF6543	XF6544	XF6545		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number			na page 2 of 8	na page 2 of 8	na page 2 of 8					
	Units	Criteria	FM-W-5-D	FM-W-6-S	FM-W-6-D	FM-W-7-S	FM-W-7-D	FM-W-8-S	RDL	QC Batch
PCBs										
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Surrogate Recovery (%)										
Decachlorobiphenyl	%	-	92	86	81	91	89	91		3724646

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6546	XF6547	XF6548	XF6549	XF6550		
Sampling Date			2014/08/14	2014/08/14	2014/08/14	2014/08/14	2014/08/14		
COC Number									
	Units	Criteria	FM-W-8-D	FM-CNW-13-S	FM-CNW-13-D	FM-CNW-14-S	FM-CNW-14-D	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	90	94	92	101	98		3724646

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6551		XF6552	XF6553	XF6554	XF6566		
Sampling Date			2014/08/14		2014/08/14	2014/08/14	2014/08/14	2014/08/15		
COC Number										
	Units	Criteria	FM-CNW-15-S	RDL	FM-CNW-15-D	FM-CNW-16-S	FM-CNW-16-D	FM-CNO-17-S	RDL	QC Batch
PCBs										
Aroclor 1262	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1016	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1221	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1232	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1242	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1248	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1254	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1260	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Aroclor 1268	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Total PCB	ug/g	**33**	<0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3724646
Surrogate Recovery (%)										
Decachlorobiphenyl	%	-	101		93	91	93	90		3724646

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6567	XF6568	XF6569	XF6570		XF6571		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15		2014/08/15		
COC Number										
	Units	Criteria	FM-CNO-17-D	FM-CNO-18-S	FM-CNO-19-S	FM-CNO-19-D	QC Batch	FM-CNO-20-S	RDL	QC Batch
PCBs										
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	3724646	<0.1	0.1	3728139
Surrogate Recovery (%)										
Decachlorobiphenyl	%	-	92	92	92	85	3724646	96		3728139

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6572	XF6573	XF6574	XF6575	XF6576	XF6604		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number										
	Units	Criteria	FM-CNO-20-D	FM-CNO-21-S	FM-CNO-21-D	FM-CNO-22-S	FM-CNO-22-D	FM-HAZ-9-S	RDL	QC Batch
PCBs										
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Surrogate Recovery (%)										
Decachlorobiphenyl	%	-	92	97	98	98	97	95		3728139

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Report Date: 2014/09/04

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6605	XF6606		XF6607		XF6608	XF6609		
Sampling Date			2014/08/15	2014/08/15		2014/08/15		2014/08/15	2014/08/15		
COC Number											
	Units	Criteria	FM-HAZ-9-D	FM-HAZ-10-S	RDL	FM-HAZ-11-S	RDL	FM-HAZ-11-D	FM-HAZ-12-S	RDL	QC Batch
PCBs											
Aroclor 1262	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1016	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1221	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1232	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1242	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1248	ug/g	-	<0.1	<0.1	0.1	0.6	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1254	ug/g	-	<0.1	<0.1	0.1	7.6	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1260	ug/g	-	<0.1	<0.1	0.1	0.6	0.5	<0.1	<0.1	0.1	3728139
Aroclor 1268	ug/g	-	<0.1	<0.1	0.1	<0.5	0.5	<0.1	<0.1	0.1	3728139
Total PCB	ug/g	**33**	<0.1	<0.1	0.1	8.8	0.5	<0.1	<0.1	0.1	3728139
Surrogate Recovery (%)											
Decachlorobiphenyl	%	-	99	92		110		116	96		3728139

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6610	XF6611	XF6612	XF6613	XF6614		
Sampling Date			2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number									
	Units	Criteria	FM-HAZ-12-D	FM-T2-MW-1-S	FM-T2-MW-1-D	FM-T2-MW-2-S	FM-T2-MW-2-D	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3728139
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	99	96	102	97	97		3728139

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6615	XF6935	XF6936		XF6937		
Sampling Date			2014/08/15	2014/08/15	2014/08/15		2014/08/15		
COC Number									
	Units	Criteria	FM-T2-MW-3-S	FM-T2-MW-3-D	FM-T2-MW-4-S	QC Batch	FM-T2-MW-4-D	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	3728139	<0.1	0.1	3724638
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	99	96	102	3728139	91		3724638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6938	XF6939	XF6982	XF6983	XF6984		
Sampling Date			2014/08/15	2014/08/15	2014/08/16	2014/08/16	2014/08/16		
COC Number									
	Units	Criteria	FM-T2-MW-5-S	FM-T2-MW-5-D	FM-EB-MW-20-S	FM-EB-MW-20-D	FM-EB-MW-21-S	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1254	ug/g	-	<0.1	<0.1	0.4	<0.1	<0.1	0.1	3724638
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Total PCB	ug/g	**33**	<0.1	<0.1	0.4	<0.1	<0.1	0.1	3724638
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	90	91	90	94	94		3724638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Report Date: 2014/09/04

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6985	XF6986	XF6987	XF6988		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-21-D	FM-EB-MW-22-S	FM-EB-MW-22-D	FM-EB-MW-23-S	RDL	QC Batch
PCBs								
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	0.1	0.1	3724638
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	0.1	0.1	3724638
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	95	85	95	92		3724638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6989	XF6990	XF6991	XF6992		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-23-D	FM-EB-MW-24-D	FM-EB-MW-25-S	FM-EB-MW-25-D	RDL	QC Batch
PCBs								
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	94	90	95	97		3724638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF6993	XF7016	XF7017	XF7018		
Sampling Date			2014/08/16	2014/08/16	2014/08/16	2014/08/16		
COC Number								
	Units	Criteria	FM-EB-MW-26-S	FM-EB-MW-26-D	FM-EB-MW-27-S	FM-EB-MW-27-D	RDL	QC Batch
PCBs								
Aroclor 1262	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1016	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1221	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1232	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1242	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1248	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1254	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1260	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Aroclor 1268	ug/g	-	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Total PCB	ug/g	**33**	<0.1	<0.1	<0.1	<0.1	0.1	3724638
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	101	94	98	94		3724638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF7019	XF7020		XF7021	XF7022		
Sampling Date			2014/08/16	2014/08/16		2014/08/16	2014/08/16		
COC Number									
	Units	Criteria	FM-EB-MW-28-S	FM-EB-MW-28-D	QC Batch	FM-EB-MW-29-S	FM-EB-MW-29-D	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1016	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1221	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1232	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1242	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1248	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1254	ug/g	-	0.5	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1260	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Aroclor 1268	ug/g	-	<0.1	<0.1	3724638	<0.1	<0.1	0.1	3727051
Total PCB	ug/g	**33**	0.5	<0.1	3724638	<0.1	<0.1	0.1	3727051
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	93	100	3724638	88	90		3727051

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			XF7023		XF7024	XF7025	XF7026		
Sampling Date			2014/08/16		2014/08/16	2014/08/16	2014/08/16		
COC Number									
	Units	Criteria	FM-EB-MW-30-S	RDL	FM-EB-MW-30-D	FM-EB-MW-31-S	FM-EB-MW-31-D	RDL	QC Batch
PCBs									
Aroclor 1262	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1016	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1221	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1232	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1242	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1248	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1254	ug/g	-	<0.2	0.2	<0.1	0.1	0.2	0.1	3727051
Aroclor 1260	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Aroclor 1268	ug/g	-	<0.2	0.2	<0.1	<0.1	<0.1	0.1	3727051
Total PCB	ug/g	**33**	<0.2	0.2	<0.1	0.1	0.2	0.1	3727051
Surrogate Recovery (%)									
Decachlorobiphenyl	%	-	89		88	87	85		3727051

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: CCME Industrial
Canadian Environmental Quality Guidelines for Soil 1998-1999

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Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		XF6472	XF6940	XF6941	XF6943	XF6944	XF6945		
Sampling Date		2014/08/14	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/16		
COC Number		na	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8		
	Units	FM-NH-MW-15	FM-T2-MW-1	FM-T2-MW-2	FM-T2-MW-4	FM-T2-MW-5	FM-EB-MW-29	RDL	QC Batch
Metals									
Mercury (Hg)	ug/L	<0.01	<0.01	<0.01	0.03	<0.01	0.02	0.01	3726373

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6946		
Sampling Date		2014/08/16		
COC Number		na page 6 of 8		
	Units	FM-EB-MW-30	RDL	QC Batch
Metals				
Mercury (Hg)	ug/L	<0.01	0.01	3726373

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XF6472	XF6940	XF6941	XF6942	XF6943	XF6944		
Sampling Date		2014/08/14	2014/08/15	2014/08/15	2014/08/16	2014/08/15	2014/08/15		
COC Number		na	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8		
	Units	FM-NH-MW-15	FM-T2-MW-1	FM-T2-MW-2	FM-T2-MW-3	FM-T2-MW-4	FM-T2-MW-5	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	3721474
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	3721474
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	3721474
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	3721474
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	3721474
Total Xylenes	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	3721474
F1 (C6-C10)	ug/L	<25	<25	<25	<25	<25	<25	25	3721474
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	<25	<25	25	3721474
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100		<100	<100	100	3724741
F3 (C16-C34 Hydrocarbons)	ug/L	<100	<100	<100		<100	<100	100	3724741
F4 (C34-C50 Hydrocarbons)	ug/L	<100	<100	<100		<100	<100	100	3724741
Reached Baseline at C50	ug/L	Yes	Yes	Yes		Yes	Yes		3724741
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	90	98	98	98	99	95		3721474
4-Bromofluorobenzene	%	98	88	87	88	90	88		3721474
D10-Ethylbenzene	%	94	101	89	92	106	92		3721474
D4-1,2-Dichloroethane	%	83	89	90	90	91	89		3721474
o-Terphenyl	%	81	82	84		83	85		3724741

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XF6945	XF6946		
Sampling Date		2014/08/16	2014/08/16		
COC Number		na page 6 of 8	na page 6 of 8		
	Units	FM-EB-MW-29	FM-EB-MW-30	RDL	QC Batch
BTEX & F1 Hydrocarbons					
Benzene	ug/L	<0.20	<0.20	0.20	3721474
Toluene	ug/L	<0.20	<0.20	0.20	3721474
Ethylbenzene	ug/L	<0.20	<0.20	0.20	3721474
o-Xylene	ug/L	<0.20	<0.20	0.20	3721474
p+m-Xylene	ug/L	<0.40	<0.40	0.40	3721474
Total Xylenes	ug/L	<0.40	<0.40	0.40	3721474
F1 (C6-C10)	ug/L	<25	<25	25	3721474
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	3721474
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	3724741
F3 (C16-C34 Hydrocarbons)	ug/L	<100	<100	100	3724741
F4 (C34-C50 Hydrocarbons)	ug/L	<100	<100	100	3724741
Reached Baseline at C50	ug/L	Yes	Yes		3724741
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	97	96		3721474
4-Bromofluorobenzene	%	89	89		3721474
D10-Ethylbenzene	%	92	85		3721474
D4-1,2-Dichloroethane	%	89	88		3721474
o-Terphenyl	%	85	85		3724741

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		XF6472	XF6940	XF6941	XF6943	XF6944	XF6945		
Sampling Date		2014/08/14	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/16		
COC Number		na	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8	na page 6 of 8		
	Units	FM-NH-MW-15	FM-T2-MW-1	FM-T2-MW-2	FM-T2-MW-4	FM-T2-MW-5	FM-EB-MW-29	RDL	QC Batch
PCBs									
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1221	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1262	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Aroclor 1268	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3723470
Surrogate Recovery (%)									
Decachlorobiphenyl	%	78	81	76	88	88	90		3723470

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XF6946		
Sampling Date		2014/08/16		
COC Number		na page 6 of 8		
	Units	FM-EB-MW-30	RDL	QC Batch
PCBs				
Aroclor 1016	ug/L	<0.05	0.05	3723470
Aroclor 1221	ug/L	<0.05	0.05	3723470
Aroclor 1232	ug/L	<0.05	0.05	3723470
Aroclor 1242	ug/L	<0.05	0.05	3723470
Aroclor 1248	ug/L	<0.05	0.05	3723470
Aroclor 1254	ug/L	<0.05	0.05	3723470
Aroclor 1260	ug/L	<0.05	0.05	3723470
Aroclor 1262	ug/L	<0.05	0.05	3723470
Aroclor 1268	ug/L	<0.05	0.05	3723470
Total PCB	ug/L	<0.05	0.05	3723470
Surrogate Recovery (%)				
Decachlorobiphenyl	%	83		3723470

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample XF6512-01 : F1/BTEX & F2-F4 Analysis: Sample has a high percent of moisture. Reporting limits were adjusted for the dry weight of the sample.

Sample XF6551-01 : F1/BTEX & F2-F4 Analysis: Sample has a high percent of moisture. Reporting limits were adjusted for the dry weight of the sample.

Sample XF6607-01 : PCB analysis: Due to high concentrations of the target analytes, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Decommissioning Consulting Services Li...
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			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3721474	1,4-Difluorobenzene	2014/08/22	103	70 - 130	116	70 - 130	99	%		
3721474	4-Bromofluorobenzene	2014/08/22	91	70 - 130	100	70 - 130	88	%		
3721474	D10-Ethylbenzene	2014/08/22	84	70 - 130	101	70 - 130	91	%		
3721474	D4-1,2-Dichloroethane	2014/08/22	93	70 - 130	103	70 - 130	90	%		
3723414	Decachlorobiphenyl	2014/08/26	68	40 - 130	79	40 - 130	81	%		
3723440	o-Terphenyl	2014/08/26	85	30 - 130	79	30 - 130	85	%		
3723446	o-Terphenyl	2014/08/26	88	30 - 130	95	30 - 130	100	%		
3723452	o-Terphenyl	2014/08/25	105	30 - 130	98	30 - 130	100	%		
3723470	Decachlorobiphenyl	2014/08/26	81	60 - 130	75	60 - 130	80	%		
3723578	o-Terphenyl	2014/08/25	77	30 - 130	79	30 - 130	72	%		
3723581	o-Terphenyl	2014/08/26	91	30 - 130	91	30 - 130	100	%		
3723637	1,4-Difluorobenzene	2014/08/25	124	60 - 140	118	60 - 140	113	%		
3723637	4-Bromofluorobenzene	2014/08/25	97	60 - 140	107	60 - 140	86	%		
3723637	D10-Ethylbenzene	2014/08/25	94	30 - 130	92	30 - 130	81	%		
3723637	D4-1,2-Dichloroethane	2014/08/25	124	60 - 140	116	60 - 140	108	%		
3723643	1,4-Difluorobenzene	2014/08/26	114	60 - 140	127	60 - 140	114	%		
3723643	4-Bromofluorobenzene	2014/08/26	91	60 - 140	106	60 - 140	87	%		
3723643	D10-Ethylbenzene	2014/08/26	82	30 - 130	93	30 - 130	79	%		
3723643	D4-1,2-Dichloroethane	2014/08/26	111	60 - 140	119	60 - 140	111	%		
3723838	1,4-Difluorobenzene	2014/08/26	122	60 - 140	122	60 - 140	114	%		
3723838	4-Bromofluorobenzene	2014/08/26	100	60 - 140	100	60 - 140	82	%		
3723838	D10-Ethylbenzene	2014/08/26	88	30 - 130	92	30 - 130	88	%		
3723838	D4-1,2-Dichloroethane	2014/08/26	122	60 - 140	123	60 - 140	110	%		
3723846	1,4-Difluorobenzene	2014/08/27	118	60 - 140	122	60 - 140	109	%		
3723846	4-Bromofluorobenzene	2014/08/27	112	60 - 140	109	60 - 140	88	%		
3723846	D10-Ethylbenzene	2014/08/27	96	30 - 130	101	30 - 130	85	%		
3723846	D4-1,2-Dichloroethane	2014/08/27	120	60 - 140	118	60 - 140	108	%		
3723853	1,4-Difluorobenzene	2014/08/27	114	60 - 140	119	60 - 140	110	%		
3723853	4-Bromofluorobenzene	2014/08/27	94	60 - 140	109	60 - 140	89	%		
3723853	D10-Ethylbenzene	2014/08/27	89	30 - 130	97	30 - 130	81	%		
3723853	D4-1,2-Dichloroethane	2014/08/27	110	60 - 140	120	60 - 140	107	%		
3724638	Decachlorobiphenyl	2014/08/26	94	40 - 130	98	40 - 130	94	%		

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QUALITY ASSURANCE REPORT(CONT'D)

Decommissioning Consulting Services Li...
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3724646	Decachlorobiphenyl	2014/08/27	95	40 - 130	94	40 - 130	93	%		
3724741	o-Terphenyl	2014/08/26	87	30 - 130	87	30 - 130	83	%		
3727051	Decachlorobiphenyl	2014/09/03	85	40 - 130	92	40 - 130	88	%		
3728139	Decachlorobiphenyl	2014/09/03	103	40 - 130	109	40 - 130	99	%		
3721474	Benzene	2014/08/22	78	70 - 130	84	70 - 130	<0.20	ug/L	NC	40
3721474	Ethylbenzene	2014/08/22	79	70 - 130	87	70 - 130	<0.20	ug/L	NC	40
3721474	F1 (C6-C10) - BTEX	2014/08/22					<25	ug/L	NC	40
3721474	F1 (C6-C10)	2014/08/22	81	70 - 130	90	70 - 130	<25	ug/L	NC	40
3721474	o-Xylene	2014/08/22	80	70 - 130	88	70 - 130	<0.20	ug/L	NC	40
3721474	p+m-Xylene	2014/08/22	78	70 - 130	85	70 - 130	<0.40	ug/L	NC	40
3721474	Toluene	2014/08/22	72	70 - 130	79	70 - 130	<0.20	ug/L	NC	40
3721474	Total Xylenes	2014/08/22					<0.40	ug/L	NC	40
3723414	Aroclor 1016	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1221	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1232	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1242	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1248	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1254	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1260	2014/08/26	84	60 - 130		50	<0.1	ug/g		
3723414	Aroclor 1262	2014/08/26					<0.1	ug/g		
3723414	Aroclor 1268	2014/08/26					<0.1	ug/g		
3723414	Total PCB	2014/08/26	84	60 - 130		50	<0.1	ug/g		
3723425	Moisture	2014/08/26							15	50
3723433	Moisture	2014/08/26							21	50
3723436	Moisture	2014/08/26							28	50
3723440	F2 (C10-C16 Hydrocarbons)	2014/08/26	125	50 - 130	115	80 - 120	<10	ug/g	4.2	50
3723440	F3 (C16-C34 Hydrocarbons)	2014/08/26	125	50 - 130	115	80 - 120	<10	ug/g	NC	50
3723440	F4 (C34-C50 Hydrocarbons)	2014/08/26	125	50 - 130	115	80 - 120	<10	ug/g	NC	50
3723446	F2 (C10-C16 Hydrocarbons)	2014/08/26	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3723446	F3 (C16-C34 Hydrocarbons)	2014/08/26	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3723446	F4 (C34-C50 Hydrocarbons)	2014/08/26	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3723452	F2 (C10-C16 Hydrocarbons)	2014/08/25	99	50 - 130	89	80 - 120	<10	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

Decommissioning Consulting Services Li...
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Site Location: FOX-M HALL BEACH
Sampler Initials: SB

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3723452	F3 (C16-C34 Hydrocarbons)	2014/08/25	99	50 - 130	89	80 - 120	<10	ug/g	NC	50
3723452	F4 (C34-C50 Hydrocarbons)	2014/08/25	99	50 - 130	89	80 - 120	<10	ug/g	NC	50
3723470	Aroclor 1016	2014/08/26					<0.05	ug/L	NC	40
3723470	Aroclor 1221	2014/08/26					<0.05	ug/L	NC	40
3723470	Aroclor 1232	2014/08/26					<0.05	ug/L	NC	40
3723470	Aroclor 1242	2014/08/26					<0.05	ug/L	NC	30
3723470	Aroclor 1248	2014/08/26					<0.05	ug/L	NC	30
3723470	Aroclor 1254	2014/08/26					<0.05	ug/L	NC	30
3723470	Aroclor 1260	2014/08/26	79	60 - 130	73	60 - 130	<0.05	ug/L	NC	30
3723470	Aroclor 1262	2014/08/26					<0.05	ug/L	NC	40
3723470	Aroclor 1268	2014/08/26					<0.05	ug/L	NC	40
3723470	Total PCB	2014/08/26	79	60 - 130	73	60 - 130	<0.05	ug/L	NC	40
3723573	Moisture	2014/08/26							5.6	50
3723575	Moisture	2014/08/26							11	50
3723578	F2 (C10-C16 Hydrocarbons)	2014/08/25	112	50 - 130	113	80 - 120	<10	ug/g	NC	50
3723578	F3 (C16-C34 Hydrocarbons)	2014/08/25	112	50 - 130	113	80 - 120	<10	ug/g	NC	50
3723578	F4 (C34-C50 Hydrocarbons)	2014/08/25	112	50 - 130	113	80 - 120	<10	ug/g	NC	50
3723581	F2 (C10-C16 Hydrocarbons)	2014/08/26	101	50 - 130	96	80 - 120	<10	ug/g	NC	50
3723581	F3 (C16-C34 Hydrocarbons)	2014/08/26	101	50 - 130	96	80 - 120	<10	ug/g	NC	50
3723581	F4 (C34-C50 Hydrocarbons)	2014/08/26	101	50 - 130	96	80 - 120	<10	ug/g	NC	50
3723637	Benzene	2014/08/26	82	60 - 140	76	60 - 140	<0.005	ug/g	NC	50
3723637	Ethylbenzene	2014/08/26	74	60 - 140	77	60 - 140	<0.01	ug/g	NC	50
3723637	F1 (C6-C10) - BTEX	2014/08/26					<10	ug/g	NC	50
3723637	F1 (C6-C10)	2014/08/26	88	60 - 140	94	80 - 120	<10	ug/g	NC	50
3723637	o-Xylene	2014/08/26	78	60 - 140	79	60 - 140	<0.02	ug/g	NC	50
3723637	p+m-Xylene	2014/08/26	70	60 - 140	72	60 - 140	<0.04	ug/g	NC	50
3723637	Toluene	2014/08/26	67	60 - 140	80	60 - 140	<0.02	ug/g	NC	50
3723637	Total Xylenes	2014/08/26					<0.04	ug/g	NC	50
3723643	Benzene	2014/08/26	80	60 - 140	79	60 - 140	<0.005	ug/g	NC	50
3723643	Ethylbenzene	2014/08/26	67	60 - 140	76	60 - 140	<0.01	ug/g	NC	50
3723643	F1 (C6-C10) - BTEX	2014/08/26					<10	ug/g	NC	50
3723643	F1 (C6-C10)	2014/08/26	91	60 - 140	92	80 - 120	<10	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3723643	o-Xylene	2014/08/26	69	60 - 140	79	60 - 140	<0.02	ug/g	NC	50
3723643	p+m-Xylene	2014/08/26	63	60 - 140	73	60 - 140	<0.04	ug/g	NC	50
3723643	Toluene	2014/08/26	69	60 - 140	80	60 - 140	<0.02	ug/g	NC	50
3723643	Total Xylenes	2014/08/26					<0.04	ug/g	NC	50
3723838	Benzene	2014/08/26	86	60 - 140	83	60 - 140	<0.005	ug/g	NC	50
3723838	Ethylbenzene	2014/08/26	68	60 - 140	76	60 - 140	<0.01	ug/g	NC	50
3723838	F1 (C6-C10) - BTEX	2014/08/26					<10	ug/g	NC	50
3723838	F1 (C6-C10)	2014/08/26	78	60 - 140	90	80 - 120	<10	ug/g	NC	50
3723838	o-Xylene	2014/08/26	70	60 - 140	78	60 - 140	<0.02	ug/g	NC	50
3723838	p+m-Xylene	2014/08/26	63	60 - 140	70	60 - 140	<0.04	ug/g	NC	50
3723838	Toluene	2014/08/26	68	60 - 140	76	60 - 140	<0.02	ug/g	NC	50
3723838	Total Xylenes	2014/08/26					<0.04	ug/g	NC	50
3723846	Benzene	2014/08/27	82	60 - 140	76	60 - 140	<0.005	ug/g	NC	50
3723846	Ethylbenzene	2014/08/27	76	60 - 140	83	60 - 140	<0.01	ug/g	NC	50
3723846	F1 (C6-C10) - BTEX	2014/08/27					<10	ug/g	NC	50
3723846	F1 (C6-C10)	2014/08/27	85	60 - 140	82	80 - 120	<10	ug/g	NC	50
3723846	o-Xylene	2014/08/27	78	60 - 140	85	60 - 140	<0.02	ug/g	NC	50
3723846	p+m-Xylene	2014/08/27	71	60 - 140	77	60 - 140	<0.04	ug/g	NC	50
3723846	Toluene	2014/08/27	74	60 - 140	87	60 - 140	<0.02	ug/g	NC	50
3723846	Total Xylenes	2014/08/27					<0.04	ug/g	NC	50
3723853	Benzene	2014/08/27	81	60 - 140	84	60 - 140	<0.005	ug/g	NC	50
3723853	Ethylbenzene	2014/08/27	67	60 - 140	77	60 - 140	<0.01	ug/g	NC	50
3723853	F1 (C6-C10) - BTEX	2014/08/27					<10	ug/g	NC	50
3723853	F1 (C6-C10)	2014/08/27	84	60 - 140	100	80 - 120	<10	ug/g	NC	50
3723853	o-Xylene	2014/08/27	68	60 - 140	79	60 - 140	<0.02	ug/g	NC	50
3723853	p+m-Xylene	2014/08/27	63	60 - 140	71	60 - 140	<0.04	ug/g	NC	50
3723853	Toluene	2014/08/27	70	60 - 140	78	60 - 140	<0.02	ug/g	NC	50
3723853	Total Xylenes	2014/08/27					<0.04	ug/g	NC	50
3724638	Aroclor 1016	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1221	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1232	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1242	2014/08/26					<0.01	ug/g		

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

QUALITY ASSURANCE REPORT(CONT'D)

Decommissioning Consulting Services Li...
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3724638	Aroclor 1248	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1254	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1260	2014/08/26	112	60 - 130		50	<0.01	ug/g		
3724638	Aroclor 1262	2014/08/26					<0.01	ug/g		
3724638	Aroclor 1268	2014/08/26					<0.01	ug/g		
3724638	Total PCB	2014/08/26	112	60 - 130		50	<0.01	ug/g		
3724646	Aroclor 1016	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1221	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1232	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1242	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1248	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1254	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1260	2014/08/27	116	60 - 130		50	<0.01	ug/g		
3724646	Aroclor 1262	2014/08/27					<0.01	ug/g		
3724646	Aroclor 1268	2014/08/27					<0.01	ug/g		
3724646	Total PCB	2014/08/27	116	60 - 130		50	<0.01	ug/g		
3724741	F2 (C10-C16 Hydrocarbons)	2014/08/26	78	50 - 130	80	60 - 130	<100	ug/L	NC	50
3724741	F3 (C16-C34 Hydrocarbons)	2014/08/26	78	50 - 130	80	60 - 130	<100	ug/L	NC	50
3724741	F4 (C34-C50 Hydrocarbons)	2014/08/26	78	50 - 130	80	60 - 130	<100	ug/L	NC	50
3724844	Acid Extractable Arsenic (As)	2014/08/26	101	75 - 125	103	80 - 120	<1.0	ug/g	NC	30
3724844	Acid Extractable Cadmium (Cd)	2014/08/26	99	75 - 125	102	80 - 120	<0.10	ug/g	NC	30
3724844	Acid Extractable Chromium (Cr)	2014/08/26	101	75 - 125	106	80 - 120	<1.0	ug/g	1.8	30
3724844	Acid Extractable Cobalt (Co)	2014/08/26	104	75 - 125	106	80 - 120	<0.10	ug/g	4.4	30
3724844	Acid Extractable Copper (Cu)	2014/08/26	98	75 - 125	106	80 - 120	<0.50	ug/g	5.2	30
3724844	Acid Extractable Lead (Pb)	2014/08/26	99	75 - 125	105	80 - 120	<1.0	ug/g	NC	30
3724844	Acid Extractable Mercury (Hg)	2014/08/26	101	75 - 125	103	80 - 120	<0.050	ug/g		
3724844	Acid Extractable Nickel (Ni)	2014/08/26	101	75 - 125	105	80 - 120	<0.50	ug/g	1.2	30
3724844	Acid Extractable Zinc (Zn)	2014/08/26	NC	75 - 125	101	80 - 120	<5.0	ug/g	NC	30
3725039	Acid Extractable Arsenic (As)	2014/08/26	101	75 - 125	100	80 - 120	<1.0	ug/g	NC	30
3725039	Acid Extractable Cadmium (Cd)	2014/08/26	100	75 - 125	98	80 - 120	<0.10	ug/g	NC	30
3725039	Acid Extractable Chromium (Cr)	2014/08/26	102	75 - 125	100	80 - 120	<1.0	ug/g	0.74	30
3725039	Acid Extractable Cobalt (Co)	2014/08/26	98	75 - 125	100	80 - 120	<0.10	ug/g	0.90	30

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

QUALITY ASSURANCE REPORT(CONT'D)

Decommissioning Consulting Services Li...
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3725039	Acid Extractable Copper (Cu)	2014/08/26	102	75 - 125	101	80 - 120	<0.50	ug/g	1.2	30
3725039	Acid Extractable Lead (Pb)	2014/08/26	97	75 - 125	102	80 - 120	<1.0	ug/g	2.5	30
3725039	Acid Extractable Mercury (Hg)	2014/08/26	94	75 - 125	99	80 - 120	<0.050	ug/g	NC	30
3725039	Acid Extractable Nickel (Ni)	2014/08/26	94	75 - 125	101	80 - 120	<0.50	ug/g	0.66	30
3725039	Acid Extractable Zinc (Zn)	2014/08/26	NC	75 - 125	99	80 - 120	<5.0	ug/g	NC	30
3725064	Acid Extractable Arsenic (As)	2014/08/28	104	75 - 125	102	80 - 120	<1.0	ug/g	NC	30
3725064	Acid Extractable Cadmium (Cd)	2014/08/28	101	75 - 125	103	80 - 120	<0.10	ug/g	NC	30
3725064	Acid Extractable Chromium (Cr)	2014/08/28	106	75 - 125	104	80 - 120	<1.0	ug/g	5.4	30
3725064	Acid Extractable Cobalt (Co)	2014/08/28	103	75 - 125	105	80 - 120	<0.10	ug/g	2.7	30
3725064	Acid Extractable Copper (Cu)	2014/08/28	96	75 - 125	104	80 - 120	0.52 ,RDL=0.50	ug/g	3.5	30
3725064	Acid Extractable Lead (Pb)	2014/08/28	99	75 - 125	104	80 - 120	<1.0	ug/g	NC	30
3725064	Acid Extractable Mercury (Hg)	2014/08/28	101	75 - 125	102	80 - 120	<0.050	ug/g	NC	30
3725064	Acid Extractable Nickel (Ni)	2014/08/28	100	75 - 125	105	80 - 120	<0.50	ug/g	3.1	30
3725064	Acid Extractable Zinc (Zn)	2014/08/28	NC	75 - 125	104	80 - 120	<5.0	ug/g	NC	30
3725092	Acid Extractable Arsenic (As)	2014/08/27	100	75 - 125	102	80 - 120	<1.0	ug/g	NC	30
3725092	Acid Extractable Cadmium (Cd)	2014/08/27	99	75 - 125	101	80 - 120	<0.10	ug/g	NC	30
3725092	Acid Extractable Chromium (Cr)	2014/08/27	103	75 - 125	104	80 - 120	<1.0	ug/g	2.3	30
3725092	Acid Extractable Cobalt (Co)	2014/08/27	101	75 - 125	105	80 - 120	<0.10	ug/g	4.2	30
3725092	Acid Extractable Copper (Cu)	2014/08/27	96	75 - 125	104	80 - 120	<0.50	ug/g	2.5	30
3725092	Acid Extractable Lead (Pb)	2014/08/27	96	75 - 125	100	80 - 120	<1.0	ug/g	NC	30
3725092	Acid Extractable Mercury (Hg)	2014/08/27	95	75 - 125	99	80 - 120	<0.050	ug/g	NC	30
3725092	Acid Extractable Nickel (Ni)	2014/08/27	96	75 - 125	103	80 - 120	<0.50	ug/g	1.3	30
3725092	Acid Extractable Zinc (Zn)	2014/08/27	96	75 - 125	102	80 - 120	<5.0	ug/g	NC	30
3725101	Acid Extractable Arsenic (As)	2014/08/27	113	75 - 125	104	80 - 120	<1.0	ug/g	NC	30
3725101	Acid Extractable Cadmium (Cd)	2014/08/27	106	75 - 125	107	80 - 120	<0.10	ug/g	NC	30
3725101	Acid Extractable Chromium (Cr)	2014/08/27	109	75 - 125	104	80 - 120	<1.0	ug/g	13	30
3725101	Acid Extractable Cobalt (Co)	2014/08/27	103	75 - 125	104	80 - 120	<0.10	ug/g	13	30
3725101	Acid Extractable Copper (Cu)	2014/08/27	93	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
3725101	Acid Extractable Lead (Pb)	2014/08/27	103	75 - 125	105	80 - 120	<1.0	ug/g	NC	30
3725101	Acid Extractable Mercury (Hg)	2014/08/27	102	75 - 125	99	80 - 120	<0.050	ug/g	NC	30
3725101	Acid Extractable Nickel (Ni)	2014/08/27	102	75 - 125	101	80 - 120	<0.50	ug/g	11	30
3725101	Acid Extractable Zinc (Zn)	2014/08/27	102	75 - 125	106	80 - 120	<5.0	ug/g	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3726373	Mercury (Hg)	2014/08/27	102	75 - 125	100	80 - 120	<0.01	ug/L	NC	20
3727051	Aroclor 1016	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1221	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1232	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1242	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1248	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1254	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1260	2014/09/03	94	60 - 130		50	<0.01	ug/g		
3727051	Aroclor 1262	2014/09/03					<0.01	ug/g		
3727051	Aroclor 1268	2014/09/03					<0.01	ug/g		
3727051	Total PCB	2014/09/03	94	60 - 130		50	<0.01	ug/g		
3728139	Aroclor 1016	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1221	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1232	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1242	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1248	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1254	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1260	2014/09/03	120	60 - 130		50	<0.01	ug/g		
3728139	Aroclor 1262	2014/09/03					<0.01	ug/g		
3728139	Aroclor 1268	2014/09/03					<0.01	ug/g		
3728139	Total PCB	2014/09/03	120	60 - 130		50	<0.01	ug/g		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B4F1906
Report Date: 2014/09/04

Decommissioning Consulting Services Limited
Client Project #: 350600-515-001
Site Location: FOX-M HALL BEACH
Sampler Initials: SB

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Cristina Carriere, Scientific Services

Paul Rubinato, Analyst, Maxxam Analytics

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Landfill Monitoring Detection Limits

Parameter	Soil (mg/kg)	Groundwater (mg/L)
Copper	<3.0	<0.005
Nickel	<5.0	<0.010
Cobalt	<5.0	<0.005
Cadmium	<1.0	<0.001
Lead	<10	<0.01
Zinc	<15	<0.005
Chromium	<20	<0.005
Arsenic	<0.2	<0.05
Mercury	<0.1	<0.001
PCBs	<0.05	<0.003
TPH	<40	<1

DCS SENES Consultants
121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX-M Hall Beach
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17-Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9,9,8 0,1,0
9,9,9 9,8,9 10,10,10

REC'D IN OTTAWA

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg	Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-NH-MW-15			GROUNDWATER			14 Aug/14	X	X	X	X			
FM-NH-MW-12	-S		SOIL				X	X	X	X			
FM-NH-MW-12	-D		SOIL				X	X	X	X			
FM-NH-MW-13	-S		SOIL				X	X	X	X			
FM-NH-MW-13	-D		SOIL				X	X	X	X			
FM-NH-MW-14	-S		SOIL				X	X	X	X			
FM-NH-MW-14	-D		SOIL				X	X	X	X			
FM-NH-MW-15	-S		SOIL				X	X	X	X			
FM-NH-MW-15	-D		SOIL				X	X	X	X			
FM-NH-MW-16	-S		SOIL				X	X	X	X			
FM-NH-MW-16	-D		SOIL				X	X	X	X			
			SOIL										

21-Aug-14 12:50
Keshani Vijh
B4F1906
KP2 OTT-001

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17Aug/14		Kelsey Pilon 2014/08/21 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants
121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX- M Hall Beach
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9/9/8 0/1/0 9/9/9 9/8/9 10/10/10

REC'D IN OTTAWA

Analyses Requested

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg						Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-BIL-1-S			SOIL			14Aug/14	X	X	X	X								
FM-BIL-1-D			SOIL				X	X	X	X								
FM-BIL-2-S			SOIL				X	X	X	X								
FM-BIL-2-D			SOIL				X	X	X	X								
FM-BIL-3-S			SOIL				X	X	X	X								
~~FM-BIL-3-D~~			~~SOIL~~				~~X~~	~~X~~	~~X~~	~~X~~								
FM-BIL-4-D			SOIL				X	X	X	X								
FM-BIL-4-S			SOIL				X	X	X	X								
FM-W-5-S			SOIL				X	X	X	X								
FM-W-5-D			SOIL				X	X	X	X								
FM-W-6-S			SOIL				X	X	X	X								
FM-W-6-D			SOIL				X	X	X	X								

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17 Aug/14		Kelsey Pilon 8014/08/1 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

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Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX- M Hall Beach
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Analyses Requested

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg
FM-W-7-S			SOIL			14 Aug/14	X	X	X	X
FM-W-7-D							X	X	X	X
FM-W-8-S							X	X	X	X
FM-W-8-D							X	X	X	X
FM-CNW-13	-S						X	X	X	X
FM-CNW-13	-D						X	X	X	X
FM-CNW-14	-S						X	X	X	X
FM-CNW-14	-D						X	X	X	X
FM-CNW-15	-S						X	X	X	X
FM-CNW-15	-D						X	X	X	X
FM-CNW-16	-S						X	X	X	X
FM-CNW-16	-D						X	X	X	X

9/9/8 0/1/0
9/9/9 9/8/9 10/10/10

REC'D IN OTTAWA

Field Procedures

pH	Electrical Conductivity	Preservatives

Relinquished By:	Date:	Time:	Received By:	
S. Borcsok	17 Aug/14		Kelsey Pilon	2014/08/21 12:50
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Laboratory

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants AN ARCADIS COMPANY

121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX-M HALL BEACH
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temps: 9,9,8 0,1,0 9,9,9 9,8,9 10,10,10

REC'D IN OTTAWA

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg							Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-CNO-17-S			SOIL			15 Aug/14	X	X	X	X									
FM-CNO-17-D							X	X	X	X									
FM-CNO-18-S							X	X	X	X									
FM-CNO-19-S							X	X	X	X									
FM-CNO-19-D							X	X	X	X									
FM-CNO-20-S							X	X	X	X									
FM-CNO-20-D							X	X	X	X									
FM-CNO-21-S							X	X	X	X									
FM-CNO-21-D							X	X	X	X									
FM-CNO-22-S							X	X	X	X									
FM-CNO-22-D							X	X	X	X									

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17 Aug/14		Kelsey Pilon 2014/08/21 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants AN AECOM COMPANY

121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX- M HALL BEACH
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9/9/8 0/1/0 9/9/9 9/8/9 10/10/10

REC'D IN OTTAWA

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg						Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-HAZ-9-S			SOIL			15Aug/14	X	X	X	X								
FM-HAZ-9-D							X	X	X	X								
FM-HAZ-10-S							X	X	X	X								
FM-HAZ-11-S							X	X	X	X								
FM-HAZ-11-D							X	X	X	X								
FM-HAZ-12-S							X	X	X	X								
FM-HAZ-12-D							X	X	X	X								
FM-T2-MW-1	-S						X	X	X	X								
FM-T2-MW-1	-D						X	X	X	X								
FM-T2-MW-2	-S						X	X	X	X								
FM-T2-MW-2	-D						X	X	X	X								
FM-T2-MW-3	-S						X	X	X	X								

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17 Aug/14		Kelsey Pilon 2014/08/21 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants

121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX-M HALLBEACH
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD **Day(s)**
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9/9/8 0/1/0 9/9/9 9/8/9 10/10/10

REC'D IN OTTAWA

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg						Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-T2-MW-3	-D		SOIL			15Aug/14	X	X	X	X								
FM-T2-MW-4	-S						X	X	X	X								
FM-T2-MW-4	-D						X	X	X	X								
FM-T2-MW-5	-S						X	X	X	X								
FM-T2-MW-5	-D						X	X	X	X								
FM-T2-MW-1			GROUNDWATER				X	X	X	X								
FM-T2-MW-2			GROUNDWATER				X	X	X	X								
FM-T2-MW-3			Groundwater (1 vial only)			16Aug/14	X											
FM-T2-MW-4			GROUNDWATER			15Aug/14	X	X	X	X								
FM-T2-MW-5			GROUNDWATER			15Aug/14	X	X	X	X								
FM-EB-MW-29						16 Aug/14	X	X	X	X								
FM-EB-MW-30						16 Aug/14	X	X	X	X								

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17 Aug/14		Kelsey Pilon 2014/08/21 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants
121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 -001 **Site:** FOX-M HALL BEACH
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9/9/8 0/1/0 9/9/9 9/8/9 10/10/10

REC'D IN OTTAWA

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg	pH	Electrical Conductivity	Preservatives
FM-EB-MW-	20-S		SOIL			16 Aug/14	X	X	X	X			
FM-EB-MW-	20-D						X	X	X	X			
FM-EB-MW-	21-S						X	X	X	X			
FM-EB-MW-	21-D						X	X	X	X			
FM-EB-MW	22-S						X	X	X	X			
FM-EB-MW-	22-D						X	X	X	X			
FM-EB-MW-	23-S						X	X	X	X			
FM-EB-MW-	23-D						X	X	X	X			
FM-EB-MW-	24-D						X	X	X	X			
FM-EB-MW-	25-S						X	X	X	X			
FM-EB-MW-	25-D						X	X	X	X			
FM-EB-MW-	26-S						X	X	X	X			

Analyses Requested

Field Procedures

Relinquished By:	Date:	Time:	Received By:
S. Borcsok	17 Aug/14		Kelsey Pilon 2014/08/21 12:50
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Laboratory

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

DCS SENES Consultants

121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

Shipper

Project No.: 350600-515 ~001 **Site:** FOX-M Hall Beach
Project Manager: S. Borcsok
Field Engineer/Techician: S. Borcsok/J. Mauchan
Date: 17 Aug/14 **Route:** Courier
Lab: MAXXAM **Location** Ottawa
Required Date: _____ **Turnaround:** STD Day(s)
Quotation No.: _____
MDL's To Meet: SEE ATTACHED

Temp: 9/9/8 0/1/0 9/9/9 9/8/9 10/10/0

REC'D IN OTTAWA

Analyses Requested

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg						Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-EB-MW-	-26-D		SOIL			16Aug/14	X	X	X	X								
FM-EB-MW-	-27-S						X	X	X	X								
FM-EB-MW-	-27-D						X	X	X	X								
FM-EB-MW-	-28-S						X	X	X	X								
FM-EB-MW-	-28-D						X	X	X	X								
FM-EB-MW-	-29-S						X	X	X	X								
FM-EB-MW-	-29-D						X	X	X	X								
FM-EB-MW-	-30-S						X	X	X	X								
FM-EB-MW-	-30-D						X	X	X	X								
FM-EB-MW	-31-S						X	X	X	X								
FM-EB-MW	-31-D						X	X	X	X								

Relinquished By:	Date:	Time:	Received By:	Laboratory
S. Borcsok	17Aug/14		Kelsey Pilon 2014/08/20 12:50	
Relinquished By:	Date:	Time:	Received By:	
Relinquished By:	Date:	Time:	Received By:	

Remarks:
ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Project No. and Date

(Revision 1 - 17 May 2012)

Your Project #: MB4F1906
Your C.O.C. #: B4F1906

Attention: SUB CONTRACTOR
MAXXAM ANALYTICS
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2014/09/02
Report #: R1634307
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B474099
Received: 2014/08/23, 10:30

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cadmium - low level CCME (Total)	7	2014/08/25	2014/08/29	AB SOP-00014 / AB SOP-00043	EPA 200.8 R5.4 m
Elements by ICP - Total	7	2014/08/29	2014/08/29	AB SOP-00014 / AB SOP-00042	EPA 200.7 CFR 2012 m
Elements by ICPMS - Total	7	2014/08/29	2014/08/29	AB SOP-00014 / AB SOP-00043	EPA 200.8 R5.4 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Cynny Hagen, Project Manager Assistant
Email: CHagen@maxxam.ca
Phone# (403) 291-3077 Ext:5601

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B474099
Report Date: 2014/09/02

MAXXAM ANALYTICS
Client Project #: MB4F1906

REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KK7040	KK7041	KK7042	KK7043	KK7044		
Sampling Date		2014/08/14	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number		B4F1906	B4F1906	B4F1906	B4F1906	B4F1906		
	UNITS	**FM-NH-MW-15 (XF6472-04R)**	**FM-T2-MW-1 (XF6940-04R)**	**FM-T2-MW-2 (XF6941-04R)**	**FM-T2-MW-4 (XF6943-04R)**	**FM-T2-MW-5 (XF6944-04R)**	**RDL**	**QC Batch**
Low Level Elements								
Total Cadmium (Cd)	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7612994
Elements								
Total Aluminum (Al)	mg/L	0.48	0.16	1.4	1.3	0.19	0.0030	7619601
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	0.00060	7619601
Total Arsenic (As)	mg/L	0.00028	0.00062	0.00072	0.0014	0.00081	0.00020	7619601
Total Barium (Ba)	mg/L	0.012	0.010	0.010	0.015	<0.010	0.010	7619604
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7619601
Total Boron (B)	mg/L	0.14	0.12	0.19	0.12	0.12	0.020	7619604
Total Calcium (Ca)	mg/L	230	78	130	120	74	0.30	7619604
Total Chromium (Cr)	mg/L	0.013	0.0025	0.0065	0.029	0.0056	0.0010	7619601
Total Cobalt (Co)	mg/L	0.00050	<0.00030	0.00054	0.0070	<0.00030	0.00030	7619601
Total Copper (Cu)	mg/L	0.0012	0.00065	0.0025	0.0059	0.0011	0.00020	7619601
Total Iron (Fe)	mg/L	0.44	0.24	1.2	2.9	1.4	0.060	7619604
Total Lead (Pb)	mg/L	0.00021	<0.00020	0.0011	0.0023	<0.00020	0.00020	7619601
Total Lithium (Li)	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7619604
Total Magnesium (Mg)	mg/L	37	18	30	18	15	0.20	7619604
Total Manganese (Mn)	mg/L	0.11	0.0075	0.041	0.16	0.024	0.0040	7619604
Total Molybdenum (Mo)	mg/L	0.0013	0.0069	0.0028	0.0035	0.0025	0.00020	7619601
Total Nickel (Ni)	mg/L	0.0076	0.0030	0.0046	0.017	0.0041	0.00050	7619601
Total Phosphorus (P)	mg/L	<0.10	0.13	<0.10	<0.10	0.11	0.10	7619604
Total Potassium (K)	mg/L	7.4	3.6	6.4	4.3	3.9	0.30	7619604
Total Selenium (Se)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7619601
Total Silicon (Si)	mg/L	1.8	2.2	2.3	3.8	3.3	0.10	7619604
Total Silver (Ag)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7619601
Total Sodium (Na)	mg/L	14	9.6	7.6	21	25	0.50	7619604
Total Strontium (Sr)	mg/L	0.34	0.23	0.31	0.25	0.22	0.020	7619604
Total Sulphur (S)	mg/L	160	34	60	36	33	0.20	7619604
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7619601
Total Tin (Sn)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7619601
Total Titanium (Ti)	mg/L	0.067	0.017	0.068	0.059	0.0075	0.0010	7619601
Total Uranium (U)	mg/L	0.0072	0.0019	0.0026	0.0016	0.00084	0.00010	7619601
Total Vanadium (V)	mg/L	0.0013	<0.0010	0.0034	0.0027	<0.0010	0.0010	7619601

RDL = Reportable Detection Limit

Maxxam Job #: B474099
Report Date: 2014/09/02

MAXXAM ANALYTICS
Client Project #: MB4F1906

REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KK7040	KK7041	KK7042	KK7043	KK7044		
Sampling Date		2014/08/14	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number		B4F1906	B4F1906	B4F1906	B4F1906	B4F1906		
	UNITS	**FM-NH-MW-15 (XF6472-04R)**	**FM-T2-MW-1 (XF6940-04R)**	**FM-T2-MW-2 (XF6941-04R)**	**FM-T2-MW-4 (XF6943-04R)**	**FM-T2-MW-5 (XF6944-04R)**	**RDL**	**QC Batch**
Total Zinc (Zn)	mg/L	0.0036	<0.0030	0.73	0.039	0.0086	0.0030	7619601

RDL = Reportable Detection Limit

Maxxam Job #: B474099
Report Date: 2014/09/02

MAXXAM ANALYTICS
Client Project #: MB4F1906

REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KK7045	KK7046		
Sampling Date		2014/08/16	2014/08/16		
COC Number		B4F1906	B4F1906		
	UNITS	**FM-EB-MW-29 (XF6945-04R)**	**FM-EB-MW-30 (XF6946-04R)**	**RDL**	**QC Batch**
Low Level Elements					
Total Cadmium (Cd)	ug/L	0.20	<0.020	0.020	7612994
Elements					
Total Aluminum (Al)	mg/L	4.6	4.1	0.0030	7619601
Total Antimony (Sb)	mg/L	<0.00060	<0.00060	0.00060	7619601
Total Arsenic (As)	mg/L	0.0028	0.0036	0.00020	7619601
Total Barium (Ba)	mg/L	0.012	0.019	0.010	7619604
Total Beryllium (Be)	mg/L	<0.0010	<0.0010	0.0010	7619601
Total Boron (B)	mg/L	0.23	0.32	0.020	7619604
Total Calcium (Ca)	mg/L	190	130	0.30	7619604
Total Chromium (Cr)	mg/L	0.015	0.022	0.0010	7619601
Total Cobalt (Co)	mg/L	0.0016	0.00060	0.00030	7619601
Total Copper (Cu)	mg/L	0.0080	0.0017	0.00020	7619601
Total Iron (Fe)	mg/L	4.4	4.2	0.060	7619604
Total Lead (Pb)	mg/L	0.0038	0.0011	0.00020	7619601
Total Lithium (Li)	mg/L	<0.020	<0.020	0.020	7619604
Total Magnesium (Mg)	mg/L	44	37	0.20	7619604
Total Manganese (Mn)	mg/L	0.094	0.058	0.0040	7619604
Total Molybdenum (Mo)	mg/L	0.0025	0.0029	0.00020	7619601
Total Nickel (Ni)	mg/L	0.011	0.0091	0.00050	7619601
Total Phosphorus (P)	mg/L	0.23	0.15	0.10	7619604
Total Potassium (K)	mg/L	7.6	13	0.30	7619604
Total Selenium (Se)	mg/L	0.00022	<0.00020	0.00020	7619601
Total Silicon (Si)	mg/L	8.0	3.7	0.10	7619604
Total Silver (Ag)	mg/L	0.00010	<0.00010	0.00010	7619601
Total Sodium (Na)	mg/L	100	140	0.50	7619604
Total Strontium (Sr)	mg/L	0.40	0.47	0.020	7619604
Total Sulphur (S)	mg/L	53	98	0.20	7619604
Total Thallium (Tl)	mg/L	<0.00020	<0.00020	0.00020	7619601
Total Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	7619601
Total Titanium (Ti)	mg/L	0.19	0.32	0.0010	7619601
Total Uranium (U)	mg/L	0.0012	0.00065	0.00010	7619601
Total Vanadium (V)	mg/L	0.012	0.0093	0.0010	7619601

RDL = Reportable Detection Limit

MAXXAM ANALYTICS
Client Project #: MB4F1906

Maxxam Job #: B474099
Report Date: 2014/09/02

REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KK7045	KK7046		
Sampling Date		2014/08/16	2014/08/16		
COC Number		B4F1906	B4F1906		
	UNITS	**FM-EB-MW-29 (XF6945-04R)**	**FM-EB-MW-30 (XF6946-04R)**	**RDL**	**QC Batch**
Total Zinc (Zn)	mg/L	0.11	0.21	0.0030	7619601

RDL = Reportable Detection Limit

Maxxam Job #: B474099
Report Date: 2014/09/02

MAXXAM ANALYTICS
Client Project #: MB4F1906

Package 1	2.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

MAXXAM ANALYTICS
Attention: SUB CONTRACTOR
Client Project #: MB4F1906
P.O. #:
Site Location:

Quality Assurance Report

Maxxam Job Number: CB474099

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7619601	HC7	Matrix Spike	Total Aluminum (Al)	2014/08/29		NC	%	80 - 120
			Total Antimony (Sb)	2014/08/29		98	%	80 - 120
			Total Arsenic (As)	2014/08/29		97	%	80 - 120
			Total Beryllium (Be)	2014/08/29		108	%	80 - 120
			Total Chromium (Cr)	2014/08/29		94	%	80 - 120
			Total Cobalt (Co)	2014/08/29		93	%	80 - 120
			Total Copper (Cu)	2014/08/29		90	%	80 - 120
			Total Lead (Pb)	2014/08/29		92	%	80 - 120
			Total Molybdenum (Mo)	2014/08/29		111	%	80 - 120
			Total Nickel (Ni)	2014/08/29		88	%	80 - 120
			Total Selenium (Se)	2014/08/29		97	%	80 - 120
			Total Silver (Ag)	2014/08/29		91	%	80 - 120
			Total Thallium (Tl)	2014/08/29		92	%	80 - 120
			Total Tin (Sn)	2014/08/29		107	%	80 - 120
			Total Titanium (Ti)	2014/08/29		89	%	80 - 120
			Total Uranium (U)	2014/08/29		99	%	80 - 120
			Total Vanadium (V)	2014/08/29		103	%	80 - 120
			Total Zinc (Zn)	2014/08/29		NC	%	80 - 120
		Spiked Blank	Total Aluminum (Al)	2014/08/29		118	%	80 - 120
			Total Antimony (Sb)	2014/08/29		99	%	80 - 120
			Total Arsenic (As)	2014/08/29		99	%	80 - 120
			Total Beryllium (Be)	2014/08/29		104	%	80 - 120
			Total Chromium (Cr)	2014/08/29		97	%	80 - 120
			Total Cobalt (Co)	2014/08/29		98	%	80 - 120
			Total Copper (Cu)	2014/08/29		100	%	80 - 120
			Total Lead (Pb)	2014/08/29		101	%	80 - 120
			Total Molybdenum (Mo)	2014/08/29		105	%	80 - 120
			Total Nickel (Ni)	2014/08/29		97	%	80 - 120
			Total Selenium (Se)	2014/08/29		100	%	80 - 120
			Total Silver (Ag)	2014/08/29		96	%	80 - 120
			Total Thallium (Tl)	2014/08/29		98	%	80 - 120
			Total Tin (Sn)	2014/08/29		104	%	80 - 120
			Total Titanium (Ti)	2014/08/29		94	%	80 - 120
			Total Uranium (U)	2014/08/29		106	%	80 - 120
			Total Vanadium (V)	2014/08/29		105	%	80 - 120
			Total Zinc (Zn)	2014/08/29		98	%	80 - 120
		Method Blank	Total Aluminum (Al)	2014/08/29	0.0030, RDL=0.0030		mg/L	
			Total Antimony (Sb)	2014/08/29	<0.00060		mg/L	
			Total Arsenic (As)	2014/08/29	<0.00020		mg/L	
			Total Beryllium (Be)	2014/08/29	<0.0010		mg/L	
			Total Chromium (Cr)	2014/08/29	<0.0010		mg/L	
			Total Cobalt (Co)	2014/08/29	<0.00030		mg/L	
			Total Copper (Cu)	2014/08/29	<0.00020		mg/L	
			Total Lead (Pb)	2014/08/29	<0.00020		mg/L	
			Total Molybdenum (Mo)	2014/08/29	<0.00020		mg/L	
			Total Nickel (Ni)	2014/08/29	<0.00050		mg/L	
			Total Selenium (Se)	2014/08/29	<0.00020		mg/L	
			Total Silver (Ag)	2014/08/29	<0.00010		mg/L	
			Total Thallium (Tl)	2014/08/29	<0.00020		mg/L	
			Total Tin (Sn)	2014/08/29	<0.0010		mg/L	
			Total Titanium (Ti)	2014/08/29	<0.0010		mg/L	
			Total Uranium (U)	2014/08/29	<0.00010		mg/L	
			Total Vanadium (V)	2014/08/29	<0.0010		mg/L	
			Total Zinc (Zn)	2014/08/29	<0.0030		mg/L	
		RPD	Total Aluminum (Al)	2014/08/29	5.4		%	20

MAXXAM ANALYTICS
Attention: SUB CONTRACTOR
Client Project #: MB4F1906
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: CB474099

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7619601 HC7	RPD	Total Antimony (Sb)	2014/08/29	NC		%	20
		Total Arsenic (As)	2014/08/29	2.8		%	20
		Total Beryllium (Be)	2014/08/29	NC		%	20
		Total Chromium (Cr)	2014/08/29	NC		%	20
		Total Cobalt (Co)	2014/08/29	NC		%	20
		Total Copper (Cu)	2014/08/29	5.3		%	20
		Total Lead (Pb)	2014/08/29	2.0		%	20
		Total Molybdenum (Mo)	2014/08/29	2.5		%	20
		Total Nickel (Ni)	2014/08/29	NC		%	20
		Total Selenium (Se)	2014/08/29	NC		%	20
		Total Silver (Ag)	2014/08/29	NC		%	20
		Total Thallium (Tl)	2014/08/29	NC		%	20
		Total Tin (Sn)	2014/08/29	NC		%	20
		Total Titanium (Ti)	2014/08/29	NC		%	20
		Total Uranium (U)	2014/08/29	1.7		%	20
		Total Vanadium (V)	2014/08/29	NC		%	20
		Total Zinc (Zn)	2014/08/29	5.1		%	20
7619604 STI	Matrix Spike	Total Barium (Ba)	2014/08/29		NC	%	80 - 120
		Total Boron (B)	2014/08/29		84	%	80 - 120
		Total Calcium (Ca)	2014/08/29		NC	%	80 - 120
		Total Iron (Fe)	2014/08/29		NC	%	80 - 120
		Total Lithium (Li)	2014/08/29		85	%	80 - 120
		Total Magnesium (Mg)	2014/08/29		NC	%	80 - 120
		Total Manganese (Mn)	2014/08/29		NC	%	80 - 120
		Total Phosphorus (P)	2014/08/29		84	%	80 - 120
		Total Potassium (K)	2014/08/29		89	%	80 - 120
		Total Silicon (Si)	2014/08/29		NC	%	80 - 120
		Total Sodium (Na)	2014/08/29		NC	%	80 - 120
		Total Strontium (Sr)	2014/08/29		74 (1)	%	80 - 120
	Spiked Blank	Total Barium (Ba)	2014/08/29		96	%	80 - 120
		Total Boron (B)	2014/08/29		97	%	80 - 120
		Total Calcium (Ca)	2014/08/29		95	%	80 - 120
		Total Iron (Fe)	2014/08/29		101	%	80 - 120
		Total Lithium (Li)	2014/08/29		99	%	80 - 120
		Total Magnesium (Mg)	2014/08/29		96	%	80 - 120
		Total Manganese (Mn)	2014/08/29		94	%	80 - 120
		Total Phosphorus (P)	2014/08/29		93	%	80 - 120
		Total Potassium (K)	2014/08/29		95	%	80 - 120
		Total Silicon (Si)	2014/08/29		94	%	80 - 120
		Total Sodium (Na)	2014/08/29		96	%	80 - 120
		Total Strontium (Sr)	2014/08/29		95	%	80 - 120
	Method Blank	Total Barium (Ba)	2014/08/29	<0.010		mg/L	
		Total Boron (B)	2014/08/29	<0.020		mg/L	
		Total Calcium (Ca)	2014/08/29	<0.30		mg/L	
		Total Iron (Fe)	2014/08/29	<0.060		mg/L	
		Total Lithium (Li)	2014/08/29	<0.020		mg/L	
		Total Magnesium (Mg)	2014/08/29	<0.20		mg/L	
		Total Manganese (Mn)	2014/08/29	<0.0040		mg/L	
		Total Phosphorus (P)	2014/08/29	<0.10		mg/L	
		Total Potassium (K)	2014/08/29	<0.30		mg/L	
		Total Silicon (Si)	2014/08/29	<0.10		mg/L	
		Total Sodium (Na)	2014/08/29	<0.50		mg/L	
		Total Strontium (Sr)	2014/08/29	<0.020		mg/L	
		Total Sulphur (S)	2014/08/29	<0.20		mg/L	
	RPD	Total Barium (Ba)	2014/08/29	4.2		%	20

MAXXAM ANALYTICS
Attention: SUB CONTRACTOR
Client Project #: MB4F1906
P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: CB474099

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7619604	STI	RPD	Total Boron (B)	2014/08/29	5.2		%	20
			Total Calcium (Ca)	2014/08/29	3.0		%	20
			Total Iron (Fe)	2014/08/29	3.7		%	20
			Total Lithium (Li)	2014/08/29	NC		%	20
			Total Magnesium (Mg)	2014/08/29	4.2		%	20
			Total Manganese (Mn)	2014/08/29	4.2		%	20
			Total Phosphorus (P)	2014/08/29	NC		%	20
			Total Potassium (K)	2014/08/29	4.8		%	20
			Total Silicon (Si)	2014/08/29	4.3		%	20
			Total Sodium (Na)	2014/08/29	4.4		%	20
			Total Strontium (Sr)	2014/08/29	4.3		%	20
			Total Sulphur (S)	2014/08/29	3.3		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Validation Signature Page

Maxxam Job #: B474099

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Peng Liang, Analyst II

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

AGAT Laboratories

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CLIENT NAME: **ARCADIS SENES CANADA INC(DCS)**
121 GRANTON DRIVE, UNIT #11,
RICHMOND HILL, ON L4B3N4
(905) 882-5984

ATTENTION TO: **Steve Borcsok**

PROJECT: **350600-515-001**

AGAT WORK ORDER: **14T880120**

SOIL ANALYSIS REVIEWED BY: **Elizabeth Polakowska, MSc (Animal Sci), PhD (Agri Sci), Inorganic Lab Supervisor**

TRACE ORGANICS REVIEWED BY: **Oksana Gushyla, Trace Organics Lab Supervisor**

WATER ANALYSIS REVIEWED BY: **Elizabeth Polakowska, MSc (Animal Sci), PhD (Agri Sci), Inorganic Lab Supervisor**

DATE REPORTED: **Sep 10, 2014**

PAGES (INCLUDING COVER): **13**

VERSION*: **1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

Metals Scan (soil)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FM-NH-MW-12-5 SAMPLE TYPE: Soil DATE SAMPLED: 8/14/2014 5731739	FM-W-5-D Soil 8/14/2014 5731742	FM-BIL-4-D Soil 8/14/2014 5731744	FM-CNW-13-S Soil 8/14/2014 5731746	FM-CNO-18-S Soil 8/15/2014 5731748	FM-HAZ-11-S Soil 8/15/2014 5731751	FM-T2-MW-1-D Soil 8/15/2014 5731753	FM-EB-MW-31-S Soil 8/16/2014 5731764
Arsenic	µg/g		1	4	4	2	4	3	3	5	5
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	µg/g		0.5	2.6	4.5	1.6	2.7	1.0	2.6	2.7	3.4
Chromium	µg/g		2	13	20	9	12	3	12	15	15
Copper	µg/g		1	25	8	2	5	2	6	5	9
Lead	µg/g		1	66	6	2	5	2	12	3	13
Mercury	µg/g		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	µg/g		1	11	13	6	10	8	11	11	14
Zinc	µg/g		5	28	20	9	17	<5	21	13	18

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FM-EB-MW-21-S SAMPLE TYPE: Soil DATE SAMPLED: 8/16/2014 5731766
Arsenic	µg/g		1	3
Cadmium	µg/g		0.5	<0.5
Cobalt	µg/g		0.5	2.4
Chromium	µg/g		2	11
Copper	µg/g		1	4
Lead	µg/g		1	3
Mercury	µg/g		0.10	<0.10
Nickel	µg/g		1	10
Zinc	µg/g		5	9

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)
5731739-5731766

Certified By: Elizabeth Potakowska

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-NH-MW-15	FM-T2-MW-1	FM-EB-MW-30
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		8/14/2014	8/15/2014	8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731545**	**5731756**	**5731768**
Benzene	µg/L		0.20	<0.20	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L		0.20	0.20	<0.20	<0.20
F1 (C6 to C10)	µg/L		25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25	<25	<25
F2 (C10 to C16)	µg/L		100	<100	<100	<100
F3 (C16 to C34)	µg/L		100	<100	<100	<100
F4 (C34 to C50)	µg/L		100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA
Surrogate	**Unit**	**Acceptable Limits**				
Terphenyl	%	60-140		97	98	98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5731545-5731768 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By:

Results relate only to the items tested and to all the items tested

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AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PCBs (soil)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-NH-MW-12-5	FM-W-5-D	FM-BIL-4-D	FM-CNW-13-S	FM-CNO-18-S	FM-HAZ-11-S	FM-T2-MW-1-D	FM-EB-MW-31-S
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		8/14/2014	8/14/2014	8/14/2014	8/14/2014	8/15/2014	8/15/2014	8/15/2014	8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731739**	**5731742**	**5731744**	**5731746**	**5731748**	**5731751**	**5731753**	**5731764**
PCBs	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.1	<0.05	<0.05
Moisture Content	%		0.1	2.5	15.1	8.0	1.1	35.2	4.2	10.3	2.6
Surrogate	**Unit**	**Acceptable Limits**									
Decachlorobiphenyl	%	60-130		74	70	80	84	82	96	80	84

		SAMPLE DESCRIPTION:		FM-EB-MW-21-S
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731766**
PCBs	µg/g		0.05	<0.05
Moisture Content	%		0.1	2.1
Surrogate	**Unit**	**Acceptable Limits**		
Decachlorobiphenyl	%	60-130		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5731739-5731766 Results are based on the dry weight of soil extracted.

Certified By:

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PCBs (water)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-NH-MW-15	FM-T2-MW-1	FM-EB-MW-30
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		8/14/2014	8/15/2014	8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731545**	**5731756**	**5731768**
PCBs	µg/L		0.1	<0.1	<0.1	<0.1
Surrogate	**Unit**	**Acceptable Limits**				
Decachlorobiphenyl	%	60-130		120	115	124

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PHCs F1 - F4 (Soil)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-NH-MW-12-5	FM-W-5-D	FM-BIL-4-D	FM-CNW-13-S	FM-CNO-18-S	FM-HAZ-11-S	FM-T2-MW-1-D	FM-EB-MW-31-S
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		8/14/2014	8/14/2014	8/14/2014	8/14/2014	8/15/2014	8/15/2014	8/15/2014	8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731739**	**5731742**	**5731744**	**5731746**	**5731748**	**5731751**	**5731753**	**5731764**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	6	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	6	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g		10	11	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	2.5	15.1	8.0	1.1	35.2	4.2	10.3	2.6
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		85	103	81	103	105	95	95	78

Certified By:

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PHCs F1 - F4 (Soil)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-EB-MW-21-S
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		8/16/2014
Parameter	**Unit**	**G / S**	**RDL**	**5731766**
Benzene	µg/g		0.02	<0.02
Toluene	µg/g		0.08	<0.08
Ethylbenzene	µg/g		0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5
F2 (C10 to C16)	µg/g		10	<10
F3 (C16 to C34)	µg/g		50	<50
F4 (C34 to C50)	µg/g		50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA
Moisture Content	%		0.1	2.1
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5731739-5731766 Results are based on sample dry weight.The soil sample was prepared in the lab using the Methanol extraction technique. The sample was not field preserved with methanol and an Encore was not provided for analysis.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

Metals (Water)

DATE RECEIVED: 2014-08-25

DATE REPORTED: 2014-09-10

		SAMPLE DESCRIPTION:		FM-NH-MW-15	FM-T2-MW-1	FM-EB-MW-30
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		8/14/2014	8/15/2014	8/16/2014
Parameter	Unit	G / S	RDL	5731545	5731756	5731768
Arsenic	mg/L		0.003	<0.003	<0.003	0.009
Cadmium	mg/L		0.002	<0.002	<0.002	<0.002
Chromium	mg/L		0.003	<0.003	<0.003	0.059
Cobalt	mg/L		0.001	0.001	<0.001	0.001
Copper	mg/L		0.003	0.003	<0.003	0.007
Lead	mg/L		0.002	<0.002	<0.002	0.003
Mercury	mg/L		0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L		0.003	<0.003	<0.003	0.015
Zinc	mg/L		0.005	<0.005	<0.005	0.404

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By: Elizabeth Potakowska

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Quality Assurance

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

Soil Analysis

RPT Date: Sep 10, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Metals Scan (soil)															
Arsenic	1	5731751	3	3	0.0%	< 1	109%	70%	130%	105%	80%	120%	109%	70%	130%
Cadmium	1	5731751	< 0.5	< 0.5	0.0%	< 0.5	100%	70%	130%	104%	80%	120%	114%	70%	130%
Cobalt	1	5731751	2.6	2.6	0.0%	< 0.5	98%	70%	130%	102%	80%	120%	105%	70%	130%
Chromium	1	5731751	12	13	8.0%	< 2	93%	70%	130%	104%	80%	120%	114%	70%	130%
Copper	1	5731751	6	6	0.0%	< 1	103%	70%	130%	108%	80%	120%	96%	70%	130%
Lead	1	5731751	12	11	8.7%	< 1	102%	70%	130%	96%	80%	120%	92%	70%	130%
Mercury	1	5731751	< 0.10	< 0.10	0.0%	< 0.10	115%	70%	130%	100%	80%	120%	100%	70%	130%
Nickel	1	5731751	11	11	0.0%	< 1	95%	70%	130%	107%	80%	120%	104%	70%	130%
Zinc	1	5731751	21	20	4.9%	< 5	93%	70%	130%	104%	80%	120%	96%	70%	130%

Certified By: Elizabeth Rolakowska

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Quality Assurance

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

Trace Organics Analysis

RPT Date: Sep 10, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	1		< 0.20	< 0.20	0.0%	< 0.20	95%	50%	140%	113%	60%	130%	101%	50%	140%
Toluene	1		< 0.20	< 0.20	0.0%	< 0.20	93%	50%	140%	115%	60%	130%	100%	50%	140%
Ethylbenzene	1		< 0.10	< 0.10	0.0%	< 0.10	89%	50%	140%	110%	60%	130%	99%	50%	140%
Xylene Mixture	1		< 0.20	< 0.20	0.0%	< 0.20	89%	50%	140%	113%	60%	130%	102%	50%	140%
F1 (C6 to C10)	1		< 25	< 25	0.0%	< 25	82%	60%	140%	82%	60%	140%	82%	60%	140%
F2 (C10 to C16)	1		< 100	< 100	0.0%	< 100	95%	60%	140%	61%	60%	140%	63%	60%	140%
F3 (C16 to C34)	1		< 100	< 100	0.0%	< 100	92%	60%	140%	112%	60%	140%	115%	60%	140%
F4 (C34 to C50)	1		< 100	< 100	0.0%	< 100	103%	60%	140%	113%	60%	140%	88%	60%	140%
PHCs F1 - F4 (Soil)															
Benzene	1		< 0.02	< 0.02	0.0%	< 0.02	95%	50%	140%	113%	60%	130%	101%	50%	140%
Toluene	1		< 0.08	< 0.08	0.0%	< 0.08	93%	50%	140%	115%	60%	130%	100%	50%	140%
Ethylbenzene	1		< 0.05	< 0.05	0.0%	< 0.05	89%	50%	140%	110%	60%	130%	99%	50%	140%
Xylene Mixture	1		< 0.05	< 0.05	0.0%	< 0.05	89%	50%	140%	113%	60%	130%	102%	50%	140%
F1 (C6 to C10)	1		< 5	< 5	0.0%	< 5	82%	60%	140%	82%	80%	120%	82%	60%	140%
F2 (C10 to C16)	1		< 10	< 10	0.0%	< 10	100%	60%	140%	83%	80%	120%	73%	60%	140%
F3 (C16 to C34)	1		< 50	< 50	0.0%	< 50	98%	60%	140%	83%	80%	120%	88%	60%	140%
F4 (C34 to C50)	1		< 50	< 50	0.0%	< 50	85%	60%	140%	95%	80%	120%	90%	60%	140%
PCBs (water)															
PCBs	1		< 0.1	< 0.1	0.0%	< 0.1	95%	60%	140%	90%	60%	140%	100%	60%	140%
PCBs (soil)															
PCBs	1		< 0.1	< 0.1	0.0%	< 0.1	79%	60%	140%	99%	60%	140%	75%	60%	140%

Certified By:

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Quality Assurance

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

Water Analysis

RPT Date: Sep 10, 2014			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Metals (Water)															
Arsenic	1		0.003	0.004	NA	< 0.003	99%	90%	110%	97%	90%	110%	102%	70%	130%
Cadmium	1		< 0.002	< 0.002	0.0%	< 0.002	99%	90%	110%	95%	90%	110%	99%	70%	130%
Chromium	1		< 0.003	< 0.003	0.0%	< 0.003	100%	90%	110%	98%	90%	110%	101%	70%	130%
Cobalt	1		0.001	0.001	0.0%	< 0.001	98%	90%	110%	98%	90%	110%	100%	70%	130%
Copper	1		0.003	0.004	NA	< 0.003	104%	90%	110%	105%	90%	110%	104%	70%	130%
Lead	1		< 0.002	< 0.002	0.0%	< 0.002	93%	90%	110%	96%	90%	110%	91%	70%	130%
Mercury	5733133		<0.0001	<0.0001	0.0%	< 0.0001	103%	90%	110%	98%	90%	110%	100%	80%	120%
Nickel	1		0.023	0.022	4.4%	< 0.003	103%	90%	110%	104%	90%	110%	102%	70%	130%
Zinc	1		0.056	0.054	3.6%	< 0.005	102%	90%	110%	109%	90%	110%	106%	70%	130%

Comments: NA Signifies Not Applicable.
RPD Qualifier for(Arsenic & Copper): As the average value for the sample and a duplicate is less than 5X RDL, lab's RPD acceptance criteria are not applicable.

Certified By: Elizabeth Rolakowska

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Method Summary

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
PCBs	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Moisture Content		MOE E3139	BALANCE
PCBs	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

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Method Summary

CLIENT NAME: ARCADIS SENES CANADA INC(DCS)

AGAT WORK ORDER: 14T880120

PROJECT: 350600-515-001

ATTENTION TO: Steve Borcsok

SAMPLING SITE:

SAMPLED BY:S.Barcrok

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW 846 7470 & 245.1	CVAAS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS

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DCS SENES Consultants
121 Granton Drive, Unit 11, Richmond Hill, ON
Tel: (905) 882-5984 Fax: (905) 882-8962
Email: engineers@dcsltd.ca Website: www.dcsltd.ca

Chain of Custody Record

14T880120

7.2, 6.5, 6.6

* custody seal intact #

Shipper

Project No.: 350600-515 -001 **Site:** FOX-M Hall Beach

Project Manager: S. Borcsok

Field Engineer/Techician: S. Borcsok/J. Mauchan

Date: 17 Aug/14 **Route:** Courier

Lab: AGAT **Location** Ottawa

Required Date: _____ **Turnaround:** STD Day(s)

Quotation No.: _____

MDL's To Meet: SEE ATTACHED

Analyses Requested

Location/ Hole No.	Sample No.	Depth (m)	Description	Label No.	Grab/ Comp.	Date Collected	PHCs F1	PHCs F2-F4	PCBs	Inorganics: As, Cd, Cr, Co, Cu, Pb, Ni, Zn, Hg						Field Procedures: pH	Field Procedures: Electrical Conductivity	Field Procedures: Preservatives
FM-NH-MW	-15		GROUNDWATER			14Aug/14	X	X	X	X								
FM-NH-MW	-12-S		SOIL			"	X	X	X	X								
FM-W-5-D			SOIL			"	X	X	X	X								
FM-BIL-4-	D		SOIL			"	X	X	X	X								
FM-CNW-13	-S		SOIL			"	X	X	X	X								
FM-CNO-18-	S		SOIL			15Aug/14	X	X	X	X								
FM-HAZ-11-	S		SOIL			"	X	X	X	X								
FM-T2-MW	-1-D		SOIL			"	X	X	X	X								
FM-T2-MW-	1		GROUNDWATER			"	X	X	X	X								
FM-EB-MW-	31-S		SOIL			16 Aug/14	X	X	X	X								
FM-EB-MW-	21-S		SOIL			"	X	X	X	X								
FM-EB-MW-30			GROUNDWATER			"	X	X	X	X								

Relinquished By:	Date:	Time:	Received By:
S. Borcsok	17 Aug/14		
Relinquished By:	Date:	Time:	Received By: Aug 23 9:50
Relinquished By:	Date:	Time:	Received By:

Laboratory

Remarks:

ALL RESULTS ARE TO BE SENT TO THE PROJECT MANAGER.

Landfill Monitoring Detection Limits

Parameter	Soil (mg/kg)	Groundwater (mg/L)
Copper	<3.0	<0.005
Nickel	<5.0	<0.010
Cobalt	<5.0	<0.005
Cadmium	<1.0	<0.001
Lead	<10	<0.01
Zinc	<15	<0.005
Chromium	<20	<0.005
Arsenic	<0.2	<0.05
Mercury	<0.1	<0.001
PCBs	<0.05	<0.003
TPH	<40	<1

APPENDIX D

THERMISTOR REPORTS

THERMAL MONITORING ANNUAL DATA ANALYSIS

Site: **FOX-M Hall Beach**
Landfill: **Tier II Soil Disposal Facility**

Design Infomation:

Design Active Layer (m):	-1.80
Mean Active Layer (m):	-1.20
1:100 Year Active Layer (m):	-1.60
Mean Thawing Index (degC Days):	344.00
Mean Freezing Index (degC Days):	5463.00
1:100 Year Thawing Index (degC Days):	620.00

Maximum Active Layer (m):

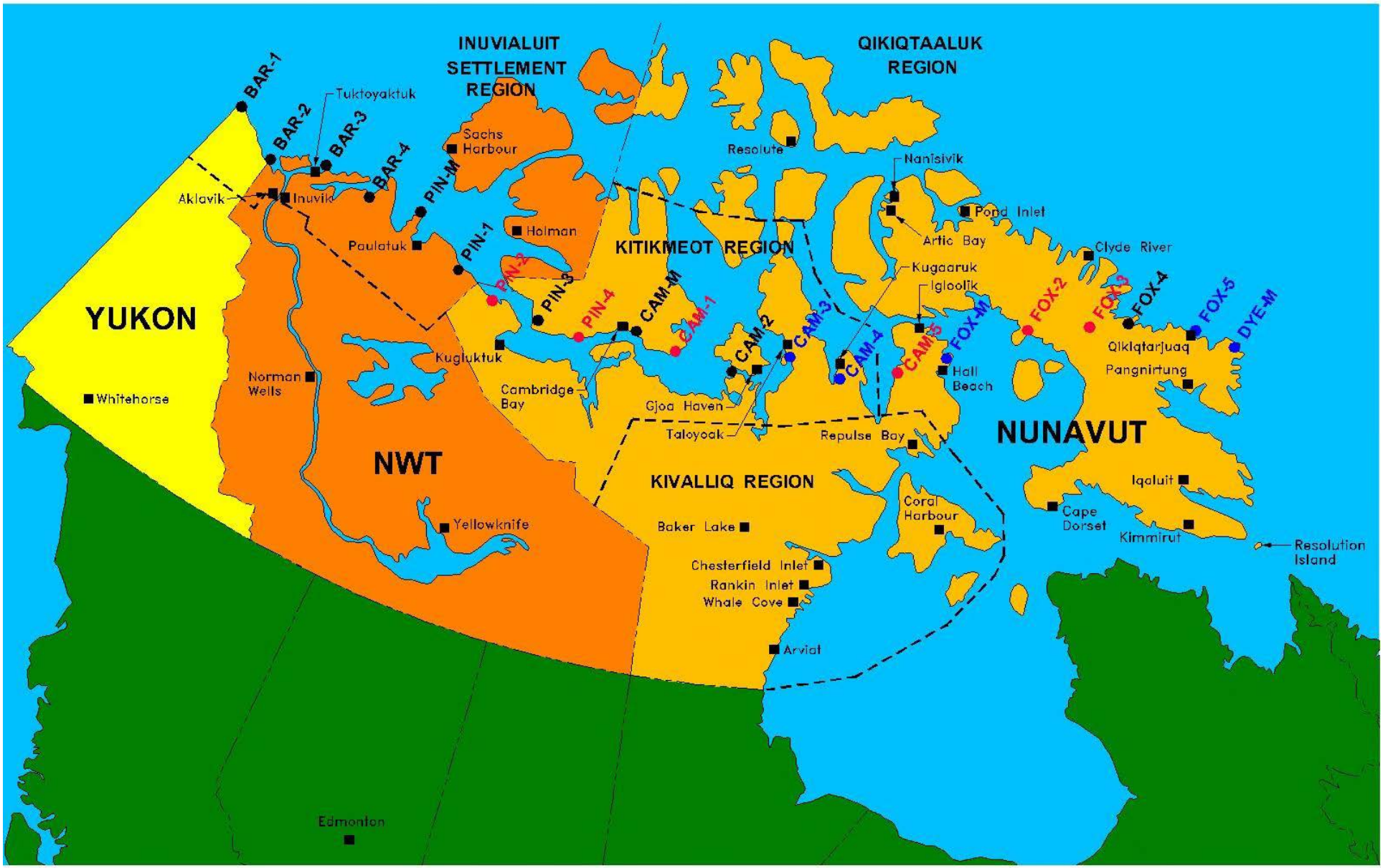
	VT-1	VT-2	VT-3	VT-4	VT-5
2007	NaN	NaN	NaN	NaN	NaN
2008	-1.29	-1.22	-1.12	-1.30	-1.33
2009	-1.29	-1.07	-1.18	-1.21	-1.14
2010	-1.40	-1.17	NaN	NaN	-1.28
2011	-1.33	-1.09	-1.26	-1.25	-1.20
2012	-1.24	-0.98	-1.13	-1.16	-1.03
2013	-1.16	-0.99	-1.21	-1.15	-1.01
2014	NaN	NaN	NaN	NaN	NaN

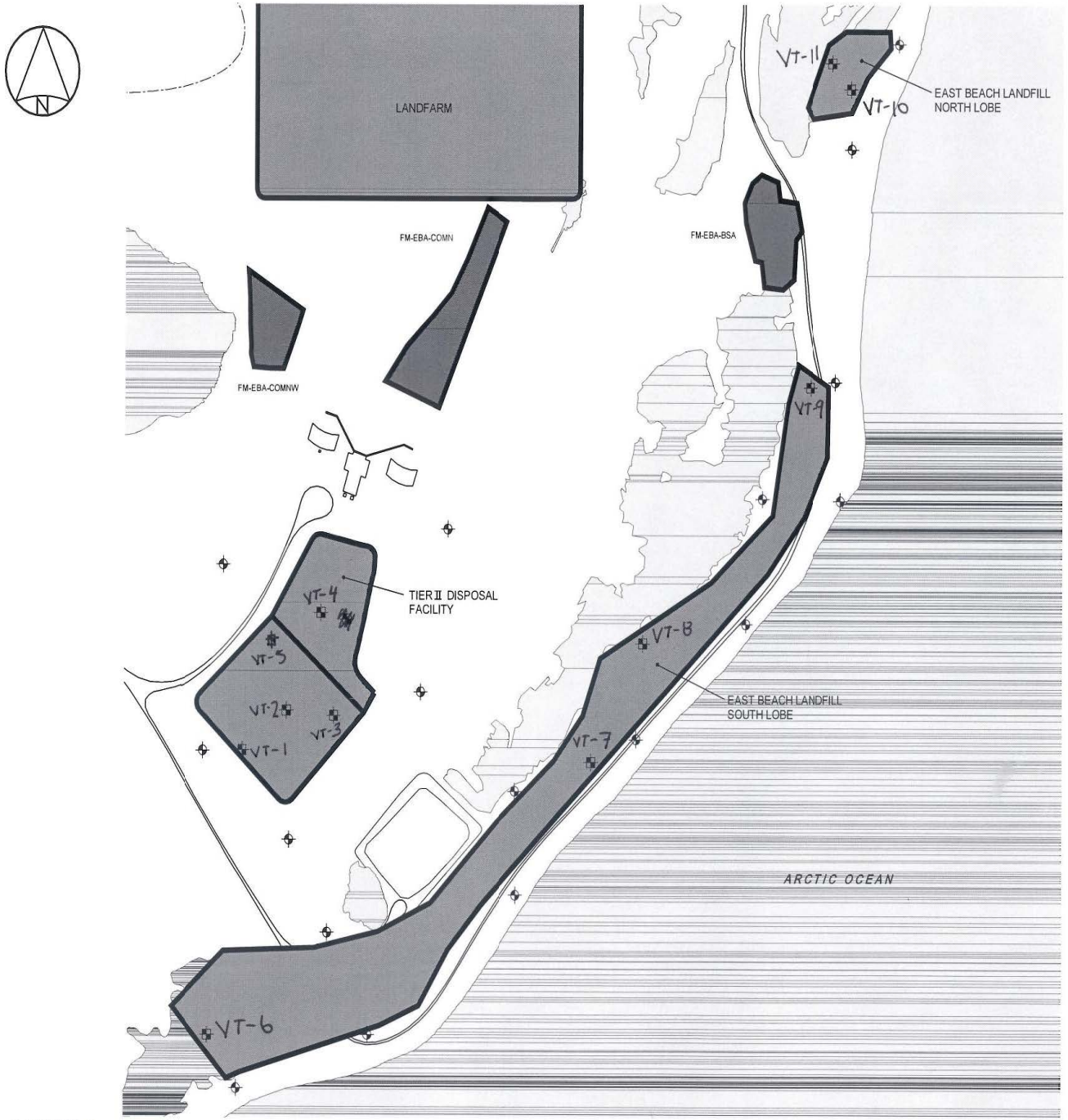
Thawing Index and Freezing Index:

	TI	FI	max AL	min AL	average AL
2007	418.00	4829.00	NaN	NaN	NaN
2008	359.00	5156.00	-1.33	-1.12	-1.25
2009	432.00	5015.00	-1.29	-1.07	-1.18
2010	554.00	4403.00	-1.40	-1.17	-1.29
2011	479.00	4661.00	-1.33	-1.09	-1.23
2012	422.00	4870.00	-1.24	-0.98	-1.11
2013	423.00	4946.00	-1.21	-0.99	-1.10
2014	430.00	5335.00	NaN	NaN	NaN

Deepest Bead Average Temperature:

	VT-1	VT-2	VT-3	VT-4	VT-5	AVG
2007	NaN	NaN	NaN	NaN	NaN	NaN
2008	-7.94	-8.87	-7.73	-5.72	-8.14	-7.68
2009	-8.59	-9.82	-8.37	-8.78	-9.20	-8.95
2010	-7.38	-8.08	NaN	NaN	-7.53	-7.66
2011	-7.48	-8.60	NaN	NaN	-7.73	-7.93
2012	-7.95	-9.31	-7.97	-8.44	-8.28	-8.39
2013	-8.06	-9.59	-8.16	-9.25	-8.67	-8.75
2014	NaN	NaN	NaN	NaN	NaN	NaN


INUVIALUIT SETTLEMENT REGION
QIKIQTAALUK REGION
KITIKMEOT REGION
KIVALLIQ REGION
YUKON
NWT
NUNAVUT
BAR-1
BAR-2
BAR-3
BAR-4
PIN-M
PIN-1
PIN-2
PIN-3
PIN-4
CAM-M
CAM-1
CAM-2
CAM-3
CAM-4
CAM-5
FOX-M
FOX-2
FOX-3
FOX-4
FOX-5
DYE-M
Tuktoyaktuk
Sachs Harbour
Resolute
Nanisivik
Aklavik
Inuvik
Paulatuk
Holman
Pond Inlet
Arctic Bay
Clyde River
Kugaaruk
Igloolik
Qikiqtarjuaq
Pangnirtung
Kugluktuk
Cambridge Bay
Gjoa Haven
Taloyoak
Repulse Bay
Hall Beach
Whitehorse
Norman Wells
Yellowknife
Baker Lake
Chesterfield Inlet
Rankin Inlet
Whale Cove
Arviat
Coral Harbour
Iqaluit
Cape Dorset
Kimmirut
Resolution Island
Edmonton



FILE NAME: FM-CLOSEOUT INSPECTION.DWG CAE - 2007/09/12

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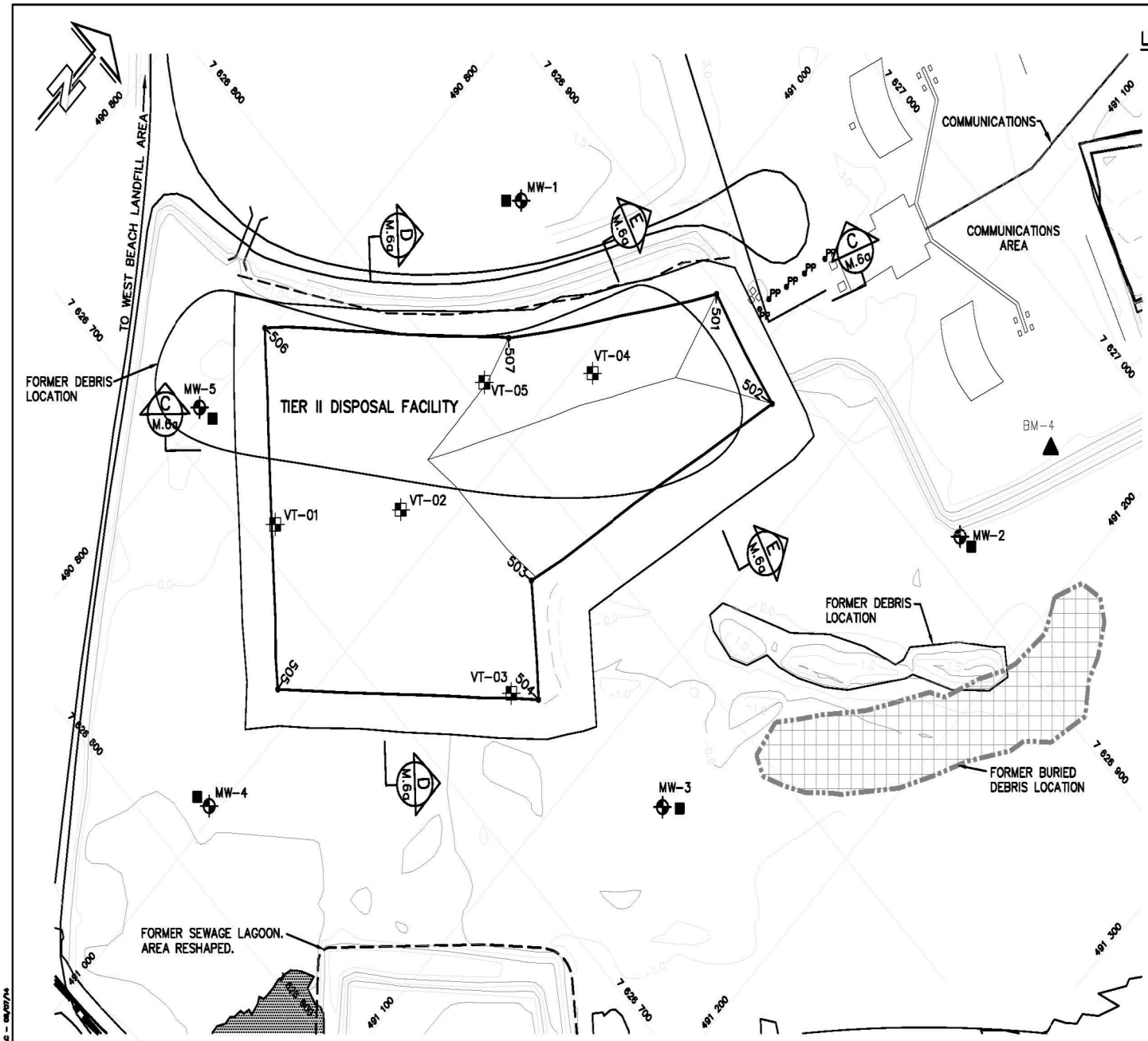
National Defence / Défense nationale

DEW LINE CLEAN UP
FOX-M HALL BEACH

2007 CLOSE-OUT INSPECTION
INSTRUMENTATION PLAN 1

Figure - 2.0



LEGEND:

- PERMANENT BENCHMARK
- 507 COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- BURIED DEBRIS EXCAVATION AREA
- +1749 BASELINE SOIL SAMPLE LOCATION

COORDINATE POINTS (AS-BUILT)
TIER II LANDFILL

NO.	NORTHING	EASTING	ELEV.
501	7 626 897.6	491 024.7	4.5
502	7 626 887.7	491 067.9	4.4
503	7 626 772.9	491 038.6	4.0
504	7 626 746.2	491 069.5	4.0
505	7 626 670.7	490 989.0	4.0
506	7 626 754.2	490 897.8	3.9
507	7 626 824.7	490 973.1	4.0

COORDINATE POINTS (AS-BUILT)
VERTICAL THERMISTORS

NO.	NORTHING	EASTING
VT-01	7 626 709.8	490 948.3
VT-02	7 626 751.5	490 982.5
VT-03	7 626 739.6	491 059.8
VT-04	7 626 841.2	491 006.6
VT-05	7 626 806.8	490 976.6

COORDINATE POINTS (AS BUILT)
MONITORING WELLS

NO.	NORTHING	EASTING	ELEV.
MW-1	7 626 861.7	490 943.6	1.80
MW-2	7 626 911.8	491 156.2	0.38
MW-3	7 626 757.4	491 132.6	-0.05
MW-4	7 626 622.0	490 996.7	0.18
MW-5	7 626 715.5	490 897.5	0.59

PERMANENT BENCHMARK

NO.	UTM COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM-4	7 626 960.190	491 162.103	3.265	25mm DIA. STEEL PIPE

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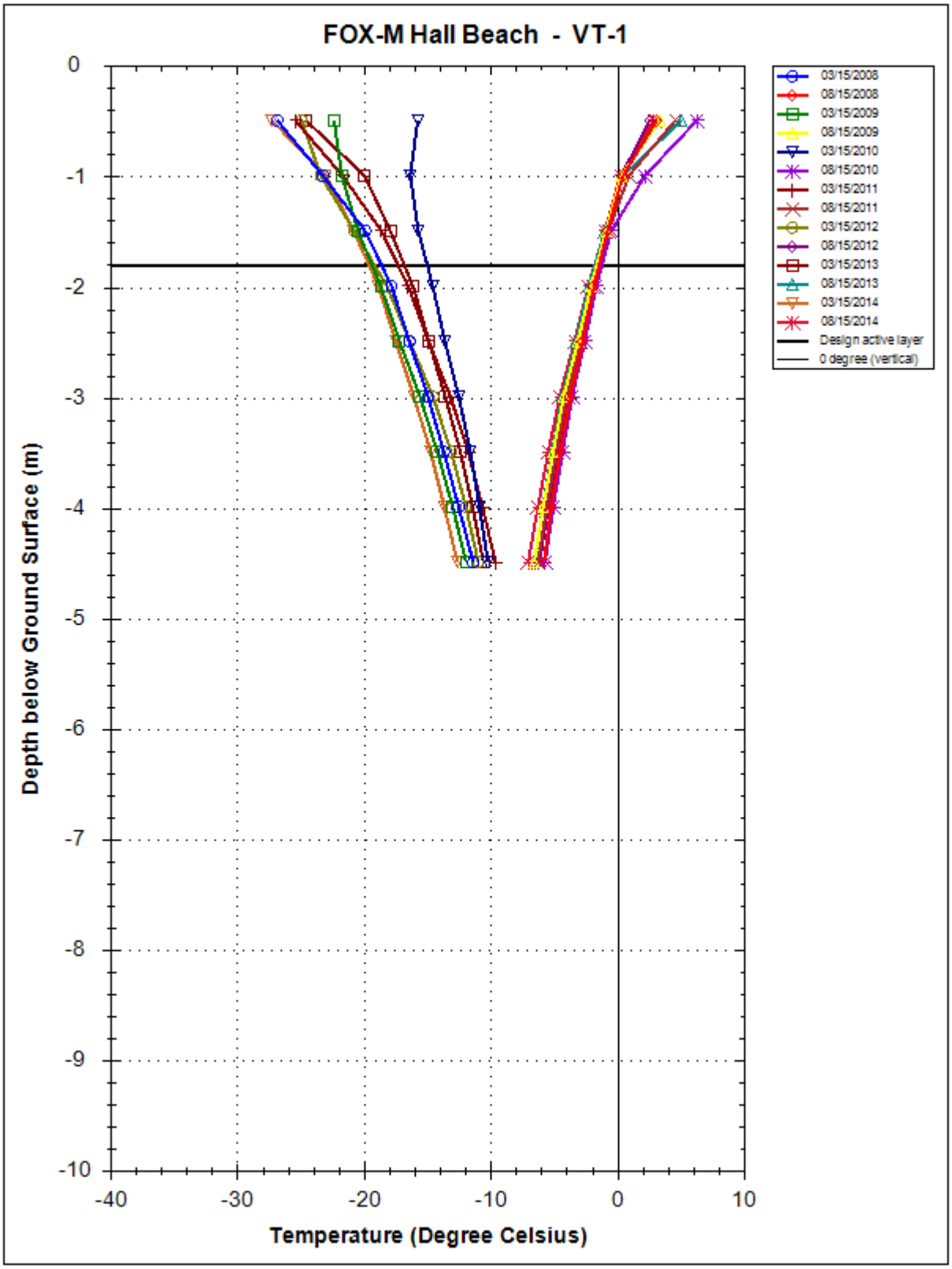
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

FOX-M HALL BEACH

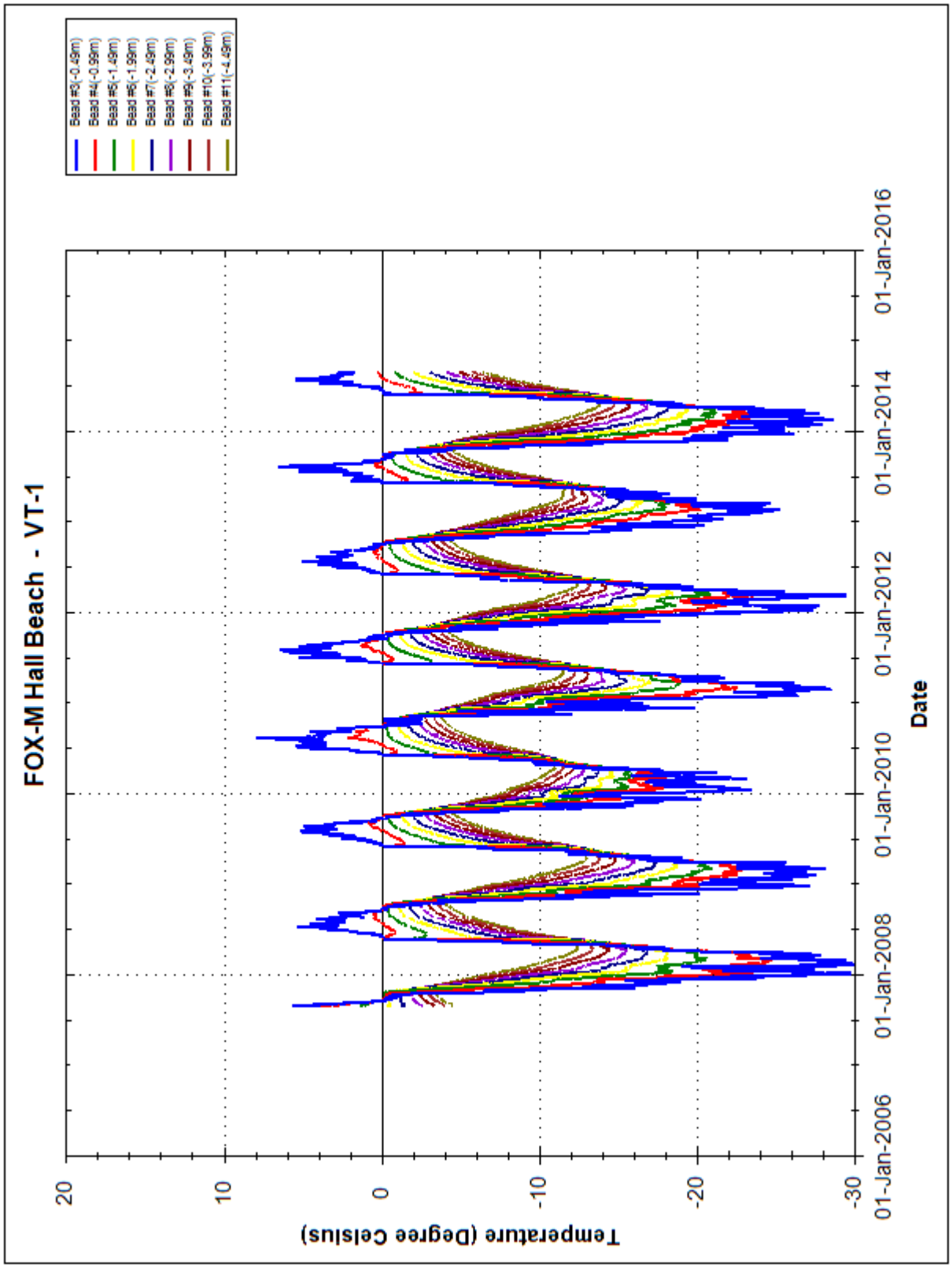
TIER II DISPOSAL FACILITY

FIGURE FOX-M.6

THERMAL MONITORING ANNUAL DATA ANALYSIS



THERMAL MONITORING ANNUAL DATA ANALYSIS



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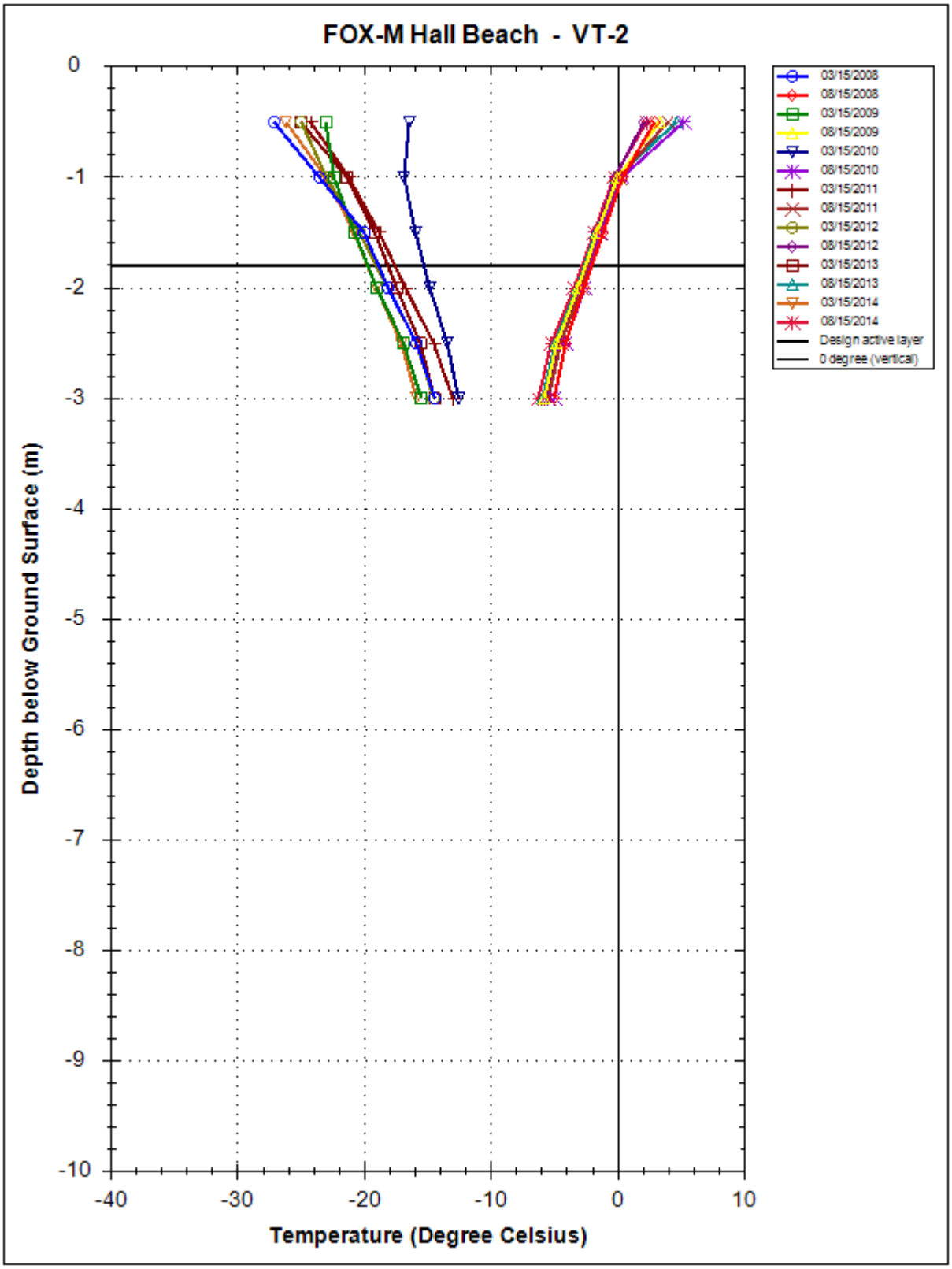

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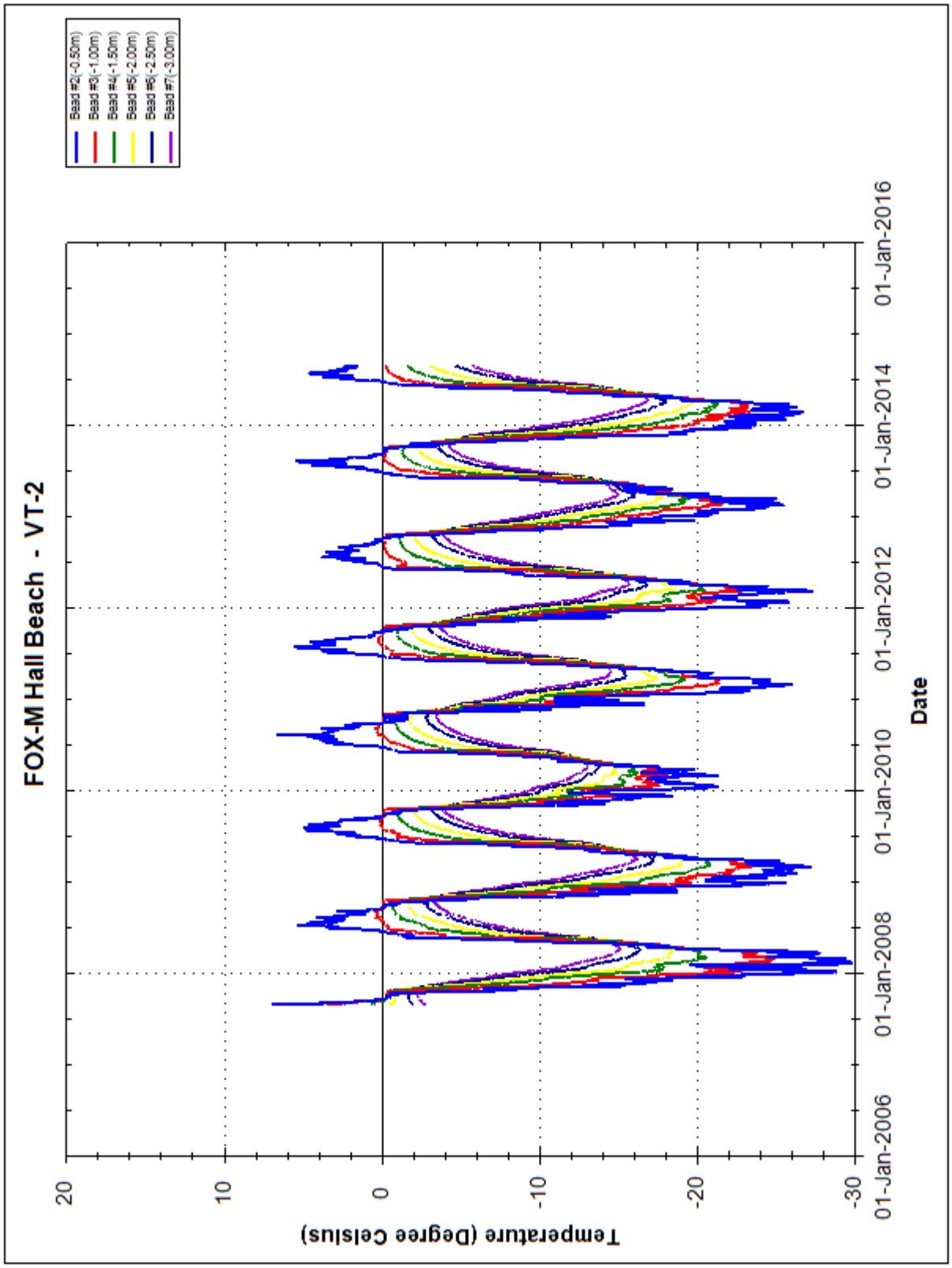

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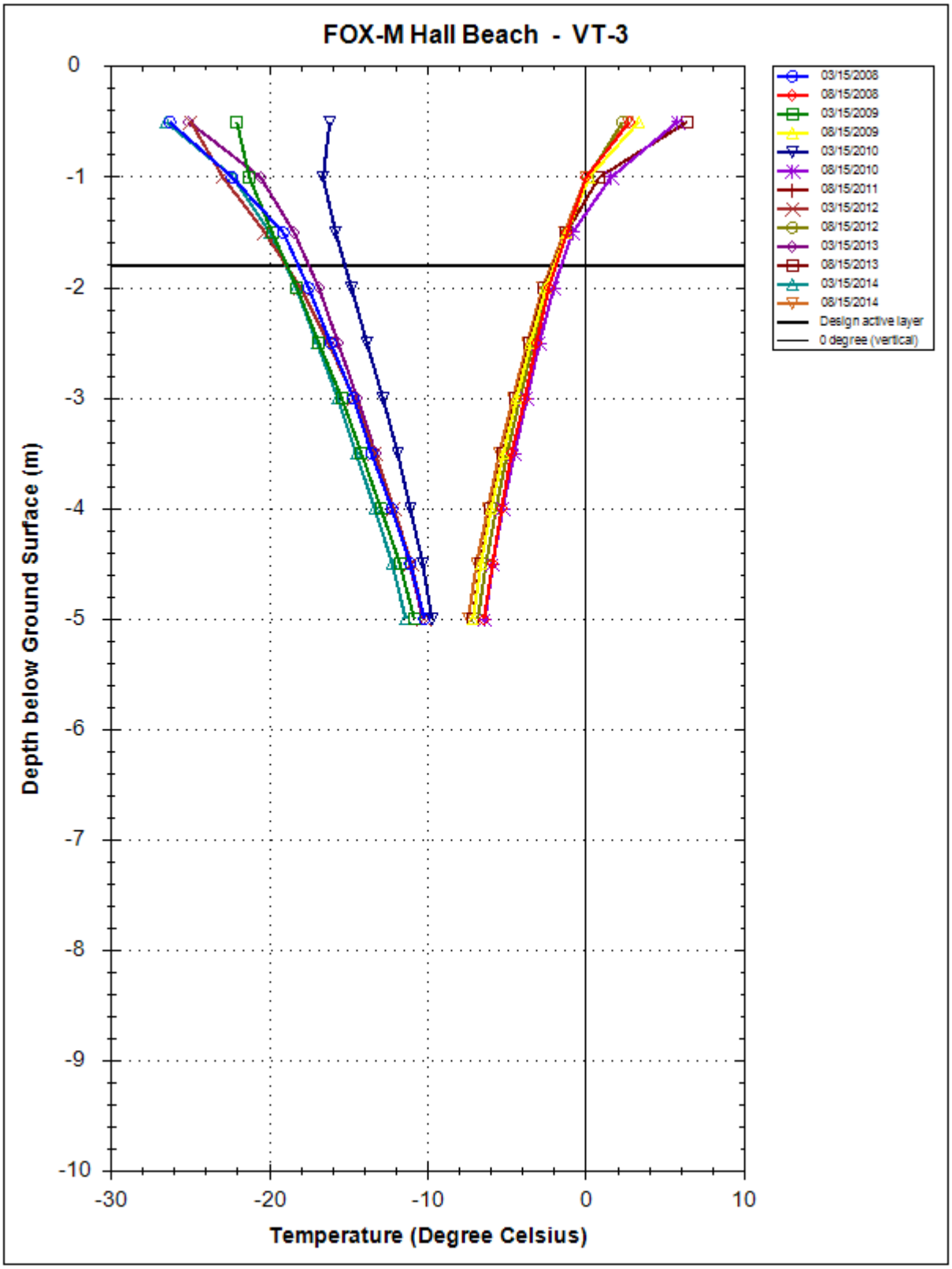

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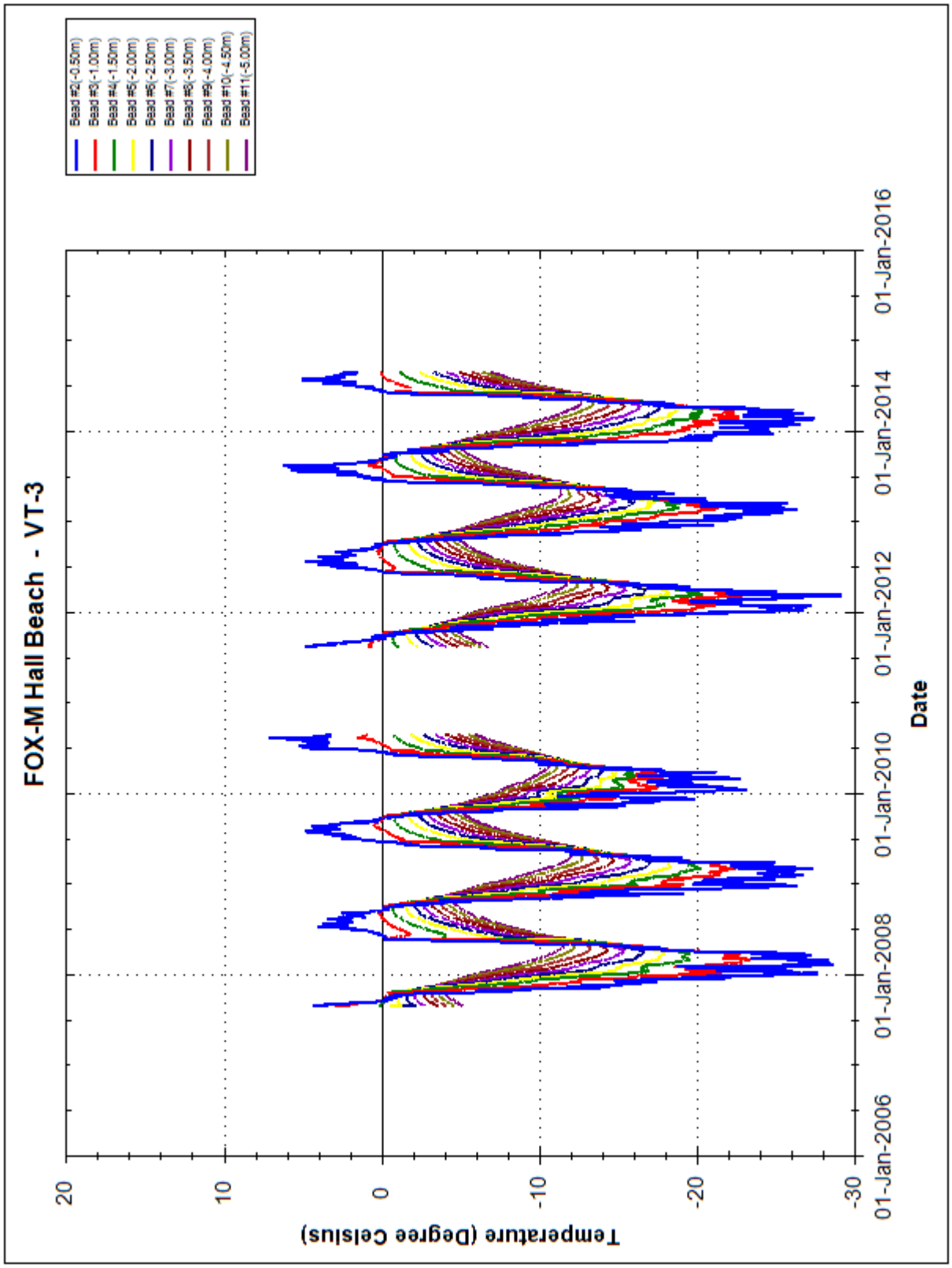

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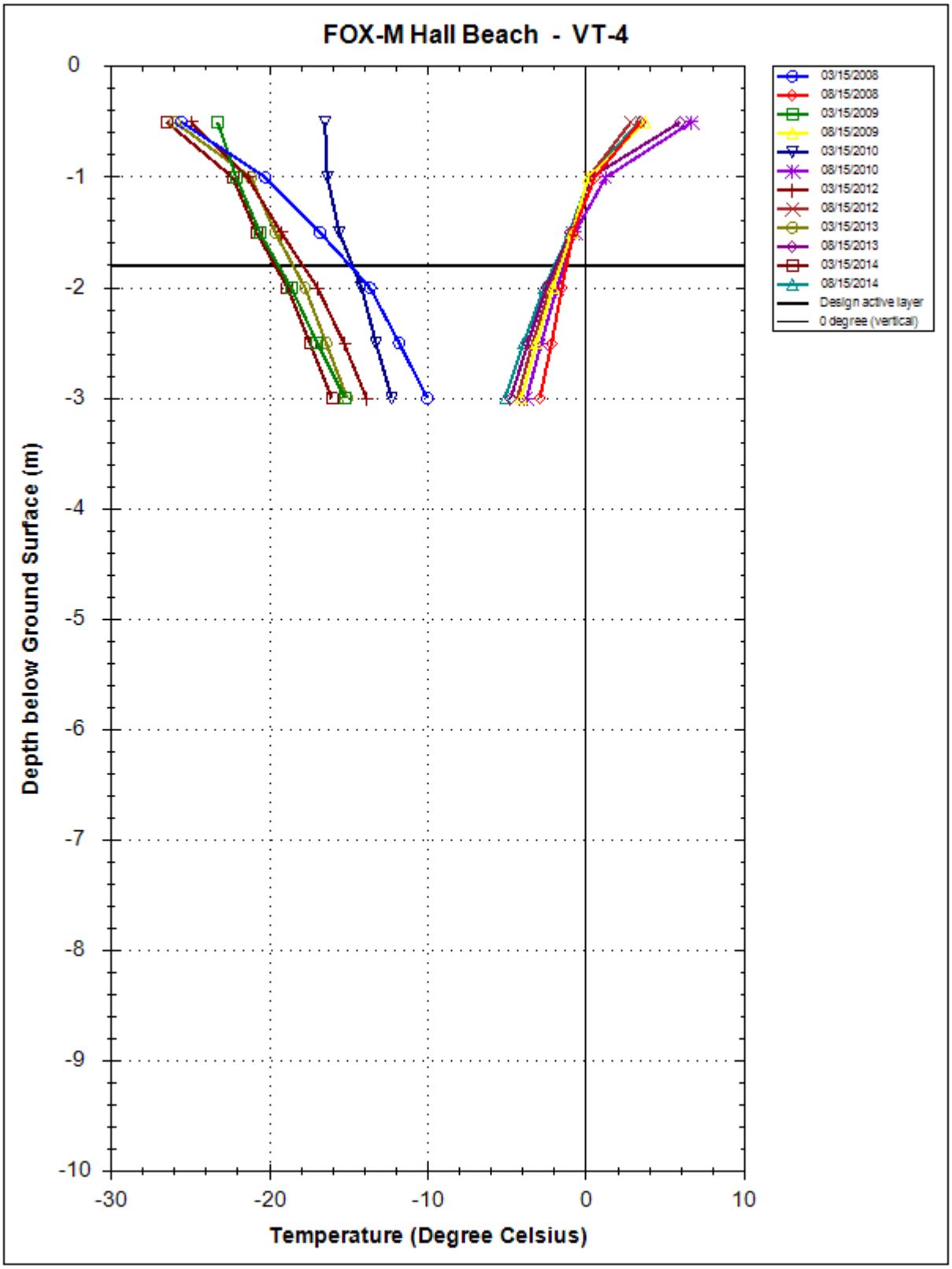

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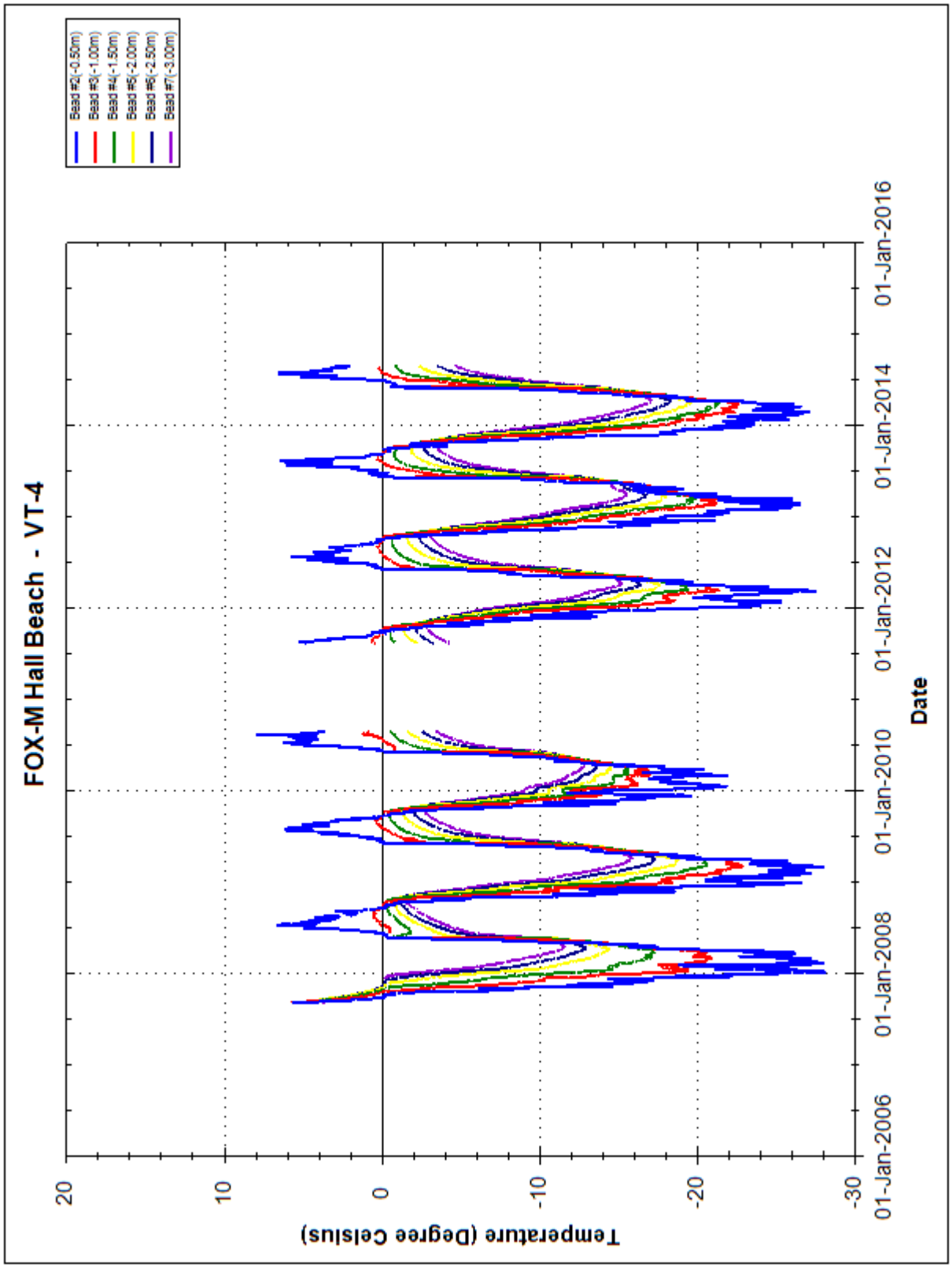

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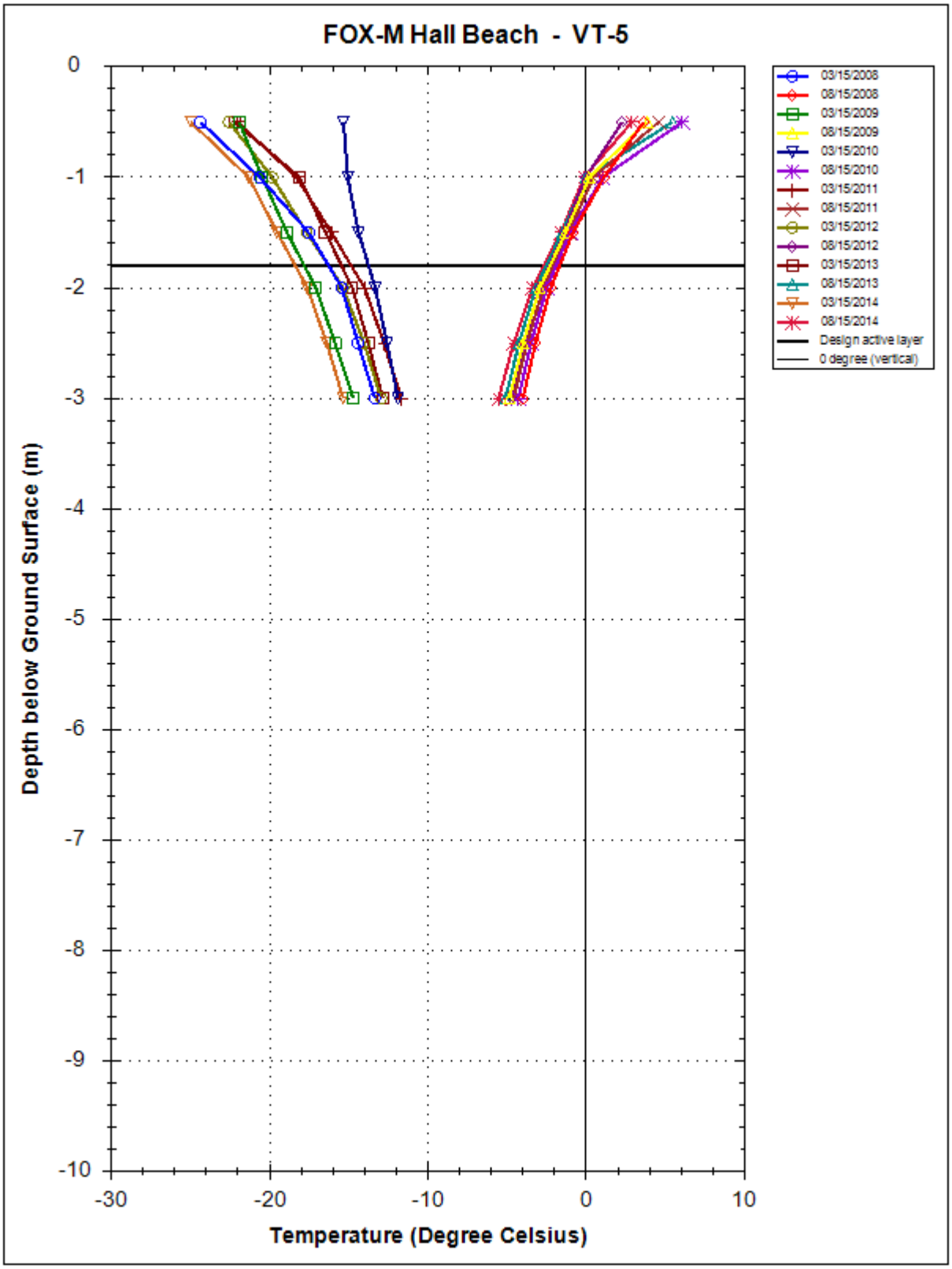

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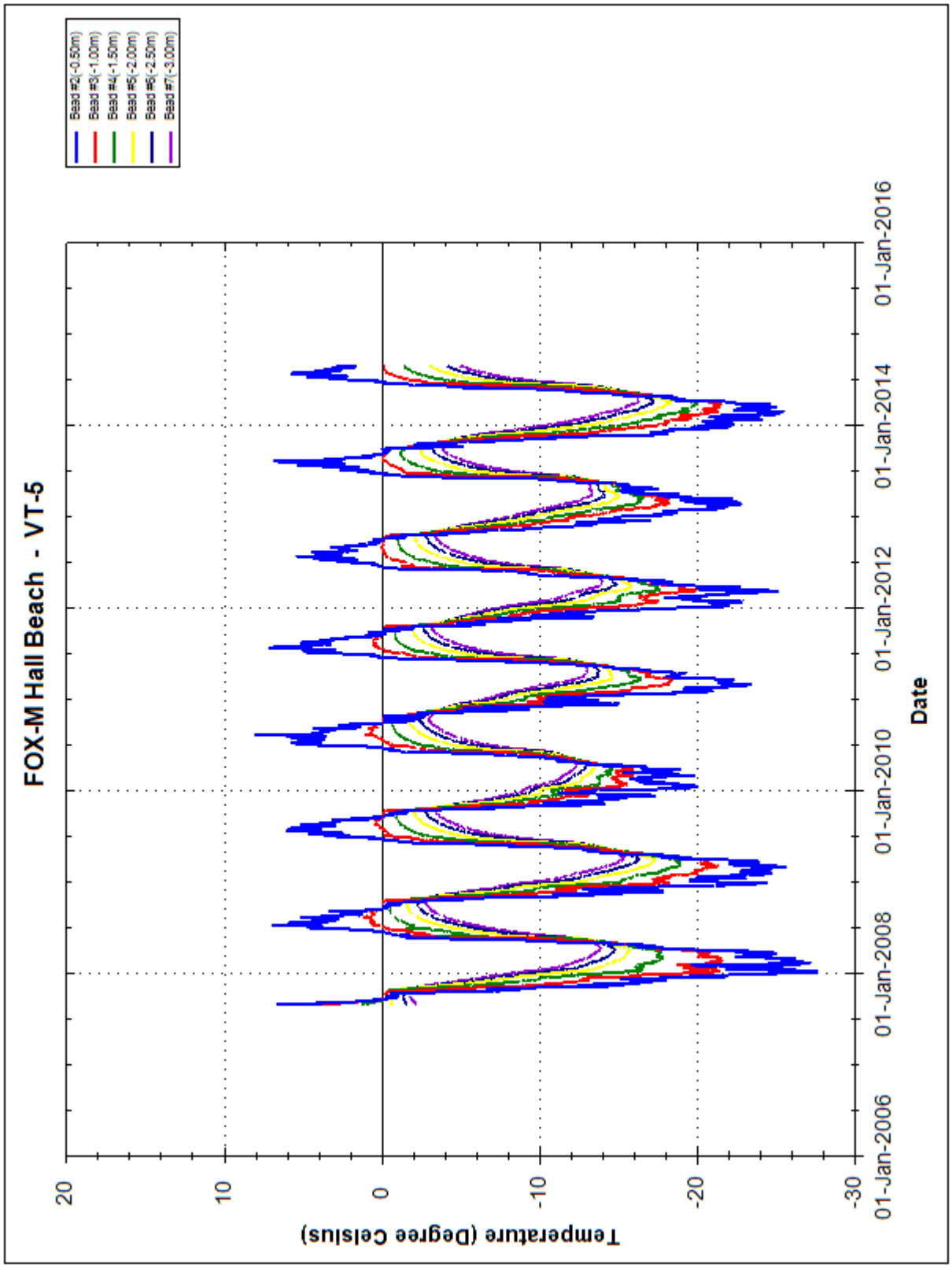


FOX-M Hall Beach

Tier II Soil Disposal Facility (Comment by Renata Klassen, Tetra Tech EBA, October 2014)

Five ground temperature cables were installed in FOX-M Tier II Soil Disposal Facility in 2007. The 2014 thermal data from VT-1 through VT-5 is complete.

Maintenance reports were not available when the comments were prepared. Temperature data downloaded in 2014 indicate that:

- The dataloggers were read on August 29, 2014.
- VT-3 data was shifted in time. VT-3 data was adjusted according to the download date of August 29, 2014 before it was included in this report.

EBA records indicate that datalogger batteries were installed on September 16, 2011. New batteries should be installed within 3 years of the last battery install date.

The air temperatures in 2013 had a thawing index of 423 °C-days compared to a design mean and 1:100 year thawing index of 344°C-days and 620°C-days, respectively. This indicates that the air temperatures were warmer than the average and colder than the 1:100 thawing index. Climate information was taken from Hall Beach weather station.

The mean deepest bead average annual temperature for VT-1 through VT-5 was -8.8°C in 2013. The mean deepest bead average annual temperatures cooled by an average of 0.4°C between 2012 and 2013.

The measured maximum and minimum active layers in 2013 were 1.2 m and 1.0 m, respectively. The average measured active layers in 2013 and 2012 were similar. The average measured active layer of 1.1 m in 2013 have been less than the design active layer of 1.8 m, the estimated 1:100 year active layer of 1.6 m, and estimated mean active layer of 1.2 m.

The landfill is stabilizing and performing as expected from a thermal perspective.

THERMAL MONITORING ANNUAL DATA ANALYSIS

Site: **FOX-M Hall Beach**
Landfill: **East Beach Landfill**

Design Infomation:

Design Active Layer (m):	-1.80
Mean Active Layer (m):	-1.30
1:100 Year Active Layer (m):	-1.70
Mean Thawing Index (degC Days):	344.00
Mean Freezing Index (degC Days):	5463.00
1:100 Year Thawing Index (degC Days):	620.00

Maximum Active Layer (m):

	VT-10	VT-11	VT-6	VT-7	VT-8	VT-9
2007	NaN	NaN	NaN	NaN	NaN	NaN
2008	-1.17	-1.26	-0.99	-1.17	-1.11	-1.47
2009	-1.25	-1.25	-0.98	-1.21	-1.08	-1.08
2010	-1.36	-1.38	-1.17	-1.39	-1.23	-0.97
2011	-1.34	NaN	-1.00	-1.35	-1.26	-0.98
2012	-1.14	-1.21	-0.96	-1.18	-1.09	-0.91
2013	-1.17	-1.18	-0.96	-1.17	-1.00	-0.92
2014	NaN	NaN	NaN	NaN	NaN	NaN

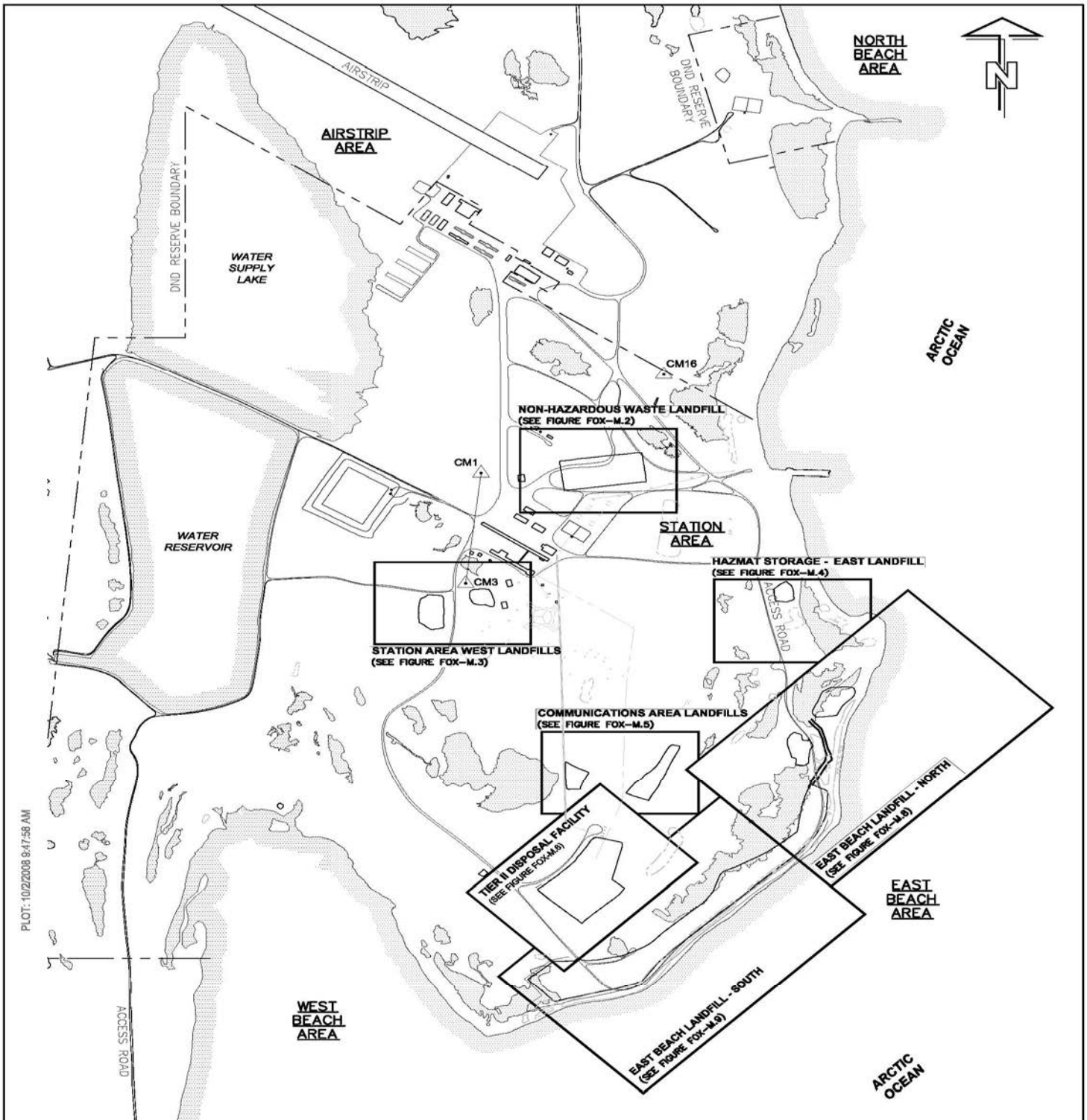
Thawing Index and Freezing Index:

	TI	FI	max AL	min AL	average AL
2007	418.00	4829.00	NaN	NaN	NaN
2008	359.00	5163.00	-1.47	-0.99	-1.19
2009	432.00	5015.00	-1.25	-0.98	-1.14
2010	554.00	4403.00	-1.39	-0.97	-1.25
2011	479.00	4661.00	-1.35	-0.98	-1.19
2012	422.00	4870.00	-1.18	-0.91	-1.08
2013	423.00	4946.00	-1.18	-0.92	-1.07
2014	430.00	5335.00	NaN	NaN	NaN

Deepest Bead Average Temperature:

	VT-10	VT-11	VT-6	VT-7	VT-8	VT-9
2007	NaN	NaN	NaN	NaN	NaN	NaN
2008	-7.39	-8.36	-7.17	-8.25	-8.30	-5.05
2009	-7.74	-8.80	-7.96	-8.70	-8.97	-7.94
2010	-6.55	-7.00	-6.64	-7.16	-7.13	-7.19
2011	-6.71	NaN	-6.52	-7.16	-7.34	-8.00
2012	-7.22	NaN	-7.10	-7.80	-7.96	-8.72
2013	-7.39	-7.77	-6.94	-8.39	-8.03	-9.13
2014	NaN	NaN	NaN	NaN	NaN	NaN

	AVG
2007	NaN
2008	-7.42
2009	-8.35
2010	-6.94
2011	-7.15
2012	-7.76
2013	-7.94
2014	NaN



PLOT: 10/2/2008 9:47:58 AM

LEGEND:

△ SURVEY CONTROL MONUMENT

SURVEY CONTROL MONUMENTS				
NO.	UTM COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM1	7 628 008.274	490 743.723	3.577	FOX-M BASELINE STA. 36+00
CM3	7 627 675.453	490 706.281	5.291	FOX-M BASELINE STA. 47+00
CM16	7 628 305.218	491 189.319	1.190	C.L.S. MONUMENT

NOTE: BASELINE STATIONS SHOWN ARE IN IMPERIAL UNITS.

SCALE 1:10000 0 100 200 m

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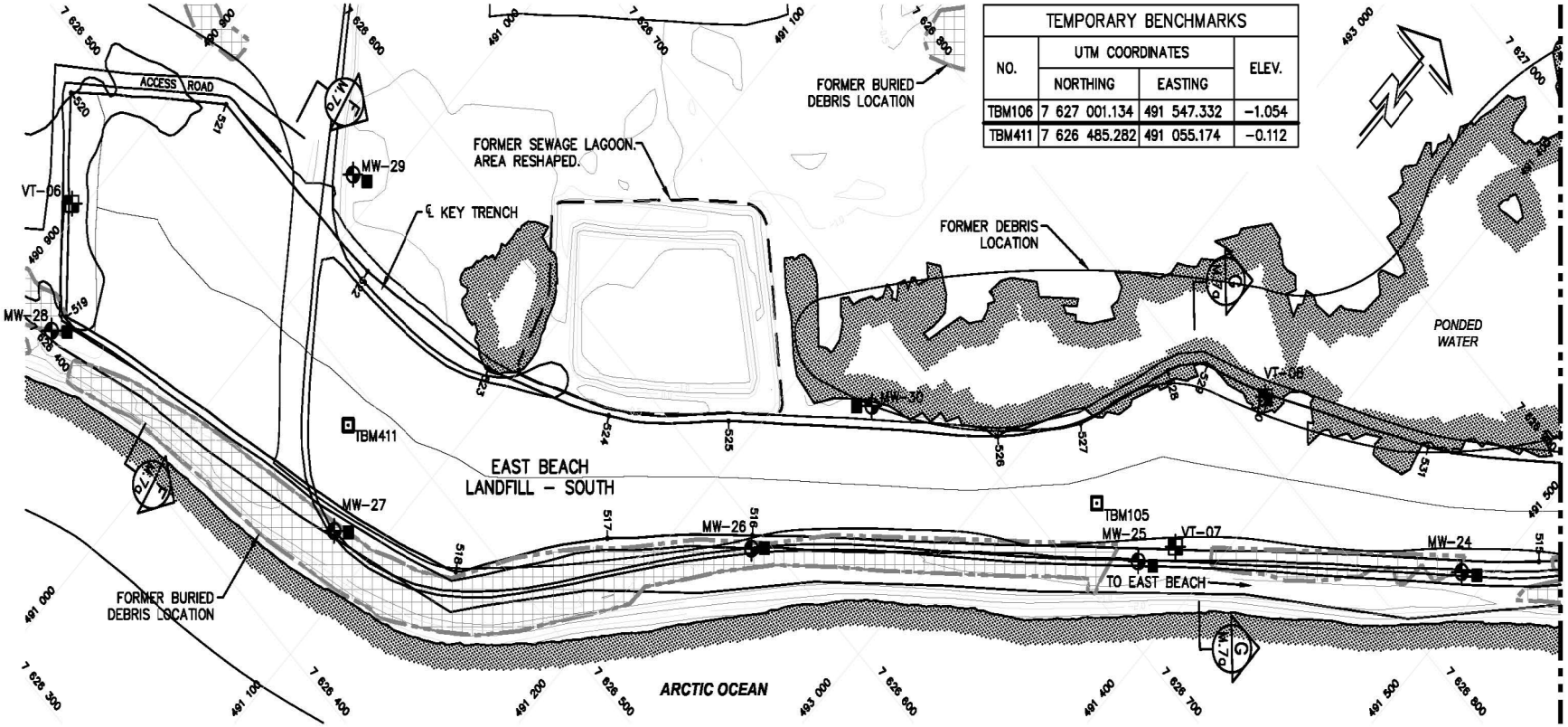
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

FOX-M HALL BEACH

OVERALL SITE PLAN

FIGURE FOX-M.1



TEMPORARY BENCHMARKS			
NO.	UTM COORDINATES		ELEV.
	NORTHING	EASTING	
TBM106	7 627 001.134	491 547.332	–1.054
TBM411	7 626 485.282	491 055.174	–0.112

COORDINATE POINTS (AS–BUILT) EAST BEACH LANDFILL – SOUTH							
NO.	COORDINATES			NO.	COORDINATES		
	NORTHING	EASTING	ELEV.		NORTHING	EASTING	ELEV.
515	7 626 865.5	491 513.0	0.3	524	7 626 579.6	491 144.1	1.4
516	7 626 596.3	491 228.9	1.5	525	7 626 620.5	491 188.0	1.3
517	7 626 544.3	491 178.5	1.3	526	7 626 710.8	491 287.1	0.4
518	7 626 481.7	491 134.9	1.2	527	7 626 743.5	491 312.5	0.4
519	7 626 416.8	490 925.2	0.5	528	7 626 789.2	491 328.3	0.2
520	7 626 482.1	490 863.2	0.5	529	7 626 804.8	491 340.5	0.2
521	7 626 533.5	490 921.1	0.8	530	7 626 817.4	491 369.0	0.2
522	7 626 535.9	491 018.3	1.9	531	7 626 859.3	491 441.5	0.5
523	7 626 551.2	491 088.4	1.1				

0 20 40 m SCALE 1:2000

COORDINATE POINTS (AS BUILT) MONITORING WELLS			
NO.	NORTHING	EASTING	ELEV.
MW24	7 626 835.4	491 488.8	0.01
MW25	7 626 724.5	491 371.8	0.24
MW26	7 626 592.2	491 232.3	0.57
MW27	7 626 450.3	491 080.3	–0.10
MW28	7 626 407.7	490 923.9	–0.42
MW29	7 626 558.2	490 985.7	–0.03
MW30	7 626 675.1	491 234.0	–1.03

COORDINATE POINTS (AS–BUILT) VERTICAL THERMISTORS		
NO.	NORTHING	EASTING
VT–06	7 626 451.0	490 895.0
VT–07	7 626 742.0	491 381.0
VT–08	7 626 816.0	491 370.0

LEGEND:

- TEMPORARY BENCHMARK
- 525 COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- BURIED DEBRIS EXCAVATION AREA
- +1749 BASELINE SOIL SAMPLE LOCATION

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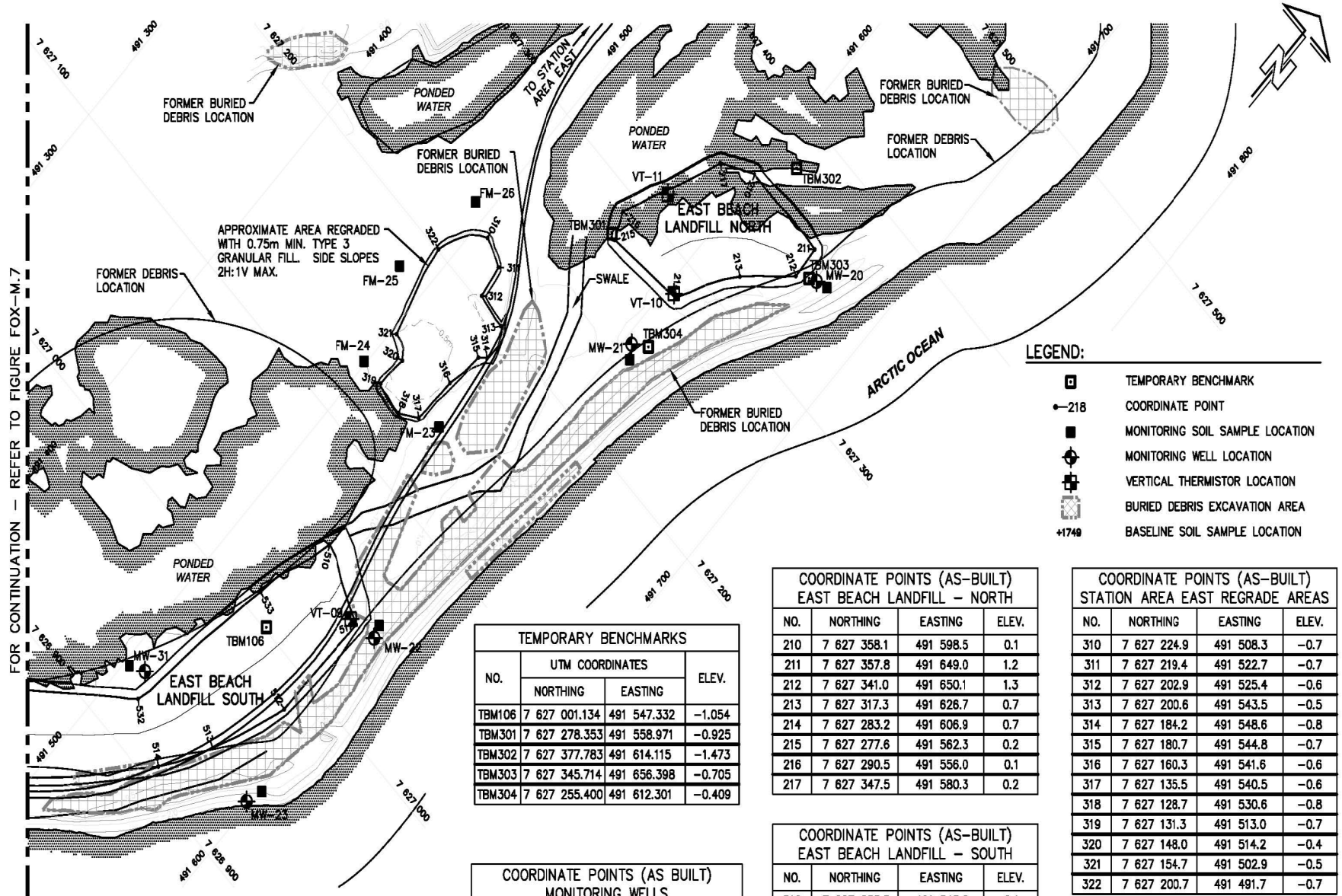
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

FOX-M HALL BEACH

EAST BEACH LANDFILL - SOUTH

FIGURE FOX-M.7



TEMPORARY BENCHMARKS			
NO.	UTM COORDINATES		ELEV.
	NORTHING	EASTING	
TBM106	7 627 001.134	491 547.332	–1.054
TBM301	7 627 278.353	491 558.971	–0.925
TBM302	7 627 377.783	491 614.115	–1.473
TBM303	7 627 345.714	491 656.398	–0.705
TBM304	7 627 255.400	491 612.301	–0.409

COORDINATE POINTS (AS–BUILT) VERTICAL THERMISTORS			
NO.	NORTHING	EASTING	
VT–09	7 627 039.0	491 580.0	
VT–10	7 627 284.0	491 605.0	
VT–11	7 627 315.0	491 569.0	

COORDINATE POINTS (AS BUILT) MONITORING WELLS			
NO.	NORTHING	EASTING	ELEV.
MW–20	7 627 347.8	491 660.5	–0.03
MW–21	7 627 249.3	491 604.4	–0.60
MW–22	7 627 041.6	491 596.1	–0.48
MW–23	TBD	TBD	–
MW–31	7 626 935.6	491 511.6	–0.21

COORDINATE POINTS (AS–BUILT) EAST BEACH LANDFILL – NORTH			
NO.	NORTHING	EASTING	ELEV.
210	7 627 358.1	491 598.5	0.1
211	7 627 357.8	491 649.0	1.2
212	7 627 341.0	491 650.1	1.3
213	7 627 317.3	491 626.7	0.7
214	7 627 283.2	491 606.9	0.7
215	7 627 277.6	491 562.3	0.2
216	7 627 290.5	491 556.0	0.1
217	7 627 347.5	491 580.3	0.2

COORDINATE POINTS (AS–BUILT) EAST BEACH LANDFILL – SOUTH			
NO.	NORTHING	EASTING	ELEV.
510	7 627 055.5	491 545.8	0.1
511	7 627 039.7	491 584.3	1.1
512	7 626 980.9	491 582.5	0.6
513	7 626 938.1	491 565.7	0.7
514	7 626 909.1	491 549.3	0.7
532	7 626 923.5	491 518.1	0.5
533	7 627 010.7	491 533.0	0.4

COORDINATE POINTS (AS–BUILT) STATION AREA EAST REGRADE AREAS			
NO.	NORTHING	EASTING	ELEV.
310	7 627 224.9	491 508.3	–0.7
311	7 627 219.4	491 522.7	–0.7
312	7 627 202.9	491 525.4	–0.6
313	7 627 200.6	491 543.5	–0.5
314	7 627 184.2	491 548.6	–0.8
315	7 627 180.7	491 544.8	–0.7
316	7 627 160.3	491 541.6	–0.6
317	7 627 135.5	491 540.5	–0.6
318	7 627 128.7	491 530.6	–0.8
319	7 627 131.3	491 513.0	–0.7
320	7 627 148.0	491 514.2	–0.4
321	7 627 154.7	491 502.9	–0.5
322	7 627 200.7	491 491.7	–0.7

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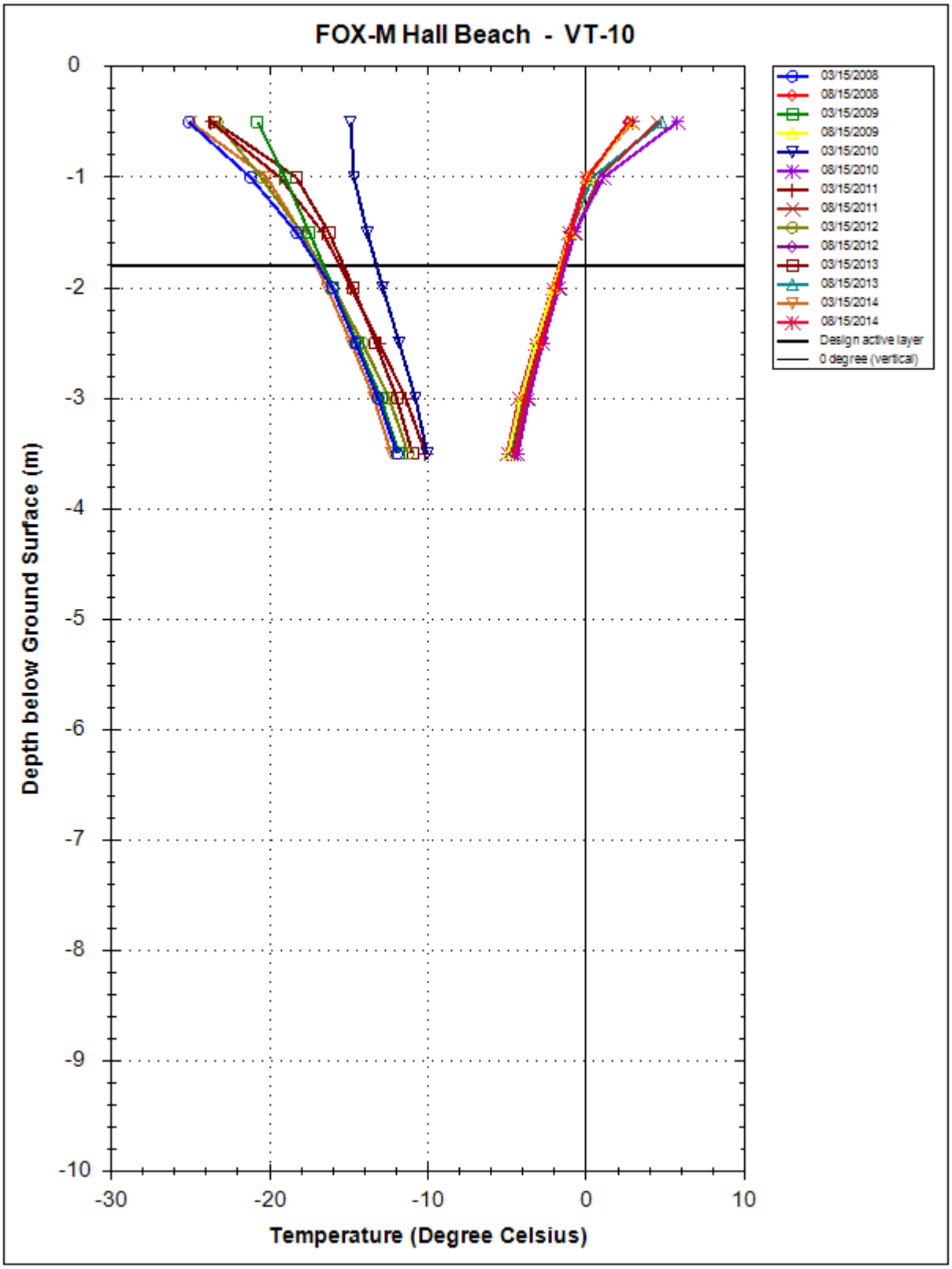
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

FOX-M HALL BEACH

EAST BEACH LANDFILL - NORTH

FIGURE FOX-M.8

THERMAL MONITORING ANNUAL DATA ANALYSIS



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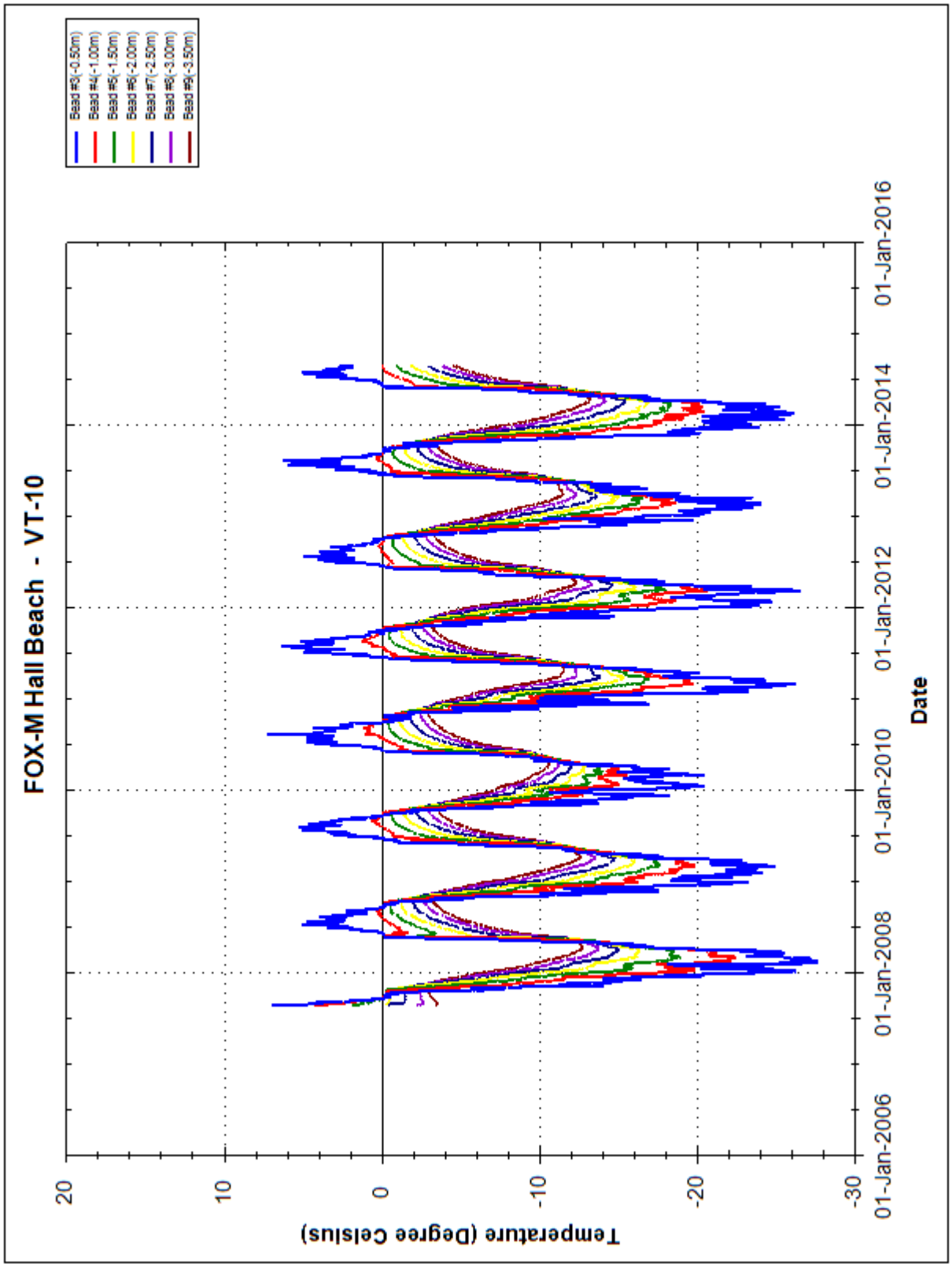
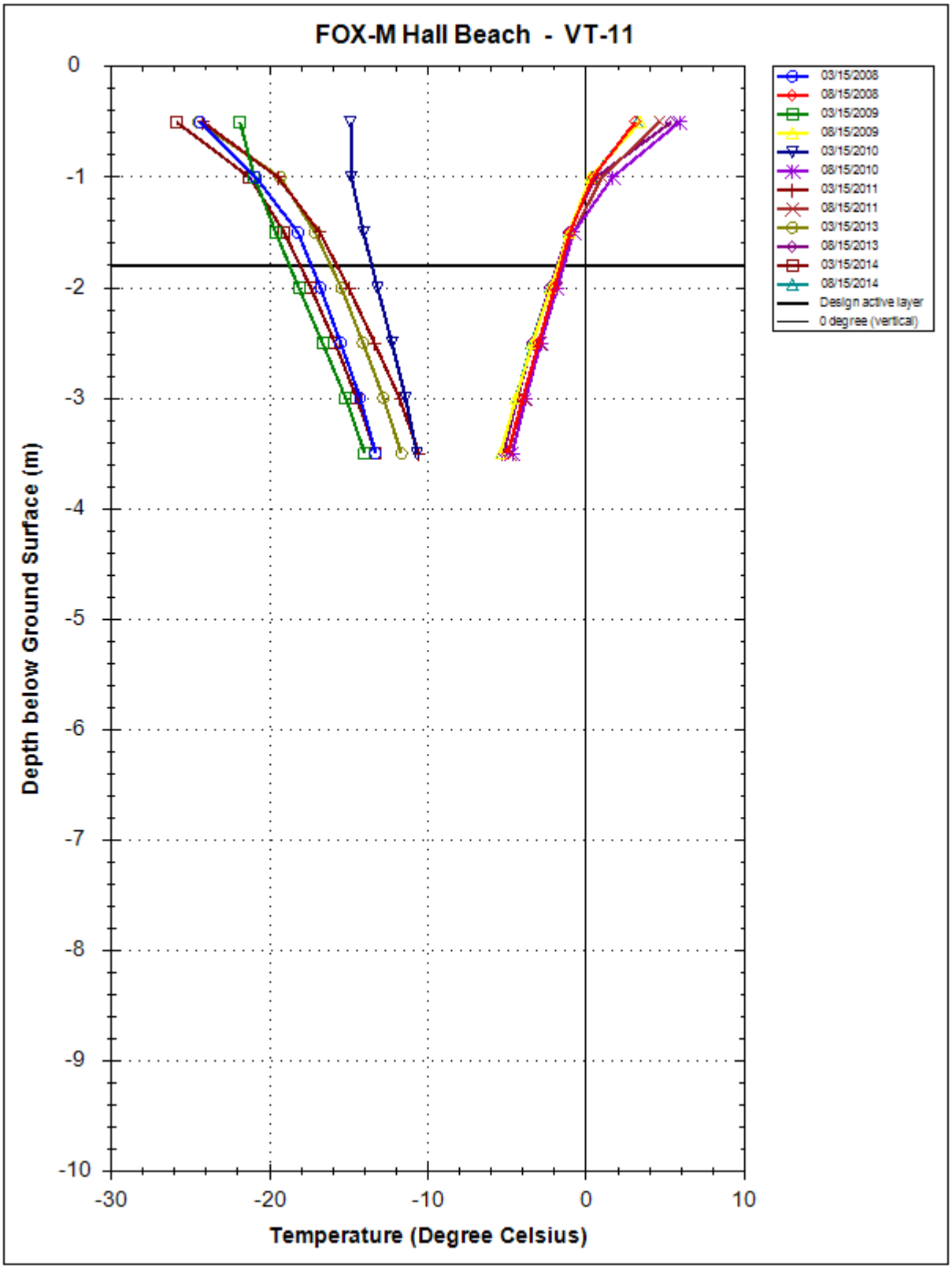
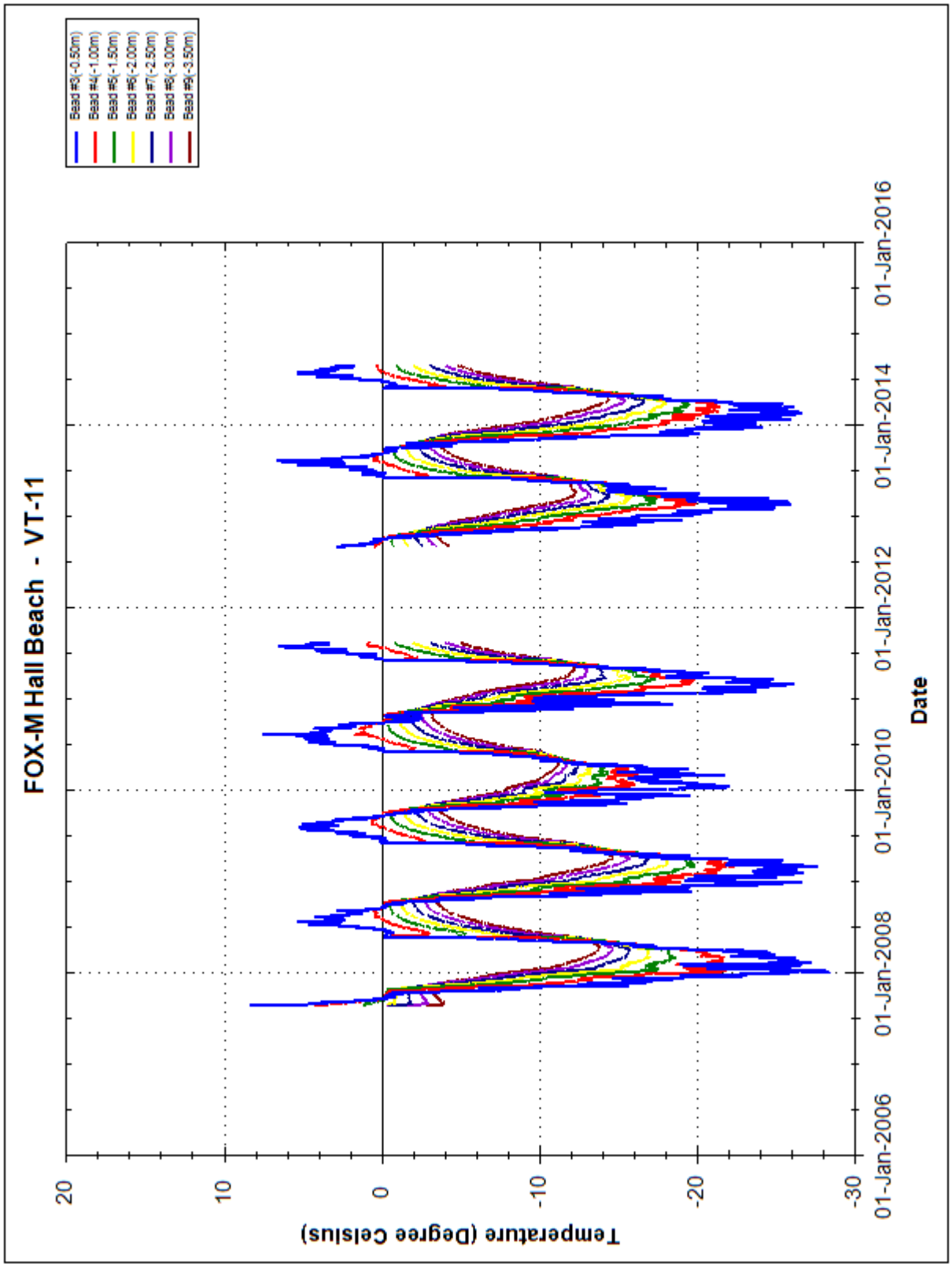


THERMAL MONITORING ANNUAL DATA ANALYSIS



THERMAL MONITORING ANNUAL DATA ANALYSIS



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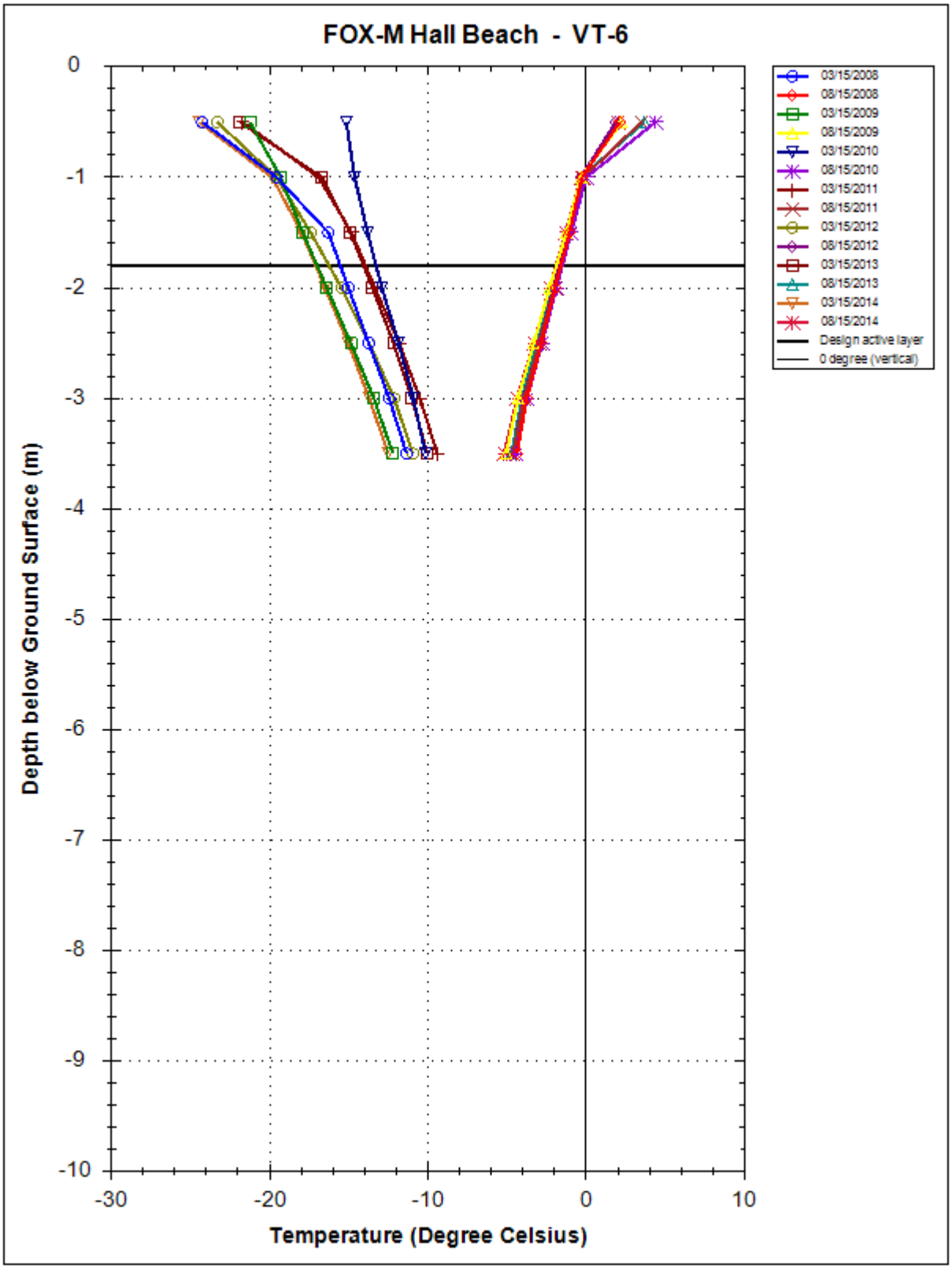

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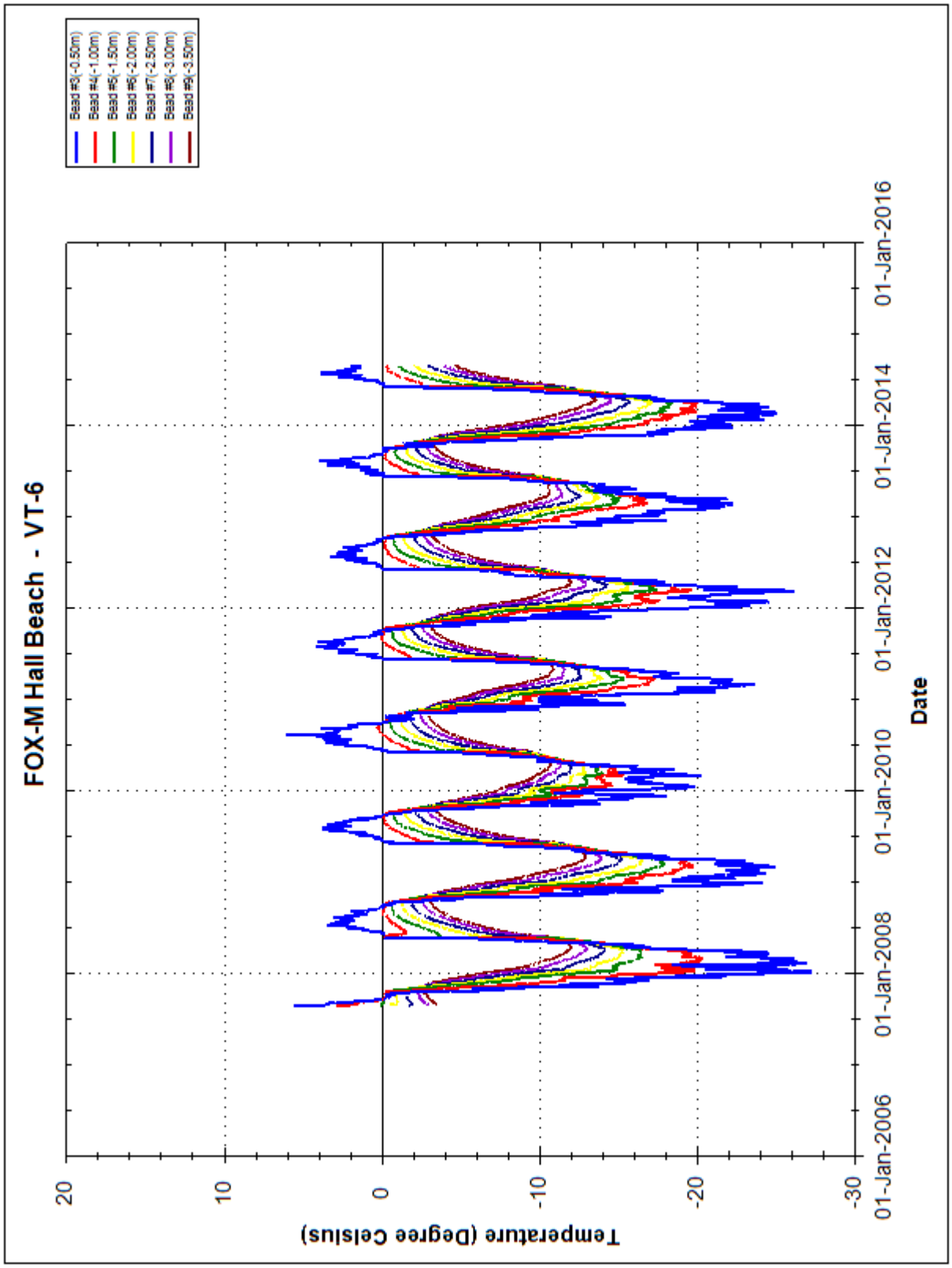

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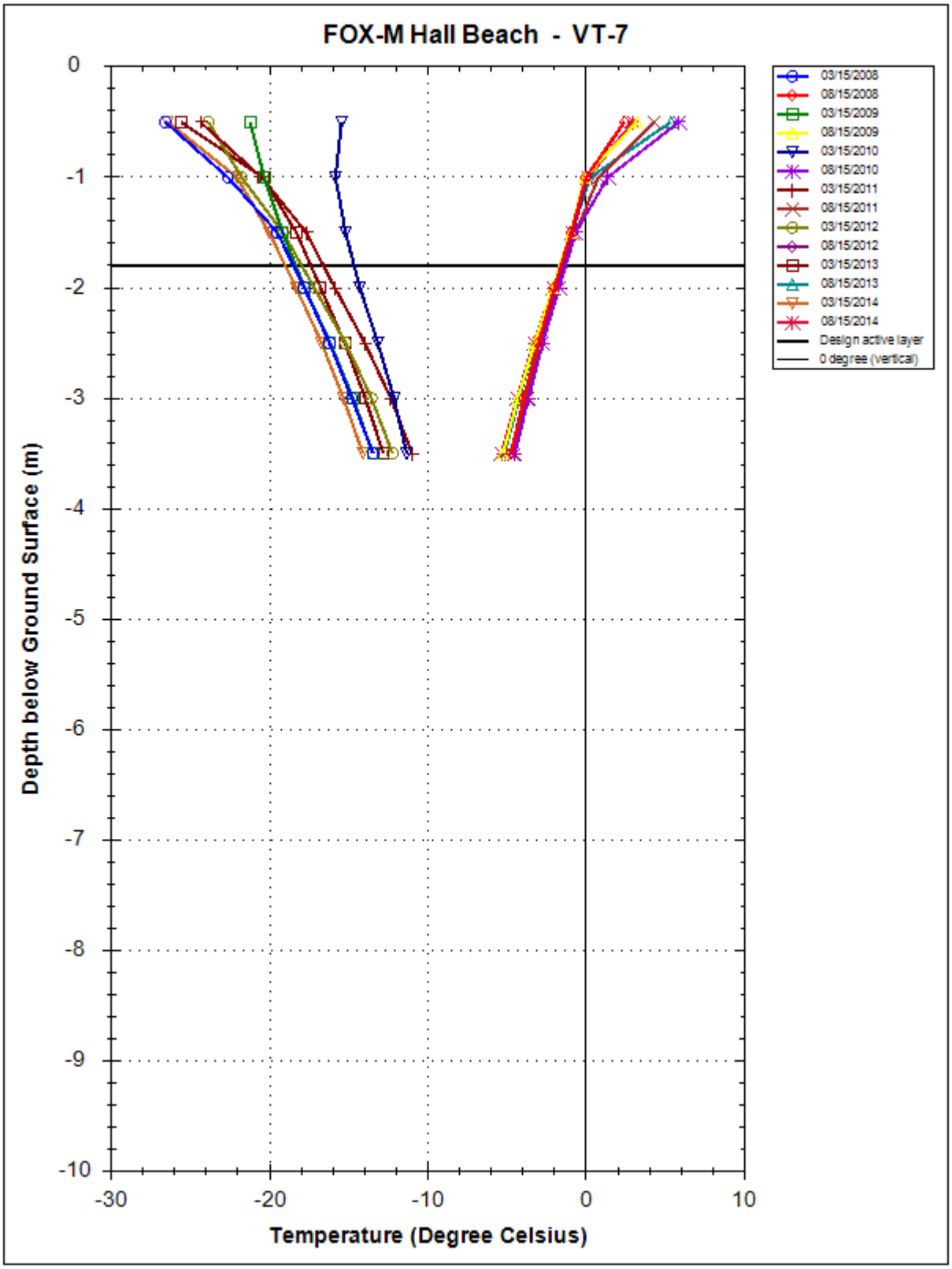

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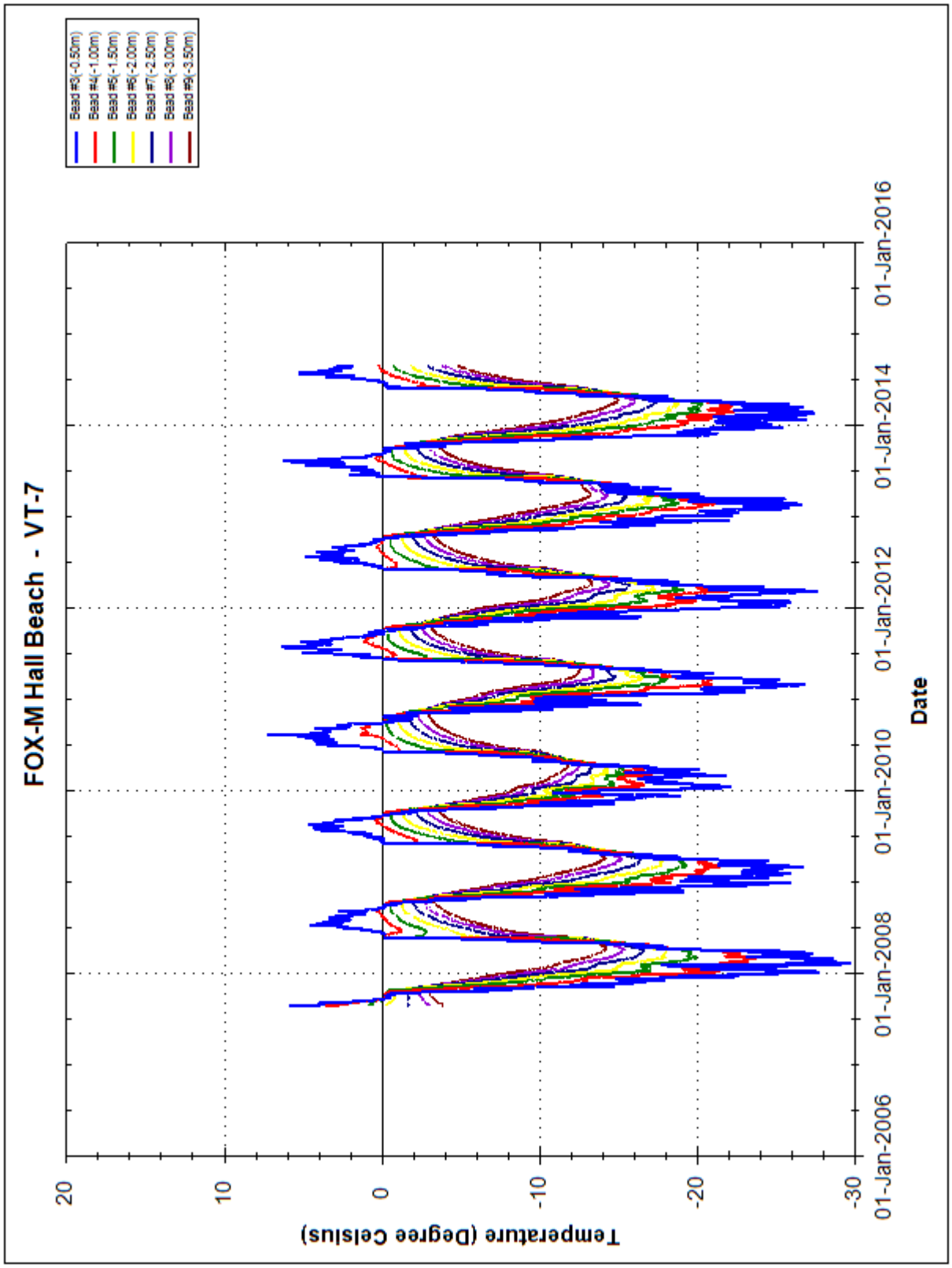

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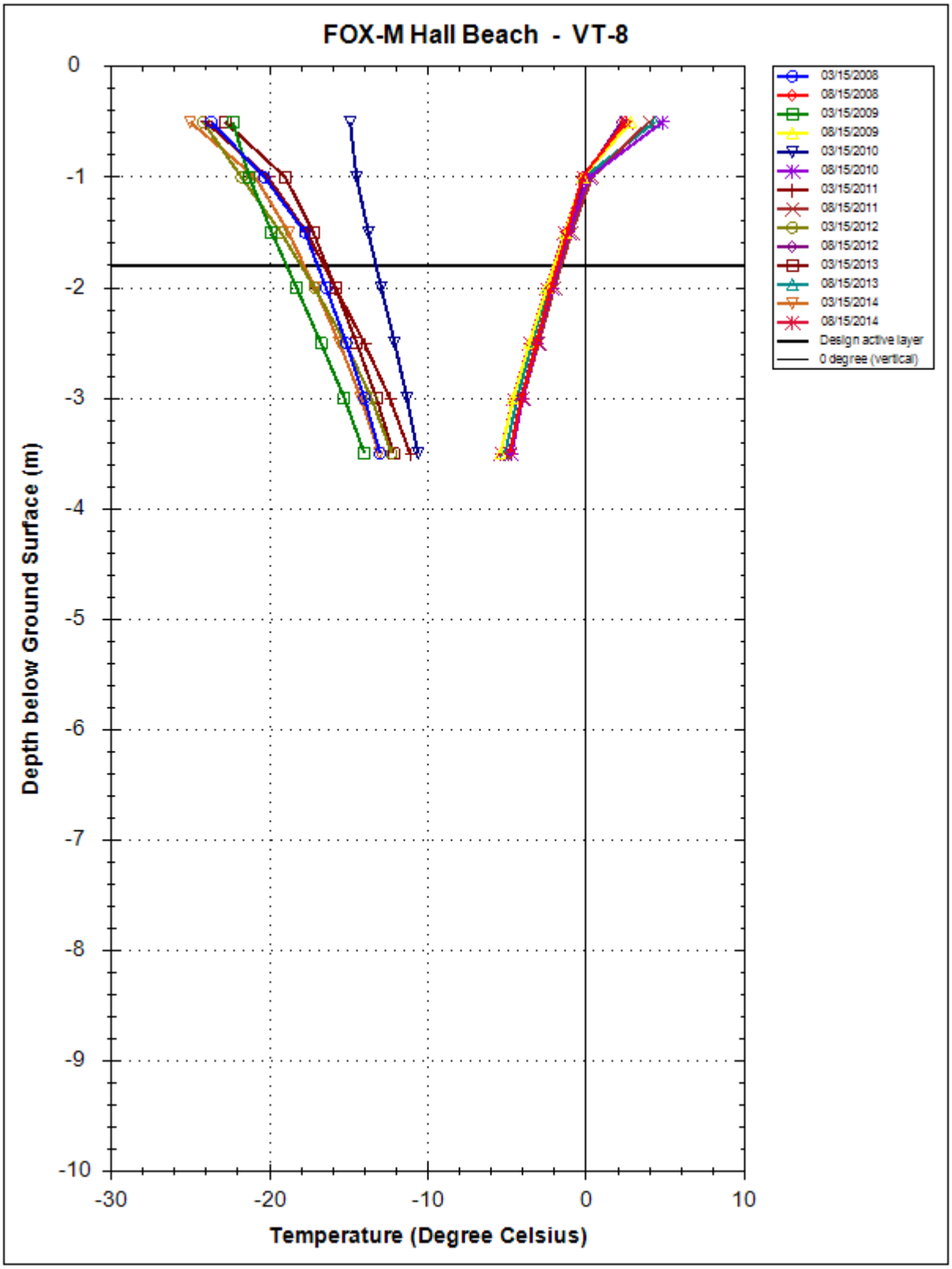

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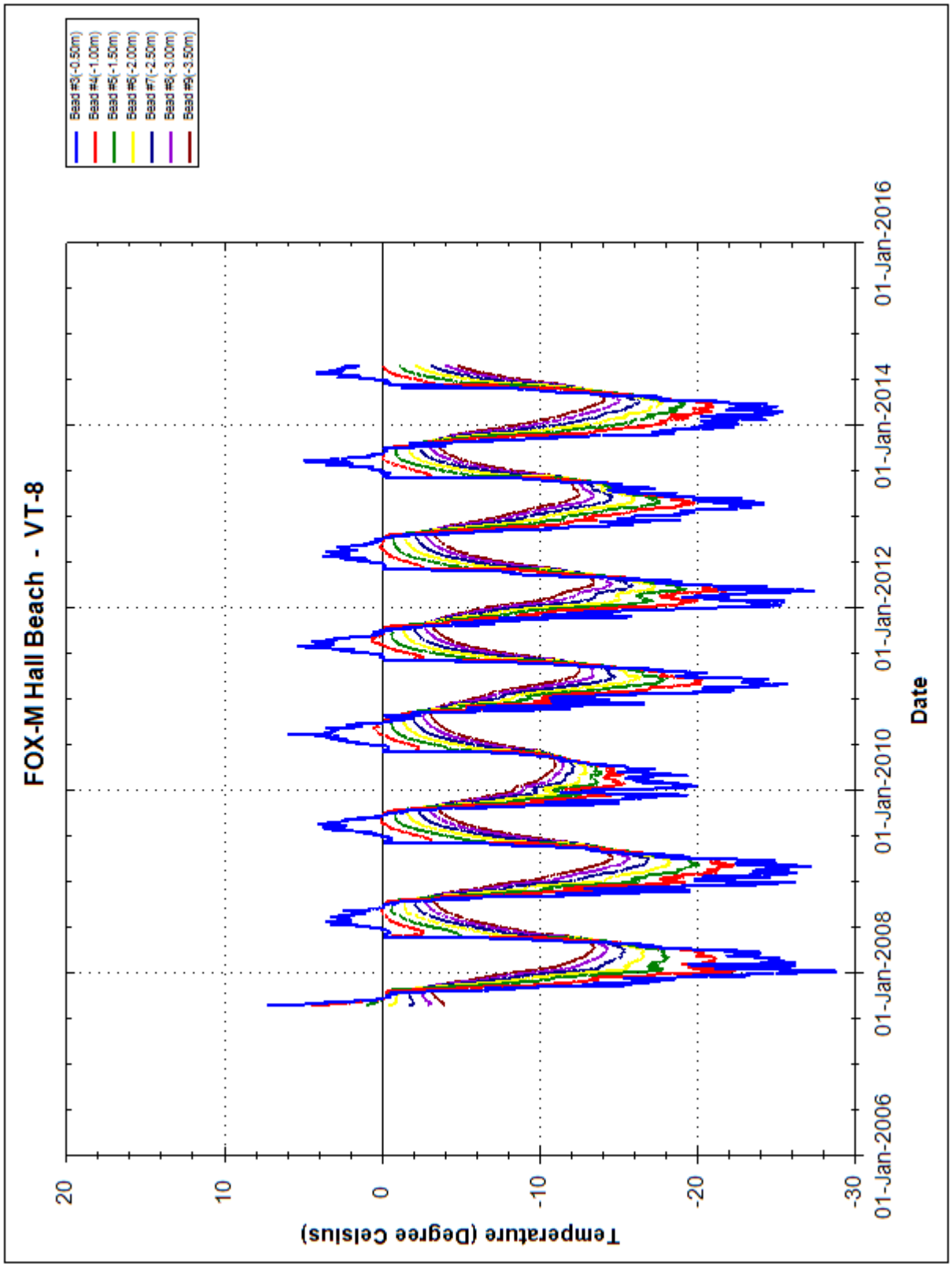

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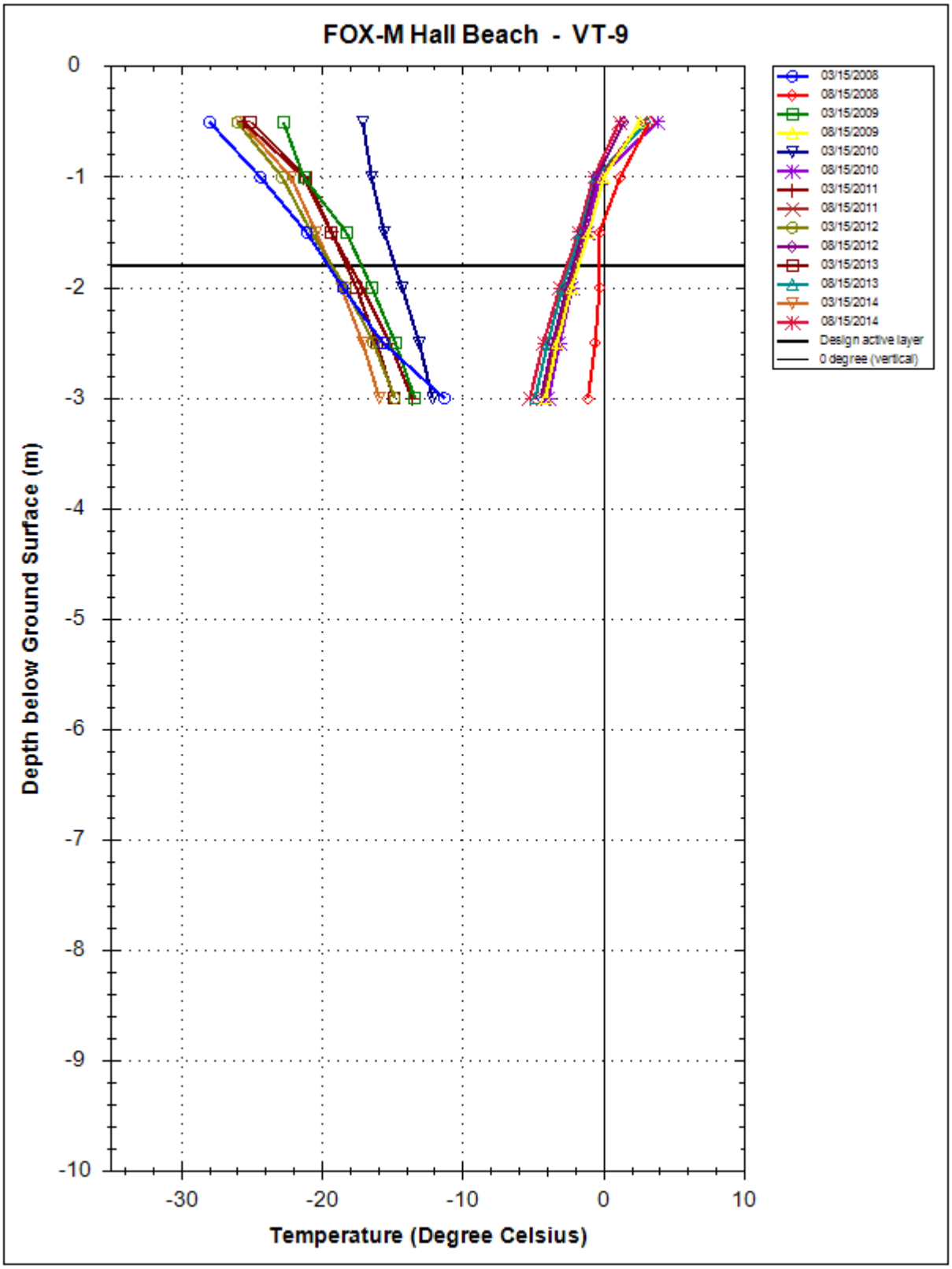

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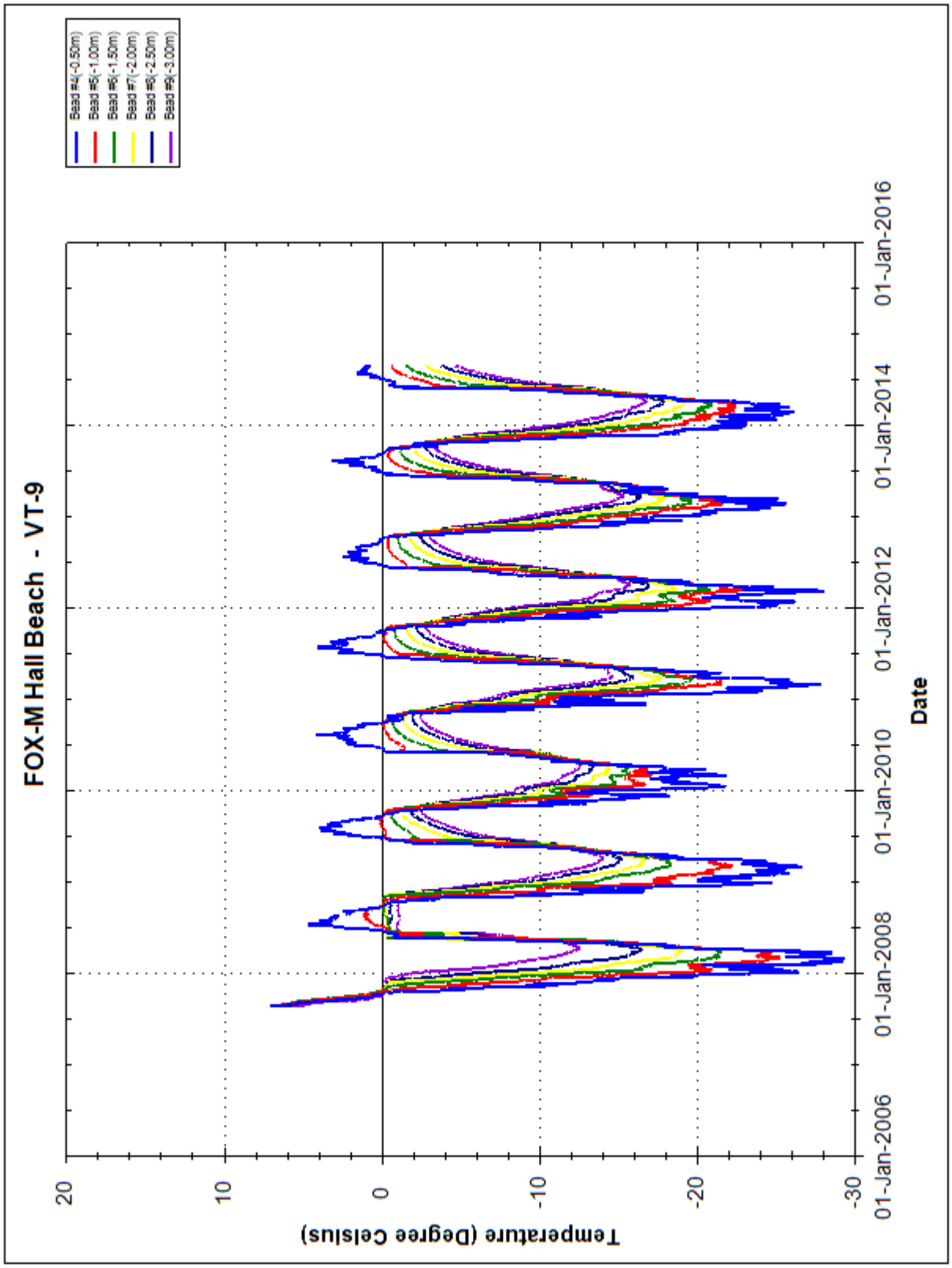

FOX-M Hall Beach

East Beach Landfill (Comment by Renata Klassen, Tetra Tech EBA, October 2014)

Six ground temperature cables were installed in the perimeter key trench of the East Beach Landfill in 2007. The 2014 thermal data from VT-6 through VT-11 is complete.

Maintenance reports were not available when the comments were prepared. The 2014 downloaded temperature data indicate that:

- The dataloggers were read on August 29, 2014.

Tetra Tech EBA records indicate that datalogger batteries were installed on September 16, 2011. New batteries should be installed within 3 years of the last battery install date.

The air temperatures in 2013 had a thawing index of 423 °C-days compared to a design mean and 1:100 year thawing index of 344°C-days and 620°C-days, respectively. This indicates that the air temperatures were warmer than the average and colder than the 1:100 thawing index. Climate information was taken from Hall Beach weather station.

The mean deepest bead average annual temperature for the five cables (except VT-11) was -8.0°C in 2013. The mean deepest bead average annual temperatures cooled by an average of 0.2°C between 2012 and 2013.

The measured maximum and minimum active layers in 2013 were 1.2 m and 0.9 m, respectively. The average measured active layers in 2013 and 2012 were similar. The average measured active layer of 1.1 m in 2013 have been less than the design active layer of 1.8 m, the estimated 1:100 year active layer of 1.7 m, and the estimated mean active layer of 1.3 m.

The landfill is stabilizing and performing as expected from a thermal perspective.

APPENDIX E

HISTORICAL CHEMISTRY SUMMARY TABLES (SOIL)

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**6.6**	**8.0**	**5.0**	**1.0**	**10**	**22**	**20**	**2.4**	**0.10**	**0.0030**				**40**
Baseline Data - Standard Deviation						4.3	2.4	0.0	0.65	2.6	21	2.0	0.93	0.0	0.0				17
Baseline Data + 3xStandard Deviation						19	15	5.0	3.0	18	85	26	5.2	0.10	0.0030				90
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																**TPH Sum will appear when F1, F2 and F3 fractions are entered.**			
Upgradient																			
	MW #1 surface																		
08-10688/89	MW-1	2008	1	Phase I	0	3.8	6.6	<5.0	<1.0	<10	<15	<20	1.0	<0.10	<0.0030	<10	<4.0	<9.0	12
FM09-1WA	MW-1	2009	2	Phase I	0-15	**9.0**	**17**	**12**	<0.50	8.0	**22**	**24**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-1WA	MW-1	2010	3	Phase I	0-15	4.0	**12**	2.0	<0.50	3.0	8	16	2.0	<0.10	<0.020	<10	<10	<20	20
11-14300	MW-1	2011	4	Phase I	0-10	**6.7**	7.2	<5.0	<1.0	<10	<15	<20	2.2	<0.10	<0.050	<4.0	11	<8.0	17
FM12-1A	MW-1	2012	5	Phase I	0-15	5.8	**23**	3.5	<0.50	5.7	18	14	**2.7**	<0.50	<0.050	<10	<10	11	21
FM-T2-MW-1-S	MW-1	2014	7	Phase II	0-15	4.8	**8**	2	<0.10	4.1	11	10	2.0	<0.050	<0.1	<10	<10	<10	15
	MW-1	2017	10	Phase II															#N/A
	MW-1	2022	15	Phase II															#N/A
	MW-1	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #1 depth																		
08-10690/91	MW-1	2008	1	Phase I	40	<3.0	5.2	<5.0	<1.0	<10	<15	<20	0.8	<0.10	<0.0030	<10	<4.0	<9.0	12
FM09-1WB	MW-1	2009	2	Phase I	40-50	**8.0**	**14**	**8.0**	<0.50	4.0	10	**22**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-1WB	MW-1	2010	3	Phase I	40-50	4.0	**11**	2.0	<0.50	3.0	9	13	2.0	<0.10	<0.020	<10	<10	<20	20
11-14301	MW-1	2011	4	Phase I	30-40	3.4	6.8	<5.0	<1.0	<10	18	<20	**6.5**	<0.10	<0.050	<4.0	<9.0	<8.0	11
FM12-1B	MW-1	2012	5	Phase I	40-50	5.9	**24**	4.1	<0.50	5.0	16	15	**2.9**	<0.50	<0.050	<10	<10	<10	15
FM-T2-MW-1-D	MW-1	2014	7	Phase II	40-50	4.75	**9.6**	2.35	<0.5	3	12.5	13.5	**4.1**	<0.10	<0.1	<10	<10	<50	35
	MW-1	2017	10	Phase II															#N/A
	MW-1	2022	15	Phase II															#N/A
	MW-1	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Downgradient																			
	MW #2 surface																		
08-10684/85	MW-2	2008	1	Phase I	0	4.5	7.2	<5.0	<1.0	<10	<15	<20	1.2	<0.10	<0.0030	<10	<4.0	14	21
FM09-2WA	MW-2	2009	2	Phase I	0-15	6.0	**14**	**7.0**	<0.50	8.0	**25**	**23**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-2WA	MW-2	2010	3	Phase I	0-15	**7.0**	**13**	3.0	<0.50	7.0	15	16	1.0	<0.10	<0.020	<10	<10	<20	20
11-14302	MW-2	2011	4	Phase I	0-10	4.7	7.4	<5.0	<1.0	<10	16	<20	**2.4**	<0.10	<0.050	7.3	<9.0	<8.0	16
FM12-2A-D	MW-2	2012	5	Phase I	0-15	**11**	**27**	4.1	<0.50	**21**	**26**	**20**	2.3	<0.50	<0.050	<10	<10	58	**68**
FM-T2-MW-2-S	MW-2	2014	7	Phase II	0-15	5.8	**9**	2	<0.10	7.9	**37**	12	2.1	<0.050	<0.1	<10	18	<10	28
	MW-2	2017	10	Phase II															#N/A
	MW-2	2022	15	Phase II															#N/A
	MW-2	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #2 depth																		
08-10686/87	MW-2	2008	1	Phase I	40	**14**	6.7	<5.0	<1.0	<10	<15	<20	0.7	<0.10	<0.0030	<10	<4.0	9.8	17
FM09-2WB	MW-2	2009	2	Phase I	40-50	**9.0**	**16**	**10**	<0.50	7.0	14	**26**	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-2WB	MW-2	2010	3	Phase I	40-50	5.0	**15**	3.0	<0.50	4.0	15	19	<1.0	<0.10	<0.020	<10	<10	<20	20
11-14303	MW-2	2011	4	Phase I	30-40	5.5	7.5	<5.0	<1.0	<10	<15	<20	1.7	<0.10	<0.050	11	12	<8.0	27
FM12-2B	MW-2	2012	5	Phase I	40-50	6.5	**24**	3.2	<0.50	5.0	21	13	1.3	<0.50	<0.050	<10	19	48	**72**
FM-T2-MW-2-D	MW-2	2014	7	Phase II	40-50	5.6	8	2	<0.10	6.3	**140**	10	<1.0	<0.050	<0.1	<10	<10	<10	15
	MW-2	2017	10	Phase II															#N/A
	MW-2	2022	15	Phase II															#N/A
	MW-2	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #3 surface																		
08-10680/81	MW-3	2008	1	Phase I	0	3.8	7.0	<5.0	<1.0	<10	**23**	<20	<0.20	<0.10	<0.0030	<10	<4.0	<9.0	12
FM09-3WA	MW-3	2009	2	Phase I	0-15	**7.0**	**17**	**7.0**	<0.50	6.0	**170**	**29**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-3WA	MW-3	2010	3	Phase I	0-15	5.0	**14**	3.0	<0.50	5.0	12	18	2.0	<0.10	<0.020	<10	<10	<20	20
11-14304	MW-3	2011	4	Phase I	0-10	5.0	**10**	<5.0	<1.0	<10	<15	<20	**4.9**	<0.10	<0.050	<4.0	<9.0	<8.0	11
FM12-3A	MW-3	2012	5	Phase I	0-15	**6.7**	**25**	3.4	<0.50	6.0	18	12	2.0	<0.50	<0.050	<10	15	86	**106**
FM-T2-MW-3-S	MW-3	2014	7	Phase II	0-15	5.7	**11**	3	<0.10	6.2	17	13	**3.7**	<0.050	<0.1	<10	<10	<10	15
	MW-3	2017	10	Phase II															#N/A
	MW-3	2022	15	Phase II															#N/A
	MW-3	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #3 depth																		
08-10682/83	MW-3	2008	1	Phase I	40	**7.6**	7.5	<5.0	<1.0	<10	<15	<20	1.2	<0.10	<0.0030	<10	6.5	11	23
FM09-3WB	MW-3	2009	2	Phase I	40-50	6.0	**14**	**5.0**	<0.50	3.0	12	19	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-3WB	MW-3	2010	3	Phase I	40-50	5.0	**13**	3.0	<0.50	4.0	9	15	<1.0	<0.10	<0.10	<10	<10	<20	20
11-14305	MW-3	2011	4	Phase I	30-40	5.3	**10**	<5.0	<1.0	<10	16	<20	**4.1**	<0.10	<0.050	<4.0	<9.0	<8.0	11
FM12-3B	MW-3	2012	5	Phase I	40-50	**7.3**	**27**	4.3	<0.50	5.2	19	20	**3.4**	<0.50	<0.050	<10	<10	32	**42**
FM-T2-MW-3-D	MW-3	2014	7	Phase II	40-50	5.8	**11**	3	<0.10	3.8	16	15	**2.9**	<0.050	<0.1	<10	<10	<10	15
	MW-3	2017	10	Phase II															#N/A
	MW-3	2022	15	Phase II															#N/A
	MW-3	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #4 surface																		
08-10696/97	MW-4	2008	1	Phase I	0	3.8	6.8	<5.0	<1.0	<10	<15	<20	<0.20	<0.10	<0.0030	<10	<4.0	<9.0	12
FM09-4WA	MW-4	2009	2	Phase I	0-15	4.0	**10**	**5.0**	<0.50	3.0	10	15	1.0	<0.10	<0.020	<20	<20	60	**80**
FM10-4WA	MW-4	2010	3	Phase I	0-15	6.0	**13**	3.0	<0.50	4.0	13	17	1.0	<0.10	<0.020	<10	<10	<20	20
11-14306	MW-4	2011	4	Phase I	0-10	4.0	7.3	<5.0	<1.0	<10	<15	<20	**2.5**	<0.10	<0.050	4.4	<9.0	<8.0	13
FM12-4A	MW-4	2012	5	Phase I	0-15	6.1	**19**	3.1	<0.50	5.7	**25**	13	1.4	<0.50	<0.050	<10	38	210	**253**
FM-T2-MW-4-S	MW-4	2014	7	Phase II	0-15	3.8	7	2	<0.10	3.3	11	11	1.5	<0.050	<0.1	<10	<10	<10	15
	MW-4	2017	10	Phase II															#N/A
	MW-4	2022	15	Phase II															#N/A
	MW-4	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #4 depth																		
08-10698/99	MW-4	2008	1	Phase I	40	2.3	<5.0	<5.0	<1.0	<10	<15	<20	0.9	<0.10	<0.0030	<10	<4.0	13	20
FM09-4WB	MW-4	2009	2	Phase I	40-50	4.0	**11**	4.0	<0.50	2.0	10	18	2.0	<0.10	<0.020	<20	<20	32	**52**
FM10-4WB	MW-4	2010	3	Phase I	40-50	4.0	**9.0**	2.0	<0.50	2.0	8	10	1.0	<0.10	<0.020	<10	<10	<20	20
11-14307	MW-4	2011	4	Phase I	30-40	3.7	6.7	<5.0	<1.0	<10	<15	<20	**2.6**	<0.10	<0.050	<4.0	9.0	<8.0	15
FM12-4B	MW-4	2012	5	Phase I	40-50	4.6	**19**	2.9	<0.50	3.4	14	14	1.3	<0.50	<0.050	<10	<10	35	**45**
FM-T2-MW-4-D	MW-4	2014	7	Phase II	40-50	3	6	2	<0.10	2.3	9	9	1.8	<0.050	<0.1	<10	<10	<10	15
	MW-4	2017	10	Phase II															#N/A
	MW-4	2022	15	Phase II															#N/A
	MW-4	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #5 surface																		
08-10692/93	MW-5	2008	1	Phase I	0	3.2	8.0	<5.0	<1.0	<10	<15	<20	0.5	<0.10	<0.0030	<10	4.1	<9.0	14
FM09-5WA	MW-5	2009	2	Phase I	0-15	4.0	**14**	**6.0**	<0.50	3.0	13	**22**	<1.0	<0.10	<0.020	<20	<20	20	**40**
FM10-5WA	MW-5	2010	3	Phase I	0-15	4.0	**13**	3.0	<0.50	4.0	13	18	2.0	<0.10	<0.10	<10	<10	<20	20
11-14308/09	MW-5	2011	4	Phase I	0-10	4.5	**11**	<5.0	<1.0	<10	17	<20	**2.5**	<0.10	<0.050	<4.0	<9.0	<8.0	11
FM12-5A	MW-5	2012	5	Phase I	0-15	5.2	**27**	3.1	<0.50	6.3	14	11	**2.7**	<0.50	<0.050	<10	<10	20	30
FM-T2-MW-5-S	MW-5	2014	7	Phase II	0-15	**30**	**12**	3	<0.10	4.0	19	17	1.5	<0.050	<0.1	<10	<10	<10	15
	MW-5	2017	10	Phase II															#N/A
	MW-5	2022	15	Phase II															#N/A
	MW-5	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	MW #5 depth																		
08-10694/95	MW-5	2008	1	Phase I	40	<3.0	6.7	<5.0	<1.0	<10	<15	<20	0.5	<0.10	<0.0030	<10	<4.0	<9.0	12
FM09-5WB	MW-5	2009	2	Phase I	40-50	6.0	**19**	**9.0**	<0.50	4.0	15	**25**	2.0	<0.10	<0.020	<20	<20	42	**62**
FM10-5WB	MW-5	2010	3	Phase I	40-50	4.0	**11**	3.0	<0.50	3.0	12	14	<1.0	<0.10	<0.020	<10	<10	<20	20
11-14310/11	MW-5	2011	4	Phase I	30-40	3.3	**8.1**	<5.0	<1.0	<10	16	<20	1.9	<0.10	<0.050	<4.0	<9.0	<8.0	11
FM12-5B	MW-5	2012	5	Phase I	40-50	6.3	**23**	4.1	<0.50	3.4	21	20	1.3	<0.50	<0.050	<10	<10	45	**55**
FM-T2-MW-5-D	MW-5	2014	7	Phase II	40-50	5.8	**8**	2	<0.10	2.5	14	12	1.5	<0.050	<0.1	<10	<10	<10	15
	MW-5	2017	10	Phase II															#N/A
	MW-5	2022	15	Phase II															#N/A
	MW-5	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - East Beach Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.00	N/A	0.213				N/A
Baseline Data - Average						**13**	**6.6**	**5.0**	**1.0**	**14**	**32**	**20**	**2.3**	**0.10**	**0.10**				**40**
Baseline Data - Standard Deviation						43	2.1	0.27	0.13	30	62	2.3	2.1	0.0	0.04				44
Baseline Data + 3xStandard Deviation						143	13	5.8	1.39	103	218	27	8.5	0.1	0.21				173
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient - no identified upgradient locations																			
Downgradient																			
	MW #20 Surface																		
08-10745/46	MW-20	2008	1	Phase I	0	6.8	**7.1**	<5.0	<1.0	<10	<15	<20	0.82	<0.10	0.0049	<10	<4.0	16	23
FM09-20WA	MW-20	2009	2	Phase I	0-15	**14**	**14**	**5.0**	<0.50	***10***	13	**25**	2.0	<0.10	<0.020	<20	<20	137	**147**
FM10-20WA	MW-20	2010	3	Phase I	0-15	9.0	**18**	2.0	<0.50	***11***	13	**30**	2.0	<0.10	<0.020	<10	<10	<20	20
11-14338	MW-20	2011	4	Phase I	0-10	5.2	**8.5**	<5.0	<1.0	<10	17	<20	2.3	<0.10	<0.050	<10	<4.0	11	18
FM12-20A	MW-20	2012	5	Phase I	0-15	8.3	**23**	3.3	<0.50	**19**	17	12	2.2	<0.50	<0.050	<10	10	43	**58**
FM-EB-MW-20-S	MW-20	2014	7	Phase II	0-15	**99**	**17**	2.4	0.78	**30**	**39**	12	**3.4**	<0.050	**0.4**	<10	<10	<10	15
	MW-20	2017	10	Phase II															#N/A
	MW-20	2022	15	Phase II															#N/A
	MW-20	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #20 Depth																		
08-10747/48	MW-20	2008	1	Phase I	40	4.0	5.9	<5.0	<1.0	<10	<15	<20	1.8	<0.10	<0.0030	<10	<4.0	21	28
FM09-20WB	MW-20	2009	2	Phase I	40-50	7.0	**15**	**6.0**	<0.50	***7.0***	16	**25**	**3.0**	<0.10	<0.020	<20	<20	114	**134**
FM-10-20WB	MW-20	2010	3	Phase I	40-50	6.0	**13**	3.0	<0.50	***7.0***	13	15	1.0	<0.10	<0.020	<10	<10	<20	20
11-14339	MW-20	2011	4	Phase I	30-40	3.9	**7.1**	<5.0	<1.0	<10	17	<20	**2.5**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-20B	MW-20	2012	5	Phase I	40-50	6.8	**23**	3.4	<0.50	***7.8***	17	14	2.2	<0.50	<0.050	<10	<10	47	**57**
FM-EB-MW-20-D	MW-20	2014	7	Phase II	40-50	**15**	**8.5**	2	0.12	***7.2***	14	10	**3**	<0.050	<0.1	<10	<10	<10	15
	MW-20	2017	10	Phase II															#N/A
	MW-20	2022	15	Phase II															#N/A
	MW-20	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - East Beach Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #21 Surface																		
08-10749/50	MW-21	2008	1	Phase I	0	4.2	<5.0	<5.0	<1.0	<10	<15	<20	1.2	<0.10	0.0042	<10	<4.0	<9.0	12
FM09-21WA	MW-21	2009	2	Phase I	0-15	10	**11**	**6.0**	<0.50	***13***	21	16	2.0	<0.10	<0.020	<20	<20	<20	20
FM10-21wa	MW-21	2010	3	Phase I	0-15	4.0	**11**	2.0	<0.50	***4.0***	8.0	16	2.0	<0.10	<0.020	<10	<10	<20	20
11-14336	MW-21	2011	4	Phase I	0-10	5.8	**6.6**	<5.0	<1.0	<10	26	<20	**2.8**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-21A-D	MW-21	2012	5	Phase I	0-15	11	**25**	3.5	<0.50	**20**	18	13	**2.6**	<0.50	<0.050	<10	<10	39	**49**
FM-EB-MW-21-S	MW-21	2014	7	Phase II	0-15	6.8	**8.7**	2.15	<0.5	***10.5***	14	11	**3**	<0.10	<0.1	<10	<10	<50	35
	MW-21	2017	10	Phase II															#N/A
	MW-21	2022	15	Phase II															#N/A
	MW-21	2032	25	Phase II															#N/A
				Phase III															#N/A
	MW #21 Depth																		
08-10751/52	MW-21	2008	1	Phase I	40	7.1	5.5	<5.0	<1.0	***11***	<15	<20	2.0	<0.10	<0.0030	<10	<4.0	12	19
FM09-21WB	MW-21	2009	2	Phase I	40-50	4.0	**12**	**6.0**	<0.50	***4.0***	10	18	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-21WB	MW-21	2010	3	Phase I	40-50	4.0	**11**	2.0	<0.50	***4.0***	18	14	1.0	<0.10	<0.10	<10	<10	<20	20
11-14337	MW-21	2011	4	Phase I	30-40	3.9	5.8	<5.0	<1.0	<10	<15	<20	**2.7**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-21B	MW-21	2012	5	Phase I	40-50	7.6	**26**	3.7	<0.50	**18**	29	13	**2.4**	<0.50	<0.050	<10	<10	88	**98**
FM-EB-MW-21-D	MW-21	2014	7	Phase II	40-50	3.2	**7.1**	1.9	<0.10	***2.7***	10	9	2	<0.050	<0.1	<10	<10	<10	15
	MW-21	2017	10	Phase II															#N/A
	MW-21	2022	15	Phase II															#N/A
	MW-21	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #22 surface																		
08-10741/42	MW-22	2008	1	Phase I	0	10	6.3	<5.0	<1.0	***22***	20	<20	1.0	<0.10	0.016	<10	<4.0	35	**42**
FM09-22WA	MW-22	2009	2	Phase I	0-15	4.0	**15**	4.0	<0.50	***5.0***	9.0	**24**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-22WA	MW-22	2010	3	Phase I	0-15	**56**	**13**	3.0	<0.50	**82**	**47**	16	2.0	<0.10	<0.020	<10	<10	21	31
11-14334	MW-22	2011	4	Phase I	0-10	4.7	**9.3**	<5.0	<1.0	<10	<15	<20	**2.6**	<0.10	<0.050	<10	<4.0	12	19
FM12-22A	MW-22	2012	5	Phase I	0-15	10	**24**	3.3	<0.50	***13***	17	12	2.3	<0.50	<0.050	<10	<10	34	**44**
FM-EB-MW-22-S	MW-22	2014	7	Phase II	0-15	**32**	**9.1**	2	0.12	**79**	**35**	11	**2.9**	<0.050	<0.1	<10	80	<10	**90**
	MW-22	2017	10	Phase II															#N/A
	MW-22	2022	15	Phase II															#N/A
	MW-22	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #22 depth																		
08-10743/44	MW-22	2008	1	Phase I	40	**21**	**7.1**	<5.0	<1.0	***27***	29	<20	1.4	<0.10	0.017	<10	<4.0	39	**46**
FM09-22WB	MW-22	2009	2	Phase I	40-50	4.0	**12**	4.0	<0.50	***4.0***	10	15	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-22WB	MW-22	2010	3	Phase I	40-50	**19**	**13**	3.0	<0.50	**50**	29	16	2.0	<0.10	<0.020	<10	<10	<20	20
11-14335	MW-22	2011	4	Phase I	30-40	4.7	**7.0**	<5.0	<1.0	<10	<15	<20	**2.7**	<0.10	<0.050	<10	<4.0	13	20
FM12-22B	MW-22	2012	5	Phase I	40-50	8.8	**24**	3.2	<0.50	**40**	16	14	**2.6**	<0.50	<0.050	<10	<10	35	**45**
FM-EB-MW-22-D	MW-22	2014	7	Phase II	40-50	**38**	**11**	2.8	0.31	***260***	**59**	15	**4.5**	<0.050	<0.1	<10	<10	<10	15
	MW-22	2017	10	Phase II															#N/A
	MW-22	2022	15	Phase II															#N/A
	MW-22	2032	25	Phase II															#N/A
				Phase III															#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #23 surface																		
08-10753/54	MW-23	2008	1	Phase I	0	3.6	5.9	<5.0	<1.0	<10	<15	<20	1.8	<0.10	0.024	<10	<4.0	12	19
FM09-23WA	MW-23	2009	2	Phase I	0-15	**14**	**12**	**5.0**	<0.50	**22**	26	15	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-23WA	MW-23	2010	3	Phase I	0-15	5.0	**14**	3.0	<0.50	***5.0***	11	14	**4.0**	<0.10	<0.020	<10	<10	22	32
11-14332	MW-23	2011	4	Phase I	0-10	11	**9.5**	<5.0	<1.0	***23***	27	<20	**8.4**	<0.10	**0.13**	<10	<4.0	57	**64**
FM12-23A	MW-23	2012	5	Phase I	0-15	8.4	**29**	4.3	<0.50	***10***	22	16	**3.9**	<0.50	<0.050	<10	<10	36	**46**
FM-EB-MW-23-S	MW-23	2014	7	Phase II	0-15	11	**10**	2.6	<0.10	**19**	23	12	**3.8**	<0.050	**0.1**	<10	<10	<10	15
	MW-23	2017	10	Phase II															#N/A
	MW-23	2022	15	Phase II															#N/A
	MW-23	2032	25	Phase II															#N/A
				Phase III															#N/A
	MW #23 depth																		
08-10755/56	MW-23	2008	1	Phase I	40	**70**	**63**	**15**	<1.0	**90**	**240**	**85**	**19**	<0.10	0.069	<10	<4.0	25	32
FM09-23WB	MW-23	2009	2	Phase I	40-50	5.0	**13**	**5.0**	<0.50	***6.0***	14	16	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-23WB	MW-23	2010	3	Phase I	40-50	5.0	**13**	3.0	<0.50	***5.0***	11	14	**4.0**	<0.10	<0.020	<10	<10	<20	20
11-14333	MW-23	2011	4	Phase I	30-40	**13**	**9.1**	<5.0	<1.0	***15***	21	<20	**3.4**	<0.10	0.070	<10	<4.0	21	28
FM12-23B	MW-23	2012	5	Phase I	40-50	8.1	**27**	4.3	<0.50	***12***	21	16	**3.4**	<0.50	**0.10**	<10	<10	31	**41**
FM-EB-MW-23-D	MW-23	2014	7	Phase II	40-50	4.4	**9.0**	2.3	<0.10	***4.7***	12	10	**3.7**	<0.050	<0.1	<10	<10	<10	15
	MW-23	2017	10	Phase II															#N/A
	MW-23	2022	15	Phase II															#N/A
	MW-23	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #24 surface																		
08-10757/58	MW-24	2008	1	Phase I	0	3.6	5.8	<5.0	<1.0	<10	<15	<20	1.1	<0.10	0.021	<10	<4.0	19	26
FM09-24WA	MW-24	2009	2	Phase I	0-15	5.0	**14**	4.0	<0.50	***10***	16	19	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-24WA	MW-24	2010	3	Phase I	0-15	**16**	**13**	3.0	<0.50	**31**	30	16	2.0	<0.10	<0.020	<10	13	<20	28
11-14330	MW-24	2011	4	Phase I	0-10	7.7	**59**	<5.0	<1.0	***12***	23	**120**	**2.7**	<0.10	<0.050	<10	<4.0	9.2	16
FM12-24A	MW-24	2012	5	Phase I	0-15	5.4	**29**	4.4	<0.50	***5.4***	15	12	**3.6**	<0.50	<0.050	<10	<10	20	30
No sample collected - ma	MW-24	2014	7	Phase II															#N/A
	MW-24	2017	10	Phase II															#N/A
	MW-24	2022	15	Phase II															#N/A
	MW-24	2032	25	Phase II															#N/A
				Phase III															#N/A
	MW #24 depth																		
08-10759/60	MW-24	2008	1	Phase I	40	4.5	5.8	<5.0	<1.0	***140***	<15	<20	1.2	<0.10	<0.0030	<10	<4.0	12	19
FM09-24WB	MW-24	2009	2	Phase I	40-50	5.0	**15**	4.0	<0.50	***5.0***	12	**23**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-24WB	MW-24	2010	3	Phase I	40-50	**14**	**13**	3.0	<0.50	**28**	32	15	2.0	<0.10	<0.020	<10	<10	23	33
11-14331	MW-24	2011	4	Phase I	30-40	5.6	**7.2**	<5.0	<1.0	<10	18	<20	**2.4**	<0.10	<0.050	<10	<4.0	15	22
FM12-24B	MW-24	2012	5	Phase I	40-50	5.2	**28**	4.2	<0.50	***5.0***	14	12	**3.2**	<0.50	<0.050	<10	<10	20	30
FM-EB-MW-24-D	MW-24	2014	7	Phase II	40-50	6.4	**7.9**	2.0	<0.10	***9.2***	13	9	2.2	<0.050	<0.1	<10	<10	<10	15
	MW-24	2017	10	Phase II															#N/A
	MW-24	2022	15	Phase II															#N/A
	MW-24	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #25 surface																		
08-10761/62	MW-25	2008	1	Phase I	0	5.3	6.1	<5.0	<1.0	620	<15	<20	1.7	<0.10	0.0064	<10	<4.0	20	27
FM09-25WA	MW-25	2009	2	Phase I	0-15	4.0	**16**	4.0	<0.50	***4.0***	9.0	**22**	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-25WA	MW-25	2010	3	Phase I	0-15	5.0	**12**	2.0	<0.50	**45**	11	13	2.0	<0.10	<0.020	<10	<10	<20	20
11-14328	MW-25	2011	4	Phase I	0-10	8.7	**9.7**	<5.0	<1.0	***480***	18	<20	**2.8**	<0.10	<0.050	<10	<4.0	13	20
FM12-25A	MW-25	2012	5	Phase I	0-15	8.9	**26**	3.5	<0.50	***139***	21	13	**2.6**	<0.50	<0.050	<10	<10	84	**94**
FM-EB-MW-25-S	MW-25	2014	7	Phase II	0-15	10	**9.2**	2.2	<0.10	***180***	21	11	**2.9**	<0.050	<0.1	<10	<10	<10	15
	MW-25	2017	10	Phase II															#N/A
	MW-25	2022	15	Phase II															#N/A
	MW-25	2032	25	Phase II															#N/A
				Phase III															#N/A
	MW #25 depth																		
08-10763/64	MW-25	2008	1	Phase I	40	5.8	**6.9**	<5.0	<1.0	***160***	<15	<20	2.2	<0.10	<0.0030	<10	<4.0	36	**43**
FM09-25WB	MW-25	2009	2	Phase I	40-50	4.0	**13**	**5.0**	<0.50	***6.0***	10	16	1.0	<0.10	<0.020	<20	<20	<20	30
FM10-25WB	MW-25	2010	3	Phase I	40-50	5.0	**13**	3.0	<0.50	**91**	12	15	2.0	<0.10	<0.020	<10	<10	<20	20
11-14329	MW-25	2011	4	Phase I	30-40	6.0	**7.8**	<5.0	<1.0	***130***	<15	<20	**4.0**	<0.10	<0.050	<10	<4.0	9.7	17
FM12-25B	MW-25	2012	5	Phase I	40-50	6.9	**26**	3.8	<0.50	**88**	18	15	**2.4**	<0.50	<0.050	<10	11	81	**97**
FM-EB-MW-25-D	MW-25	2014	7	Phase II	40-50	6.9	**8.3**	2	<0.10	***230***	16	10	**2.7**	<0.050	<0.1	<10	<10	<10	15
	MW-25	2017	10	Phase II															#N/A
	MW-25	2022	15	Phase II															#N/A
	MW-25	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #26 surface																		
08-10765/66	MW-26	2008	1	Phase I	0	10	**7.5**	<5.0	<1.0	***15***	<15	<20	2.2	<0.10	0.022	<10	<4.0	30	37
FM09-26WA	MW-26	2009	2	Phase I	0-15	4.0	**13**	**5.0**	<0.50	***4.0***	7.0	19	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-26WA	MW-26	2010	3	Phase I	0-15	**16**	**14**	3.0	<0.50	**30**	23	14	**3.0**	<0.10	<0.020	<10	<10	<20	20
11-14324/25	MW-26	2011	4	Phase I	0-10	<3.0	**6.7**	<5.0	<1.0	<10	<15	<20	**2.4**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-26A	MW-26	2012	5	Phase I	0-15	**15**	**22**	3.2	<0.50	**52**	24	11	**2.4**	<0.50	<0.050	<10	<10	33	**43**
FM-EB-MW-26-S	MW-26	2014	7	Phase II	0-15	**15**	**11**	2.6	0.28	**26**	24	12	**3.4**	<0.050	<0.1	<10	<10	<10	15
	MW-26	2017	10	Phase II															#N/A
	MW-26	2022	15	Phase II															#N/A
	MW-26	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #26 depth																		
08-10767/68	MW-26	2008	1	Phase I	40	<3.0	5.1	<5.0	<1.0	<10	<15	<20	1.8	<0.10	<0.0030	<10	<4.0	16	23
FM09-26WB	MW-26	2009	2	Phase I	40-50	3.0	**11**	3.0	<0.50	***4.0***	8.0	13	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-26WB	MW-26	2010	3	Phase I	40-50	**18**	**14**	3.0	<0.50	**33**	24	15	**3.0**	<0.10	<0.020	<10	<10	<20	20
11-14326/27	MW-26	2011	4	Phase I	30-40	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	2.0	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-26B	MW-26	2012	5	Phase I	40-50	11	**23**	3.2	<0.50	***8.3***	13	10	**2.6**	<0.50	<0.050	<10	<10	16	26
FM-EB-MW-26-D	MW-26	2014	7	Phase II	40-50	11	**13**	2.1	0.11	**18**	19	10	**3.1**	<0.050	<0.1	<10	<10	<10	15
	MW-26	2017	10	Phase II															#N/A
	MW-26	2022	15	Phase II															#N/A
	MW-26	2032	25	Phase II															#N/A
				Phase III															#N/A

FOX-M Hall Beach - East Beach Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #27 surface																		
08-10773/74	MW-27	2008	1	Phase I	0	3.4	6.4	<5.0	<1.0	<10	<15	<20	**2.5**	<0.10	<0.0030	<10	<4.0	14	21
FM09-27WA	MW-27	2009	2	Phase I	0-15	3.0	**13**	3.0	<0.50	***5.0***	8.0	18	2.0	<0.10	<0.020	<20	<20	<20	20
FM10-27WA	MW-27	2010	3	Phase I	0-15	**15**	**13**	3.0	<0.50	**21**	18	17	2.0	<0.10	<0.020	<10	<10	<20	20
11-14320/21	MW-27	2011	4	Phase I	0-10	4.4	**6.9**	<5.0	<1.0	<10	<15	<20	**3.4**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-27A	MW-27	2012	5	Phase I	0-15	**14**	**27**	4.1	<0.50	**15**	20	14	**4.2**	<0.50	<0.050	<10	<10	12	22
FM-EB-MW-27-S	MW-27	2014	7	Phase II	0-15	7.4	**9**	2.5	0.38	***7.7***	14	10	**4.0**	<0.050	<0.1	<10	<10	<10	15
	MW-27	2017	10	Phase II															#N/A
	MW-27	2022	15	Phase II															#N/A
	MW-27	2032	25	Phase II															#N/A
				Phase III															#N/A
	MW #27 Depth																		
08-10775/76	MW-27	2008	1	Phase I	40	4.3	5.8	<5.0	<1.0	<10	<15	<20	**2.6**	<0.10	<0.0030	<10	<4.0	13	20
FM09-27WB	MW-27	2009	2	Phase I	40-50	7.0	**13**	4.0	<0.50	***6.0***	11	15	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-27WB	MW-27	2010	3	Phase I	40-50	5.0	**13**	3.0	<0.50	***6.0***	12	14	**4.0**	<0.10	<0.020	<10	<10	<20	20
11-14322/23	MW-27	2011	4	Phase I	30-40	*110*	**7.3**	<5.0	<1.0	<10	<15	<20	**3.7**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-27B	MW-27	2012	5	Phase I	40-50	11	**24**	3.7	<0.50	**22**	24	12	**3.6**	<0.50	<0.050	<10	<10	13	23
FM-EB-MW-27-D	MW-27	2014	7	Phase II	40-50	5.6	**9.1**	2.5	<0.10	***9.6***	15	10	**4.1**	<0.050	<0.1	<10	<10	<10	15
	MW-27	2017	10	Phase II															#N/A
	MW-27	2022	15	Phase II															#N/A
	MW-27	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #28 surface																		
08-10777/78	MW-28	2008	1	Phase I	0	6.0	6.0	<5.0	<1.0	<10	<15	<20	1.7	<0.10	0.015	<10	<4.0	18	25
FM09-28WA	MW-28	2009	2	Phase I	0-15	**13**	**11**	4.0	<0.50	***13***	13	12	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-28WA	MW-28	2010	3	Phase I	0-15	**14**	**14**	3.0	<0.50	***13***	14	18	2.0	<0.10	<0.020	<10	<10	<20	20
11-14316/17	MW-28	2011	4	Phase I	0-10	4.7	6.3	<5.0	<1.0	<10	<15	<20	**4.4**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-28A	MW-28	2012	5	Phase I	0-15	3.1	**24**	3.2	<0.50	***3.0***	10	10	**2.6**	<0.50	<0.050	<10	<10	<10	15
FM-EB-MW-28-S	MW-28	2014	7	Phase II	0-15	11	**10**	2.8	0.11	***13***	17	12	**3.5**	<0.050	**0.5**	<10	<10	<10	15
	MW-28	2017	10	Phase II															#N/A
	MW-28	2022	15	Phase II															#N/A
	MW-28	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #28 depth																		
08-10779/80	MW-28	2008	1	Phase I	40	4.0	<5.0	<5.0	<1.0	<10	<15	<20	1.7	<0.10	0.0024	<10	<4.0	7.0	14
FM09-28WB	MW-28	2009	2	Phase I	40-50	**20**	**14**	4.0	<0.50	**47**	21	**20**	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-28WB	MW-28	2010	3	Phase I	40-50	**34**	**15**	3.0	<0.50	**41**	**74**	18	**3.0**	<0.10	<0.020	<10	<10	<20	20
11-14318/19	MW-28	2011	4	Phase I	30-40	4.6	**7.5**	<5.0	<1.0	<10	<15	<20	**2.6**	<0.10	<0.050	<10	4.1	<9.0	14
FM12-28B	MW-28	2012	5	Phase I	40-50	11	**22**	3.1	<0.50	**14**	20	10	**2.4**	<0.50	**0.14**	<10	<10	19	29
FM-EB-MW-28-D	MW-28	2014	7	Phase II	40-50	4.6	**7.6**	2.0	<0.10	***5.3***	10	8.3	**2.8**	<0.050	<0.1	<10	<10	<10	15
	MW-28	2017	10	Phase II															#N/A
	MW-28	2022	15	Phase II															#N/A
	MW-28	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A

FOX-M Hall Beach - East Beach Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #29 surface																		
08-10781/82	MW-29	2008	1	Phase I	0	2.4	5.6	<5.0	<1.0	<10	<15	<20	1.7	<0.10	<0.0030	<10	<4.0	6.9	14
FM09-29WA	MW-29	2009	2	Phase I	0-15	6.0	**12**	3.0	<0.50	***7.0***	11	15	2.0	<0.10	<0.020	<20	<20	<20	30
FM10-29WA	MW-29	2010	3	Phase I	0-15	6.0	**11**	2.0	<0.50	***4.0***	13	11	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-29A	MW-29	2011	4	Phase I	0-10	3.4	**7.2**	<5.0	<1.0	<10	<15	<20	**2.5**	<0.10	<0.050	<10	<4.0	<9.0	12
11-14312/13	MW-29	2012	5	Phase I	0-15	5.4	**22**	3.3	<0.50	***4.3***	15	13	2.1	<0.50	<0.050	<10	<10	15	25
FM12-29A	MW-29	2012	7	Phase II	0-15	5.4	**22**	3.3	<0.50	***4.3***	15	13	2.1	<0.50	<0.050	<10	<10	15	25
FM-EB-MW-29-S	MW-29	2014	10	Phase II	0-15	4.3	**8.2**	2.1	<0.10	***4.2***	13	11	2.0	<0.050	<0.1	<10	<10	<10	15
	MW-29	2017	15	Phase II															#N/A
	MW-29	2022	25	Phase II															#N/A
	MW-29	2032		Phase III															#N/A
																			#N/A
																			#N/A
	MW #29 depth																		
08-10783/84	MW-29	2008	1	Phase I	40	<3.0	5.5	<5.0	<1.0	<10	<15	<20	1.8	<0.10	<0.0030	<10	<4.0	9.2	16
FM09-29WB	MW-29	2009	2	Phase I	40-50	4.0	**11**	3.0	<0.50	***5.0***	9.0	15	2.0	<0.10	<0.020	<20	<20	<20	30
FM29-29WB	MW-29	2010	3	Phase I	40-50	5.0	**12**	2.0	<0.50	***8.0***	9.0	17	2.0	<0.10	<0.020	<10	<10	<20	20
FM12-29B	MW-29	2011	4	Phase I	30-40	4.2	**7.9**	<5.0	<1.0	<10	<15	<20	**3.0**	<0.10	<0.050	<10	<4.0	<9.0	12
11-14314/15	MW-29	2012	5	Phase I	40-50	5.0	**25**	3.2	<0.50	***3.6***	15	12	2.1	<0.50	<0.050	<10	<10	37	**47**
FM12-29B	MW-29	2012	7	Phase II	40-50	5.0	**25**	3.2	<0.50	***3.6***	15	12	2.1	<0.50	<0.050	<10	<10	37	**47**
FM-EB-MW-29-D	MW-29	2014	10	Phase II	40-50	4.3	**8.1**	2.1	<0.10	***3.9***	12	11	**2.4**	<0.050	<0.1	<10	<10	<10	15
	MW-29	2017	15	Phase II															#N/A
	MW-29	2022	25	Phase II															#N/A
	MW-29	2032		Phase III															#N/A
																			#N/A
																			#N/A
	MW #30 surface																		
08-10769/70	MW-30	2008	1	Phase I	0	5.5	**7.0**	<5.0	<1.0	<10	<15	<20	1.6	<0.10	0.0039	<10	<4.0	83	**90**
FM09-30WA	MW-30	2009	2	Phase I	0-15	5.0	**13**	4.0	<0.50	***8.0***	12	19	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-30WA	MW-30	2010	3	Phase I	0-15	5.0	**12**	3.0	<0.50	***4.0***	10	16	2.0	<0.10	<0.020	<10	<10	<20	20
11-14342	MW-30	2011	4	Phase I	0-10	3.3	**7.2**	<5.0	<1.0	<10	<15	<20	**2.7**	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-30A	MW-30	2012	5	Phase I	0-15	7.4	**26**	3.7	<0.50	**19**	26	14	**2.5**	<0.50	**0.20**	<10	13	1110	**1128**
FM-EB-MW-30-S	MW-30	2014	7	Phase II	0-15	**20**	**12**	2.7	0.25	**30**	**37**	14	2.1	0.064	<0.2	<10	<10	15	25
	MW-30	2017	10	Phase II															#N/A
	MW-30	2022	15	Phase II															#N/A
	MW-30	2032	25	Phase II															#N/A
				Phase III															#N/A

FOX-M Hall Beach - East Beach Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW #30 depth																		
08-10771/72	MW-30	2008	1	Phase I	40	7.6	**8.2**	<5.0	<1.0	<10	18	<20	2.2	<0.10	<0.0030	<10	<4.0	52	**59**
FM09-30WB	MW-30	2009	2	Phase I	40-50	5.0	**12**	4.0	<0.50	***6.0***	10	16	**3.0**	<0.10	<0.020	<20	<20	<20	30
FM10-30WB	MW-30	2010	3	Phase I	40-50	5.0	**14**	3.0	<0.50	***5.0***	10	19	2.0	<0.10	<0.020	<10	<10	<20	20
11-14343	MW-30	2011	4	Phase I	30-40	3.7	**7.5**	<5.0	<1.0	<10	<15	<20	1.4	<0.10	<0.050	<10	<4.0	<9.0	12
FM12-30B	MW-30	2012	5	Phase I	40-50	5.1	**26**	3.6	<0.50	***5.8***	21	13	**2.6**	<0.50	<0.050	<10	<10	84	**94**
FM-EB-MW-30-D	MW-30	2014	7	Phase II	40-50	11	**8.4**	2	<0.10	***8.7***	18	12	2	<0.050	<0.1	<10	<10	<10	15
	MW-30	2017	10	Phase II															#N/A
	MW-30	2022	15	Phase II															#N/A
	MW-30	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #31 surface																		
No sample collected	MW-31	2008	1	Phase I	0-15														
FM09-31WA	MW-31	2009	2	Phase I	0-15	4.0	**12**	3.0	<0.50	***6.0***	9.0	14	**3.0**	<0.10	<0.020	<20	<20	<20	25
FM10-31WA	MW-31	2010	3	Phase I	0-15	4.0	**9.0**	2.0	<0.50	***5.0***	10	11	2.0	<0.10	<0.020	<10	<10	<20	20
11-14340	MW-31	2011	4	Phase I	0-10	4.6	**7.8**	<5.0	<1.0	***10***	16	<20	**3.0**	<0.10	**0.28**	<10	<4.0	<9.0	12
FM12-31A	MW-31	2012	5	Phase I	0-15	5.4	**25**	3.7	<0.50	***12***	18	14	**4.1**	<0.50	<0.050	<10	<10	24	34
FM-EB-MW-31-S	MW-31	2014	7	Phase II	0-15	8.7	**11.3**	2.85	<0.5	**17**	18.5	13	**4.35**	<0.10	**0.1**	<10	<10	<50	35
	MW-31	2017	10	Phase II															#N/A
	MW-31	2022	15	Phase II															#N/A
	MW-31	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW #31 depth																		
No sample collected	MW-31	2008	1	Phase I	40-50														
FM09-31WB	MW-31	2009	2	Phase I	40-50	4.0	**14**	3.0	<0.50	***8.0***	11	19	**3.0**	<0.10	<0.020	<20	<20	<20	25
FM10-31WB	MW-31	2010	3	Phase I	40-50	4.0	**10**	2.0	<0.50	***6.0***	14	15	2.0	<0.10	<0.020	<10	<10	<20	20
11-14341	MW-31	2011	4	Phase I	30-40	3.2	6.5	<5.0	<1.0	<10	<15	<20	1.4	<0.10	**0.10**	<10	<4.0	<9.0	12
FM12-31B	MW-31	2012	5	Phase I	40-50	5.8	**22**	3.3	<0.50	***11***	20	13	2.1	<0.50	<0.050	<10	<10	20	30
FM-EB-MW-31-D	MW-31	2014	7	Phase II	40-50	8.3	**9.0**	2.2	<0.10	**20**	16	11	**3.2**	<0.050	**0.20**	<10	<10	<10	15
	MW-31	2017	10	Phase II															#N/A
	MW-31	2022	15	Phase II															#N/A
	MW-31	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.00	N/A	0.213				N/A
Baseline Data - Average						**5.2**	**5.0**	**5.0**	**1.0**	**18**	**15**	**20**	**2.0**	**0.10**	**0.0031**				**56**
Baseline Data - Standard Deviation						2.8	2.1	0.0	0.0	21	5.6	0.0	0.63	0.043	0.004				95
Baseline Data Average + 3xStandard Deviation						14	11	5.0	1.0	83	32	20	3.9	0.23	0.016				340
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient																			
	MW-16 surface																		
08-10737/38	MW-16	2008	1	Phase I	0	4.9	**5.2**	<5.0	<1.0	*200*	**22**	<20	1.3	<0.10	**0.0049**	<10	4.3	87	**96**
FM10-16WA	MW-16	2010	3	Phase I	0-15	**6.0**	**10**	2.0	<0.50	**41**	14	13	2.0	<0.10	<0.020	<10	<10	72	**82**
FM12-16A-D	MW-16	2012	5	Phase I	0-15	**8.6**	**22**	3.5	<0.50	**170**	**42**	**22**	**3.1**	<0.50	<0.050	<10	<10	67	**77**
FM-NH-MW-16-S	MW-16	2014	7	Phase II	0-15	**5.6**	**6.6**	2.0	0.21	**79**	**28**	11	**3.0**	<0.050	<0.1	<10	<10	65.0	**75**
	MW-16	2017	10	Phase II															#N/A
	MW-16	2022	15	Phase II															#N/A
	MW-16	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	MW-16 depth																		
08-10739/40	MW-16	2008	1	Phase I	40	<3.0	<5.0	<5.0	<1.0	**24**	<15	<20	1.4	<0.10	<0.0030	<10	4.1	16	25
FM10-16WB	MW-16	2010	3	Phase I	40-50	4.0	**11**	2.0	<0.50	13	9.0	16	2.0	<0.10	<0.020	<10	<10	<20	20
FM12-16B	MW-16	2012	5	Phase I	40-50	4.9	**16**	2.8	<0.50	**49**	**24**	14	**2.6**	<0.50	<0.050	<10	<10	34	44
FM-NH-MW-16-D	MW-16	2014	7	Phase II	30-40	3.6	**5.2**	1.6	<0.10	15	11	8	2.0	<0.050	<0.1	<10	<10	<10	15
	MW-16	2017	10	Phase II															#N/A
	MW-16	2022	15	Phase II															#N/A
	MW-16	2032	25	Phase II															#N/A
				Phase III															#N/A

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Downgradient																			
	MW-12 surface																		
08-10725/26	MW-12	2008	1	Phase I	0	5.0	**6.5**	<5.0	<1.0	17	<15	<20	0.77	<0.10	<0.0030	<10	4.4	32	41
FM10-12WA	MW-12	2010	3	Phase I	0-15	5.0	**13**	3.0	<0.50	**28**	13	16	1.0	<0.10	<0.020	<10	14	<20	29
FM12-12A	MW-12	2012	5	Phase I	0-15	**6.4**	**26**	3.8	<0.50	**36**	**23**	15	**2.1**	<0.50	<0.050	<10	<10	61	**71**
FM-NH-MW-12-S	MW-12	2014	7	Phase II	0-15	**20.5**	**9.35**	2.25	<0.5	**69.5**	**24.5**	11.5	**3**	<0.10	<0.1	6	11	<50	42
	MW-12	2017	10	Phase II															#N/A
	MW-12	2022	15	Phase II															#N/A
	MW-12	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW-12 depth																		
08-10727/28	MW-12	2008	1	Phase I	40	3.5	**7.2**	<5.0	<1.0	**21**	<15	<20	1.4	<0.10	<0.0030	<10	<4.0	25	32
FM10-12WB	MW-12	2010	3	Phase I	40-50	4.0	**12**	2.0	<0.50	14	10	15	1.0	<0.10	<0.10	<10	13	<20	28
FM12-12B	MW-12	2012	5	Phase I	40-50	**5.7**	**24**	3.6	<0.50	**25**	**19**	13	2.0	<0.50	<0.050	<10	20	15	40
FM-NH-MW-12-D	MW-12	2014	7	Phase II	30-40	4.5	**8.7**	2.7	<0.10	**19**	13	11.0	**2.7**	<0.050	<0.1	41	84	14	**139**
	MW-12	2017	10	Phase II															#N/A
	MW-12	2022	15	Phase II															#N/A
	MW-12	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	MW-13 surface																		
08-10700/01	MW-13	2008	1	Phase I	0	3.5	<5.0	<5.0	<1.0	**34**	<15	<20	0.70	<0.10	<0.0030	<10	4.1	57	**66**
FM10-13WA	MW-13	2010	3	Phase I	0-15	4.0	**9.0**	2.0	<0.50	**42**	10	12	1.0	<0.10	<0.10	<10	<10	25	35
FM12-13A	MW-13	2012	5	Phase I	0-15	**5.4**	**21**	3.1	<0.50	**56**	**20**	14	**2.3**	<0.50	<0.050	<10	11	26	42
FM-NH-MW-13-S	MW-13	2014	7	Phase II	0-15	4.8	**8.3**	2.1	<0.10	**41**	14	12	**2.2**	<0.050	<0.1	<10	<10	54	**64**
	MW-13	2017	10	Phase II															#N/A
	MW-13	2022	15	Phase II															#N/A
	MW-13	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW-13 depth																		
08-10702/03	MW-13	2008	1	Phase I	40	4.75	**5.1**	<5.0	<1.0	**33**	<15	<20	1.5	<0.10	<0.0030	<10	3.5	63	**71**
FM10-13WB	MW-13	2010	3	Phase I	40-50	4.0	**11**	2.0	<0.50	**27**	9.0	14	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-13B	MW-13	2012	5	Phase I	40-50	**9.4**	**26**	4.2	<0.50	**140**	**21**	15	**2.2**	<0.50	<0.050	10	15	11	36
FM-NH-MW-13-D	MW-13	2014	7	Phase II	30-40	3.8	**7.3**	1.7	<0.10	**26**	11	9.5	1.7	<0.050	<0.1	32	660	74	**766**
	MW-13	2017	10	Phase II															#N/A
	MW-13	2022	15	Phase II															#N/A
	MW-13	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW-14 surface																		
08-10733/34	MW-14	2008	1	Phase I	0	3.2	<5.0	<5.0	<1.0	**20**	<15	<20	0.69	<0.10	<0.0030	<10	<4.0	87	**94**
FM10-14WA	MW-14	2010	3	Phase I	0-15	**25**	**13**	2.0	<0.50	8.0	10	15	2.0	<0.10	<0.10	<10	<10	33	43
FM12-14A	MW-14	2012	5	Phase I	0-15	**6.3**	**24**	3.5	<0.50	**23.8**	**21**	16	**2.5**	<0.50	<0.050	<10	<10	19	29
FM-NH-MW-14-S	MW-14	2014	7	Phase II	0-15	4.2	**7**	1.8	0.12	13	14	9	**2.3**	<0.050	<0.1	<10	<10	<10	15
	MW-14	2017	10	Phase II															#N/A
	MW-14	2022	15	Phase II															#N/A
	MW-14	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW-14 depth																		
08-10735/36	MW-14	2008	1	Phase I	40	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	0.28	<0.10	<0.0030	<10	<4.0	14	21
FM10-14WB	MW-14	2010	3	Phase I	40-50	4.0	**15**	2.0	<0.50	6.0	9.0	**23**	2.0	<0.10	<0.020	<10	<10	<20	20
FM12-14B	MW-14	2012	5	Phase I	40-50	4.3	**15**	2.3	<0.50	5.7	10	9.0	1.4	<0.50	<0.050	<10	<10	<10	15
FM-NH-MW-14-D	MW-14	2014	7	Phase II	30-40	2.4	4.7	1.4	<0.10	3.2	8.1	7.4	1.5	<0.050	<0.1	<10	<10	<10	15
	MW-14	2017	10	Phase II															#N/A
	MW-14	2022	15	Phase II															#N/A
	MW-14	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
	MW-15 surface																		
08-10729/30	MW-15	2008	1	Phase I	0	**5.3**	**7.4**	<5.0	<1.0	**37**	**22**	<20	0.51	<0.10	<0.0030	<10	<4.0	21	28
FM10-15WA	MW-15	2010	3	Phase I	0-15	**6.0**	**13**	2.0	<0.50	14	11	18	2.0	<0.10	<0.020	<10	15	<20	30
FM12-15A	MW-15	2012	5	Phase I	0-15	**8.8**	**22**	3.2	<0.50	**30**	**38**	16	**2.5**	<0.50	<0.050	<10	<10	42	52
FM-NH-MW-15-S	MW-15	2014	7	Phase II	0-15	5.1	**10**	2.7	<0.10	10	**15**	11	**3.8**	<0.050	<0.1	<10	<10	<10	15
	MW-15	2017	10	Phase II															#N/A
	MW-15	2022	15	Phase II															#N/A
	MW-15	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	MW-15 depth																		
08-10731/32	MW-15	2008	1	Phase I	40	3.3	**5.4**	<5.0	<1.0	<10	**43**	<20	0.27	<0.10	<0.0030	<10	<4.0	160	**167**
FM10-15WB	MW-15	2010	3	Phase I	40-50	5.0	**13**	2.0	<0.50	6.0	10	18	**3.0**	<0.10	<0.020	<10	18	<20	33
FM12-15B	MW-15	2012	5	Phase I	40-50	**5.5**	**20**	3.0	<0.50	14	**21**	14	1.8	<0.50	<0.050	<10	<10	42	52
FM-NH-MW-15-D	MW-15	2014	7	Phase II	30-40	**5.4**	**7.9**	1.5	0.15	11.0	11.0	8	**2.4**	<0.050	<0.1	<10	61	240	**306**
	MW-15	2017	10	Phase II															#N/A
	MW-15	2022	15	Phase II															#N/A
	MW-15	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - G217 Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**5.9**	**5.9**	**5.0**	**1.0**	**12**	**41**	**20**	**2.1**	**0.10**	**0.0030**				**141**
Baseline Data - Standard Deviation						4.1	3.2	0.0	0.0	12	57	0.0	0.77	0.0	0.0				265
Baseline Data + 3xStandard Deviation						18	15	5.0	1.0	47	212	20	4.4	0.10	0.0030				935
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient - no identified upgradient locations																			
Downgradient																			
	FM-5 Surface																		
08-10881/82	FM-5	2008	1	Phase I	0	2.4	3.8	<5.0	<1.0	<10	<15	<20	0.65	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-5A	FM-5	2010	3	Phase I	0-15	5.0	**11**	3.0	<0.50	4.0	12	12	2.0	<0.10	<0.20	<10	<10	<20	15
FM12-5A	FM-5	2012	5	Phase I	0-15	2.0	**7.9**	1.5	<0.50	1.7	9.0	7.5	0.60	<0.50	<0.050	<10	<10	<10	15
FM-W-5-S	FM-5	2014	7	Phase II	0-15	5.9	**8**	2.9	<0.10	5.4	14	14	**3.1**	<0.050	<0.1	<10	<10	<10	15
	FM-5	2017	10	Phase II															#N/A
	FM-5	2022	15	Phase II															#N/A
	FM-5	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-5 Depth																		
08-10883/84	FM-5	2008	1	Phase I	40	5.3	**8.1**	<5.0	<1.0	<10	<15	<20	**2.2**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-5B	FM-5	2010	3	Phase I	40-50	**6.0**	**12**	3.0	<0.50	5.0	14	13	**3.0**	<0.10	<0.20	<10	<10	47	57
FM12-5B	FM-5	2012	5	Phase I	40-50	2.2	**8.9**	1.7	<0.50	1.7	9.0	7.7	1.0	<0.50	<0.050	<10	<10	<10	15
FM-W-5-D	FM-5	2014	7	Phase II	40-50	**7.3**	**12**	4.15	<0.5	6.05	18.5	18.5	**3.35**	<0.10	<0.1	<10	<10	<50	35
	FM-5	2017	10	Phase II															#N/A
	FM-5	2022	15	Phase II															#N/A
	FM-5	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-6 surface																		
08-10869/70	FM-6	2008	1	Phase I	0	**6.0**	**7.4**	<5.0	<1.0	**13**	**310**	<20	**5.8**	<0.10	<0.0030	<10	18	1500	**1523**
FM10-6A	FM-6	2010	3	Phase I	0-15	**7.0**	**11**	3.0	<0.50	**23**	**483**	14	2.0	<0.10	<0.10	<10	<10	<20	20
FM12-6A-D	FM-6	2012	5	Phase I	0-15	**22**	**21**	3.4	<0.50	**27**	**119**	15	**2.5**	<0.50	<0.050	<10	<10	176	**186**
FM-W-6-S	FM-6	2014	7	Phase II	0-15	**7.9**	**8.8**	2.1	0.19	**28**	**200**	12	**2.5**	<0.050	<0.1	<10	<10	620	**630**
	FM-6	2017	10	Phase II															#N/A
	FM-6	2022	15	Phase II															#N/A
	FM-6	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-6 depth																		
08-10871/72	FM-6	2008	1	Phase I	40	**6.3**	**6.8**	<5.0	<1.0	**14**	**270**	<20	2.0	<0.10	<0.0030	20	22	1500	**1527**
FM10-6B	FM-6	2010	3	Phase I	40-50	**7.0**	**9.0**	2.0	<0.50	11	**52**	11	2.0	<0.10	<0.10	<10	<10	51	61
FM12-6B	FM-6	2012	5	Phase I	40-50	**8.9**	**15**	2.4	<0.50	**20**	**234**	10	1.9	<0.50	<0.050	<10	<10	648	**658**
FM-W-6-D	FM-6	2014	7	Phase II	40-50	**14.0**	**9**	2.4	0.20	**32**	**140**	14	**2.4**	<0.050	<0.1	<10	<10	12	22
	FM-6	2017	10	Phase II															#N/A
	FM-6	2022	15	Phase II															#N/A
	FM-6	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-7 surface																		
08-10873/74	FM-7	2008	1	Phase I	0	<3.0	**6.5**	<5.0	<1.0	**19**	17	<20	**2.4**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-7A	FM-7	2010	3	Phase I	0-15	**7.0**	**12**	3.0	<0.50	**56**	40	**23**	**3.0**	<0.10	<0.020	<10	10	<20	25
FM12-7A	FM-7	2012	5	Phase I	0-15	**12**	**22**	3.3	<0.50	**47**	24	19	**3.5**	<0.50	<0.050	<10	<10	<10	15
FM-W-7-S	FM-7	2014	7	Phase II	0-15	4	**8.3**	2.2	0.24	**25**	21	14.0	**3.5**	<0.050	<0.1	<10	<10	<10	15
	FM-7	2017	10	Phase II															#N/A
	FM-7	2022	15	Phase II															#N/A
	FM-7	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - G217 Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-7 depth																		
08-10875/76	FM-7	2008	1	Phase I	40	3.7	**6.9**	<5.0	<1.0	**32**	20	<20	**2.9**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-7B	FM-7	2010	3	Phase I	40-50	2.0	5.0	1.0	<0.50	3.0	8.0	8.0	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-7B	FM-7	2012	5	Phase I	40-50	**13**	**21**	3.4	0.7	**79**	30	**27**	**3.2**	<0.50	<0.050	<10	<10	14	24
FM-W-7-D	FM-7	2014	7	Phase II	40-50	1.9	2.6	0.74	<0.10	2	6	4.6	<1.0	<0.050	<0.1	<10	<10	<10	15
	FM-7	2017	10	Phase II															#N/A
	FM-7	2022	15	Phase II															#N/A
	FM-7	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-8 surface																		
08-10877/78	FM-8	2008	1	Phase I	0	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	1.5	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-8A	FM-8	2010	3	Phase I	0-15	5.0	**10**	2.0	<0.50	4.0	11	12	2.0	<0.10	<0.020	<10	12	<20	27
FM12-8A	FM-8	2012	5	Phase I	0-15	**6.6**	**13**	2.1	<0.50	4.9	11	8.0	1.7	<0.50	<0.050	<10	<10	<10	15
FM-W-8-S	FM-8	2014	7	Phase II	0-15	4.1	**5.9**	1.5	<0.10	3.8	9	8.4	**2.4**	<0.050	<0.1	<10	<10	<10	15
	FM-8	2017	10	Phase II															#N/A
	FM-8	2022	15	Phase II															#N/A
	FM-8	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-8 depth																		
08-10879/80	FM-8	2008	1	Phase I	40	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	**2.2**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-8B	FM-8	2010	3	Phase I	40-50	**6.0**	**24**	2.0	<0.50	4.0	9.0	**43**	**3.0**	<0.10	<0.40	<10	<10	<20	20
FM12-8B	FM-8	2012	5	Phase I	40-50	**17**	**20**	3.1	<0.50	5.4	27	13	**3.5**	<0.50	<0.050	<10	<10	<10	15
FM-W-8-D	FM-8	2014	7	Phase II	40-50	3.4	3.4	0.96	<0.10	1.8	6	5.8	1.2	<0.050	<0.1	<10	<10	<10	15
	FM-8	2017	10	Phase II															#N/A
	FM-8	2022	15	Phase II															#N/A
	FM-8	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

Note: All locations are downgradient, there are no identified upgradient locations.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - Billboard Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As* (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**8.8**	**5.0**	**5.0**	**1.0**	**10**	**15**	**20**	**1.8**	**0.10**	**0.10**				**170**
Baseline Data - Standard Deviation						16	2.7	0.0	0.0	0.0	6.9	2.3	2.6	0.0	0.0				373
Baseline Data + 3xStandard Deviation						56	13	5.0	1.00	10.0	36	27	10	0.10	0.10				1288
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient																			
	FM-1 Surface																		
08-10861/62	FM-1	2008	1	Phase I	0	3.8	<5.0	<5.0	<1.0	<10	<15	<20	**1.9**	<0.10	<0.0030	<10	<4.0	28	35
FM10-1A	FM-1	2010	3	Phase I	0-15	3.0	**8.0**	2.0	<0.50	7.0	**17**	10	**2.0**	<0.10	<0.020	<10	<10	<20	20
FM12-1A	FM-1	2012	5	Phase I	0-15	7.0	**17**	2.6	<0.50	**12**	**29**	11	**1.9**	<0.50	<0.050	<10	<10	29	39
FM-BIL-1-S	FM-1	2014	7	Phase II	0-15	5	**7**	1.8	0.15	**10.0**	**22**	10	**2.2**	<0.050	<0.1	<10	<10	<10	15
	FM-1	2017	10	Phase II															#N/A
	FM-1	2022	15	Phase II															#N/A
	FM-1	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-1 Depth																		
08-10863/64	FM-1	2008	1	Phase I	40	<3.0	3.8	<5.0	<1.0	<10	<15	<20	1.2	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-1B	FM-1	2010	3	Phase I	40-50	6.0	**13**	3.0	<0.50	7.0	**19**	16	**2.0**	<0.10	<0.10	<10	36	40	81
FM12-1B	FM-1	2012	5	Phase I	40-50	**12**	**19**	2.9	<0.50	7.4	**23**	11	**1.9**	<0.50	<0.050	<10	<10	117	127
FM-BIL-1-D	FM-1	2014	7	Phase II	40-50	7	**7.8**	1.8	0.19	2.9	**23**	7	1.6	0.1	<0.1	<20	<20	94	114
	FM-1	2017	10	Phase II															#N/A
	FM-1	2022	15	Phase II															#N/A
	FM-1	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Billboard Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As* (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Downgradient																			
	FM-2 surface																		
08-10857/58	FM-2	2008	1	Phase I	0	5.2	**8.2**	<5.0	<1.0	<10	12	<20	1.7	<0.10	<0.0030	<10	<4.0	28	35
FM10-2A	FM-2	2010	3	Phase I	0-15	*286*	*294*	4.0	<0.50	8.0	**76**	15	**2.0**	<0.10	<0.020	<10	<10	<20	20
FM12-2A	FM-2	2012	5	Phase I	0-15	7.9	**16**	2.7	<0.50	7.6	**18**	11	1.6	<0.50	<0.050	<10	<10	36	46
FM-BIL-2-S	FM-2	2014	7	Phase II	0-15	7.4	**11**	3.4	<0.10	9.9	**22**	13	**2.6**	0.069	<0.1	<10	<10	<10	15
	FM-2	2017	10	Phase II															#N/A
	FM-2	2022	15	Phase II															#N/A
	FM-2	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-2 depth																		
08-10859/60	FM-2	2008	1	Phase I	40	3.2	**5.4**	<5.0	<1.0	<10	<15	<20	1.4	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-2B	FM-2	2010	3	Phase I	40-50	**13**	**18**	4.0	<0.50	7.0	**18**	**23**	**2.0**	<0.10	<0.020	<10	<10	295	**305**
FM12-2B	FM-2	2012	5	Phase I	40-50	**10**	**19**	3.3	<0.50	5.8	**18**	12	1.7	<0.50	<0.050	<10	<10	<10	15
FM-BIL-2-D	FM-2	2014	7	Phase II	40-50	5.6	**9**	2.8	<0.10	5.6	**16**	11	**2.2**	<0.050	<0.1	<10	<10	<10	15
	FM-2	2017	10	Phase II															#N/A
	FM-2	2022	15	Phase II															#N/A
	FM-2	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-3 surface																		
08-10853/54	FM-3	2008	1	Phase I	0	6.4	**7.6**	<5.0	<1.0	<10	<15	<20	**1.8**	<0.10	<0.0030	<10	6.4	60	71
FM10-3A	FM-3	2010	3	Phase I	0-15	8.0	**19**	3.0	<0.50	6.0	**16**	**27**	**3.0**	<0.10	<0.020	<10	<10	<20	20
FM12-3A	FM-3	2012	5	Phase I	0-15	**13**	**20**	3.2	<0.50	8.9	**22**	12	**2.6**	<0.50	<0.050	<10	<10	48	58
FM-BIL-3-S	FM-3	2014	7	Phase II	0-15	7.8	**8.6**	2.2	0.27	**26**	**33**	9.3	**3.0**	<0.050	<0.1	<10	<10	<10	15
	FM-3	2017	10	Phase II															#N/A
	FM-3	2022	15	Phase II															#N/A
	FM-3	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Billboard Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As* (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-3 depth																		
08-10855/56	FM-3	2008	1	Phase I	40	3.7	**6.1**	<5.0	<1.0	<10	<15	<20	**2.3**	<0.10	<0.0030	<10	<4.0	34	41
FM10-3B	FM-3	2010	3	Phase I	40-50	6.0	**17**	2.0	<0.50	4.0	11	**27**	**2.0**	<0.10	<0.10	<10	11	<20	26
FM12-3B	FM-3	2012	5	Phase I	40-50	**20**	**24**	3.8	<0.50	**10**	**28**	16	**3.4**	<0.50	<0.050	<10	<10	44	54
No sample collected - ma	FM-3	2014	7	Phase II															#N/A
	FM-3	2017	10	Phase II															#N/A
	FM-3	2022	15	Phase II															#N/A
	FM-3	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-4 surface																		
08-10865/66	FM-4	2008	1	Phase I	0	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	0.61	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-4A	FM-4	2010	3	Phase I	0-15	2.0	**5.0**	1.0	<0.50	2.0	6.0	7.0	1.0	<0.10	<0.10	<10	11	<20	26
FM12-4A	FM-4	2012	5	Phase I	0-15	2.0	**7.8**	1.5	<0.50	1.4	8.0	5.6	0.50	<0.50	<0.050	<10	<10	<10	15
FM-BIL-4-S	FM-4	2014	7	Phase II	0-15	4.9	**5.8**	1.8	0.41	**12**	**69**	8	1.5	<0.050	<0.1	<10	<10	<10	15
	FM-4	2017	10	Phase II															#N/A
	FM-4	2022	15	Phase II															#N/A
	FM-4	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-4 depth																		
08-10867/68	FM-4	2008	1	Phase I	40	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	0.60	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-4B	FM-4	2010	3	Phase I	40-50	3.0	**9.0**	2.0	<0.50	2.0	7.0	13	**2.0**	<0.10	<0.10	<10	<10	<20	20
FM12-4B	FM-4	2012	5	Phase I	40-50	1.6	**8.1**	1.3	<0.50	1.1	7.0	5.0	<0.50	<0.50	<0.050	<10	<10	<10	15
FM-BIL-4-D	FM-4	2014	7	Phase II	40-50	1.85	4.55	1.285	<0.5	1.6	8.5	6.7	**2**	<0.10	<0.1	<10	<10	<50	35
	FM-4	2017	10	Phase II															#N/A
	FM-4	2022	15	Phase II															#N/A
	FM-4	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - Hazmat Storage East Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**4.4**	**7.2**	**5.0**	**1.0**	**10**	**15**	**20**	**1.2**	**0.10**	**0.0030**				**37**
Baseline Data - Standard Deviation						1.5	0.77	0.0	0.0	7.6	14	0.0	0.44	0.0	0.0011				30
Baseline Data + 3xStandard Deviation						8.8	9.5	5.0	1.0	33	57	20	2.5	0.10	0.0062				125
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH SUM will appear when F1, F2, F3 fraction results are entered**
Upgradient - no identified upgradient locations																			
Downgradient																			
	FM-9 Surface																		
08-10787/88	FM-9	2008	1	Phase I	0	<3.0	5.7	<5.0	<1.0	<10	<15	<20	**1.4**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-9A	FM-9	2010	3	Phase I	0-15	4.0	**10**	2.0	<0.50	3.0	11	11	**2.0**	<0.10	<0.20	<10	<10	<20	20
FM12-9A	FM-9	2012	5	Phase I	0-15	**13**	**24**	3.4	<0.50	5.9	**18**	13	**2.2**	<0.50	<0.050	<10	<10	<10	15
FM-HAZ-9-S	FM-9	2014	7	Phase II	0-15	4	**8**	2.2	<0.10	3.1	13	11	**1.8**	<0.050	<0.1	<10	<10	<10	15
	FM-9	2017	10	Phase II															#N/A
	FM-9	2022	15	Phase II															#N/A
	FM-9	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-9 Depth																		
08-10789/90	FM-9	2008	1	Phase I	40	3.8	**7.5**	<5.0	<1.0	<10	<15	<20	**2.1**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-9B	FM-9	2010	3	Phase I	40-50	4.0	**11**	3.0	<0.50	3.0	12	12	1.0	<0.10	<0.10	<10	<10	<20	20
FM12-9B	FM-9	2012	5	Phase I	40-50	**9.2**	**26**	4.2	<0.50	6.1	**21**	18	**2.5**	<0.50	<0.050	<10	11	11	27
FM-HAZ-9-D	FM-9	2014	7	Phase II	40-50	**5**	**9.3**	2.3	<0.10	3.3	13	12	**1.9**	<0.050	<0.1	<10	<10	<10	15
	FM-9	2017	10	Phase II															#N/A
	FM-9	2022	15	Phase II															#N/A
	FM-9	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Hazmat Storage East Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-10 surface																		
08-10791/92	FM-10	2008	1	Phase I	0	**4.4**	5.9	<5.0	<1.0	<10	**18**	<20	**1.4**	<0.10	<0.0030	<10	4.2	130	**139**
FM10-10A	FM-10	2010	3	Phase I	0-15	**5.0**	**9.0**	2.0	<0.50	7.0	14	11	<1.0	<0.10	<0.10	<10	<10	<20	20
FM12-10A-D	FM-10	2012	5	Phase I	0-15	4.1	**18**	2.7	<0.50	5.5	14	11	0.70	<0.50	<0.050	<10	<10	39	**49**
FM-HAZ-10-S	FM-10	2014	7	Phase II	0-15	4.2	7	1.7	<0.10	6.7	14	9.9	<1.0	<0.050	<0.1	<10	<10	<10	15
	FM-10	2017	10	Phase II															#N/A
	FM-10	2022	15	Phase II															#N/A
	FM-10	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-10 depth																		
08-10793/94	FM-10	2008	1	Phase I	40	**5.0**	7.1	<5.0	<1.0	<10	13	<20	**1.9**	<0.10	<0.0030	<10	6.0	100	**111**
FM10-10B	FM-10	2010	3	Phase I	40-50	3.0	**8.0**	2.0	<0.50	4.0	10	10	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-10B	FM-10	2012	5	Phase I	40-50	**9.0**	**23**	2.8	<0.50	2.2	11	9.8	0.90	<0.50	<0.050	<10	<10	23	33
No sample collected - ma	FM-10	2014	7	Phase II															#N/A
	FM-10	2017	10	Phase II															#N/A
	FM-10	2022	15	Phase II															#N/A
	FM-10	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-11 surface																		
08-10795/96	FM-11	2008	1	Phase I	0	3.6	<5.0	<5.0	<1.0	<10	<15	<20	**1.3**	<0.10	**0.0061**	<10	<4.0	30	37
FM10-11A	FM-11	2010	3	Phase I	0-15	**5.0**	**10**	2.0	<0.50	9.0	**53**	12	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-11A	FM-11	2012	5	Phase I	0-15	**4.4**	**20**	2.7	<0.50	6.4	12	10	**1.6**	<0.50	<0.050	<10	<10	43	**53**
FM-HAZ-11-S	FM-11	2014	7	Phase II	0-15	**5.6**	**8.7**	2.1	0.13	**13**	**20.5**	10.45	**2.35**	<0.10	*5.95*	<10	<10	<50	35
	FM-11	2017	10	Phase II															#N/A
	FM-11	2022	15	Phase II															#N/A
	FM-11	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Hazmat Storage East Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-11 depth																		
08-10797/98	FM-11	2008	1	Phase I	40	<3.0	<5.0	<5.0	<1.0	<10	<15	<20	**1.5**	<0.10	<0.0030	<10	<4.0	17	24
FM10-11B	FM-11	2010	3	Phase I	40-50	4.0	**10**	2.0	<0.50	4.0	**16**	13	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-11B	FM-11	2012	5	Phase I	40-50	**5.0**	**21**	3.6	<0.50	4.2	15	13	**1.4**	<0.50	<0.050	<10	<10	19	29
FM-HAZ-11-D	FM-11	2014	7	Phase II	40-50	**4.8**	**7.2**	1.8	<0.10	5.2	13	10	**1.7**	<0.050	<0.1	<10	<10	<10	15
	FM-11	2017	10	Phase II															#N/A
	FM-11	2022	15	Phase II															#N/A
	FM-11	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-12 surface																		
08-10799/00	FM-12	2008	1	Phase I	0	**32**	6.1	<5.0	<1.0	<10	**66**	<20	1.0	<0.10	<0.0030	<10	<4.0	16	23
FM10-12A	FM-12	2010	3	Phase I	0-15	**9.0**	**9.0**	2.0	<0.50	7.0	**22**	10	**2.0**	<0.10	<0.020	<10	10	<20	25
FM12-12A	FM-12	2012	5	Phase I	0-15	**7.7**	**22**	3.2	<0.50	**16**	**27**	14	**2.3**	<0.50	<0.050	<10	<10	29	**39**
FM-HAZ-12-S	FM-12	2014	7	Phase II	0-15	**9.7**	**9**	2.1	0.13	**13.0**	**39**	11	**2.2**	<0.050	<0.1	<10	<10	<10	15
	FM-12	2017	10	Phase II															#N/A
	FM-12	2022	15	Phase II															#N/A
	FM-12	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-12 depth																		
08-10801/02	FM-12	2008	1	Phase I	40	**6.3**	6.7	<5.0	<1.0	**150**	**21**	<20	**1.5**	<0.10	<0.0030	<10	<4.0	16	23
FM10-12B	FM-12	2010	3	Phase I	40-50	4.0	**10**	3.0	<0.50	4.0	**16**	11	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-12B	FM-12	2012	5	Phase I	40-50	**5.1**	**16**	2.4	<0.50	7.0	**17**	10	**1.7**	<0.50	<0.050	<10	<10	27	**37**
FM-HAZ-12-D	FM-12	2014	7	Phase II	40-50	**10**	**9**	2.7	<0.10	7.3	**36**	12.0	**2.3**	<0.050	<0.1	<10	<10	<10	15
	FM-12	2017	10	Phase II															#N/A
	FM-12	2022	15	Phase II															#N/A
	FM-12	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

Note: All locations are downgradient, there are no identified upgradient locations.

N/A = not analyzed

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - Communications Northwest Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**6.0**	**8.3**	**5.0**	**1.0**	**10**	**15**	**20**	**1.7**	**0.10**	**0.10**				**40**
Baseline Data - Standard Deviation						1.6	3.8	0	0.0	8.3	4.9	4.2	1.0	0.0	0.022				6.0
Baseline Data + 3xStandard Deviation						11	20	5.0	1.0	35	30	33	4.8	0.10	0.16				58
**** If baseline average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line										*200*					*1*				
DEW Line Cleanup Tier II						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient - no identified upgradient locations																			
Downgradient																			
	FM-13 Surface																		
08-10819/20	FM-13	2008	1	Phase I	0	2.8	5.1	<5.0	<1.0	<10	15	<20	1.3	<0.10	0.014	<10	<4.0	24	31
FM10-13A	FM-13	2010	3	Phase I	0-15	5.0	**9.0**	2.0	<0.50	9.0	15	10	**2.0**	<0.10	<0.20	<10	<10	<20	20
FM12-13A-D	FM-13	2012	5	Phase I	0-15	**6.3**	**23**	3.5	<0.50	8.6	**20**	14	**2.8**	<0.050	<0.050	<10	<10	20	30
FM-CNW-13-S	FM-13	2014	7	Phase II	0-15	4.85	8.1	2.15	0.25	5.5	**17.5**	10.15	**3.2**	<0.10	<0.1	<10	<10	<50	35
	FM-13	2017	10	Phase II															#N/A
	FM-13	2022	15	Phase II															#N/A
	FM-13	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-13 Depth																		
08-10821/22	FM-13	2008	1	Phase I	40	3.6	5.0	<5.0	<1.0	<10	<15	<20	1.3	<0.10	0.0031	<10	<4.0	<9.0	12
FM10-13B	FM-13	2010	3	Phase I	40-50	5.0	**11**	3.0	<0.50	5.0	12	11	**2.0**	<0.10	<0.10	<10	13	<20	28
FM12-13B	FM-13	2012	5	Phase I	40-50	4.5	**21**	2.8	<0.50	3.1	11	10	1.7	<0.050	<0.050	<10	<10	14	24
FM-CNW-13-D	FM-13	2014	7	Phase II	40-50	4	**8.5**	2.2	<0.10	4.0	13	11	**2.6**	<0.050	<0.1	<10	<10	<10	15
	FM-13	2017	10	Phase II															#N/A
	FM-13	2022	15	Phase II															#N/A
	FM-13	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications Northwest Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-14 surface																		
08-10827/28	FM-14	2008	1	Phase I	0	**7.1**	5.3	<5.0	<1.0	<10	<15	<20	**2.0**	<0.10	0.020	<10	3.2	56	**64**
FM10-14A	FM-14	2010	3	Phase I	0-15	**8.0**	**10**	2.0	<0.50	6.0	11	9.0	**2.0**	<0.10	<0.10	<10	11	<20	26
FM12-14A	FM-14	2012	5	Phase I	0-15	**10**	**17**	2.5	<0.50	7.7	14	10	**2.7**	<0.050	**0.11**	<10	<10	46	**56**
FM-CNW-14-S	FM-14	2014	7	Phase II	0-15	**9.3**	8.2	2	0.11	6.8	15	9.2	**3.7**	<0.050	<0.1	<10	<10	13	23
	FM-14	2017	10	Phase II															#N/A
	FM-14	2022	15	Phase II															#N/A
	FM-14	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-14 depth																		
08-10829/30	FM-14	2008	1	Phase I	40	**14**	7.6	<5.0	<1.0	<10	<15	<20	**2.3**	<0.10	0.0043	<10	<4.0	25	32
FM10-14B	FM-14	2010	3	Phase I	40-50	4	8	2	<0.50	**10**	11	9.0	**2.0**	<0.10	<0.10	<10	<10	<20	20
FM12-14B	FM-14	2012	5	Phase I	40-50	**7.5**	**22**	3.2	<0.50	4.7	13	13.0	**1.9**	<0.050	<0.050	<10	<10	90	**100**
FM-CNW-14-D	FM-14	2014	7	Phase II	40-50	**7.9**	**10**	2.7	<0.10	5.7	**18**	13.0	**2.9**	<0.050	<0.1	<10	<10	<10	15
	FM-14	2017	10	Phase II															#N/A
	FM-14	2022	15	Phase II															#N/A
	FM-14	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-15 surface																		
No Sample Collected	FM-15	2008	1	Phase I	0-15														
FM10-15A	FM-15	2010	3	Phase I	0-15	3.0	7.0	1.0	<0.50	3.0	6.0	7.0	**2.0**	<0.10	<0.20	<10	<10	29	39
FM12-15A	FM-15	2012	5	Phase I	0-15	**6.1**	**19**	2.9	<0.50	4.3	**16**	15	1.6	<0.0050	<0.050	<10	17	163	**185**
FM-CNW-15-S	FM-15	2014	7	Phase II	0-15	**8.4**	5.1	0.7	0.16	2.8	7	4	**2.0**	<0.050	<0.2	<30	<30	120	**150**
	FM-15	2017	10	Phase II															#N/A
	FM-15	2022	15	Phase II															#N/A
	FM-15	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications Northwest Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb (mg/kg)	Zn* (mg/kg)	Cr* (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-15 depth																		
No Sample Collected	FM-15	2008	1	Phase I	40-50														
FM10-15B	FM-15	2010	3	Phase I	40-50	4.0	8.0	2.0	<0.50	3.0	9.0	9.0	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-15B	FM-15	2012	5	Phase I	40-50	**6.9**	**20**	3.3	<0.50	5.2	**19**	18	**1.9**	<0.0050	<0.050	<10	<10	101	**111**
FM-CNW-15-D	FM-15	2014	7	Phase II	40-50	4.6	7.7	2.0	0.21	3.4	13	13	1.7	<0.050	<0.1	<10	<10	<10	15
	FM-15	2017	10	Phase II															#N/A
	FM-15	2022	15	Phase II															#N/A
	FM-15	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-16 surface																		
08-10823/24	FM-16	2008	1	Phase I	40	4.3	7.1	<5.0	<1.0	<10	<15	<20	**1.9**	<0.10	<0.0030	<10	18	60	**83**
FM10-16A	FM-16	2010	3	Phase I	40-50	**7.0**	**12**	2.0	<0.50	4.0	13	14	<1.0	<0.10	<0.10	<10	13	26	**44**
FM12-16A	FM-16	2012	5	Phase I	40-50	**9.4**	**24**	4.1	<0.50	**13**	**21**	17	**3.3**	<0.050	<0.050	<10	42	181	**228**
FM-CNW-16-S	FM-16	2014	7	Phase II	0-15	**30**	**9**	2.4	0.11	260	**21**	**61**	**8.6**	<0.050	<0.1	<10	<10	54	**64**
	FM-16	2017	10	Phase II															#N/A
	FM-16	2022	15	Phase II															#N/A
	FM-16	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-16 depth																		
08-10825/26	FM-16	2008	1	Phase I	30	4.2	6.7	<5.0	<1.0	<10	**24**	<20	1.1	<0.10	<0.0030	<10	<4.0	15	22
FM10-16B	FM-16	2010	3	Phase I	30	**9.0**	**17**	2.0	<0.50	5.0	12	**27**	**2.0**	<0.10	<0.020	<10	11	23	39
FM12-16B	FM-16	2012	5	Phase I	40-50	5.9	**21**	2.9	<0.50	9.7	14	12	**1.9**	<0.050	<0.050	<10	<10	106	**116**
FM-CNW-16-D	FM-16	2014	7	Phase II	40-50	**7.0**	7	2.1	<0.10	**12**	15	11	**3.0**	<0.050	<0.1	<10	<10	<10	15
	FM-16	2017	10	Phase II															#N/A
	FM-16	2022	15	Phase II															#N/A
	FM-16	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Total Hydrocarbons (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

Note: All locations are downgradient, there are no identified upgradient locations.

#N/A represents a function that automatically calculates modified TPH value for charts.

Legend

XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

FOX-M Hall Beach - Communications North Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
Background Data - Average						6.3	5.0	5.0	1.0	10	15	20	1.0	N/A	0.21				N/A
Baseline Data - Average						**5.7**	**7.6**	**5.0**	**1.0**	**10**	**15**	**20**	**1.8**	**0.10**	**0.032**				**40**
Baseline Data - Standard Deviation						2.1	2.1	1.4	0.19	2.2	14	0.0	0.94	0.0	0.024				6.6
Baseline Data + 3xStandard Deviation						12	14	9.1	1.6	17	57	20	4.7	0.10	0.10				60
**** If baseline or background average was below the detection limit, the average has been modified to match the detection limit value.***																			
DEW Line Cleanup Tier I Criteria										*200*					*1*				
DEW Line Cleanup Tier II Criteria & Hydrocarbon Action Level						*100*	*100*	*50*	*5*	*500*	*500*	*250*	*30*	*2.0*	*5*				*2500*
Monitoring Data																			**TPH Sum will appear when F1, F2 and F3 fractions are entered.**
Upgradient - no identified upgradient locations																			
Downgradient																			
	FM-17 Surface																		
08-10831/32	FM-17	2008	1	Phase I	0	4.2	6.9	<5.0	<1.0	<10	<15	<20	1.7	<0.10	0.0036	<10	<4.0	19	26
FM10-17A	FM-17	2010	3	Phase I	0-15	**6.0**	**15**	3.0	<0.50	5.0	14	**21**	**2.0**	<0.10	<0.20	<10	<10	<20	20
FM12-17A	FM-17	2012	5	Phase I	0-15	4.8	**19**	2.7	<0.50	3.8	13	11	1.5	<0.50	<0.050	<10	<10	26	36
FM-CNO-17-S	FM-17	2014	7	Phase II	0-15	5	**10**	2.7	<0.10	5.0	**17**	13	**2.5**	<0.050	<0.1	<10	<10	<10	15
	FM-17	2017	10	Phase II															#N/A
	FM-17	2022	15	Phase II															#N/A
	FM-17	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-17 Depth																		
08-10833/34	FM-17	2008	1	Phase I	40	3.4	6.1	<5.0	<1.0	<10	<15	<20	1.8	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-17B	FM-17	2010	3	Phase I	40-50	5.0	**13**	3.0	<0.50	4.0	12	15	**2.0**	<0.10	<0.020	<10	12	<20	27
FM12-17B	FM-17	2012	5	Phase I	40-50	4.8	**21**	3.1	<0.50	4.0	13	12	**2.0**	<0.50	<0.050	<10	<10	26	36
FM-CNO-17-D	FM-17	2014	7	Phase II	40-50	**41**	**11**	2.5	<0.10	4.6	14	12	1.7	<0.050	<0.1	<10	<10	<10	15
	FM-17	2017	10	Phase II															#N/A
	FM-17	2022	15	Phase II															#N/A
	FM-17	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications North Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-18 surface																		
08-10835/36	FM-18	2008	1	Phase I	0	4.2	**8.1**	<5.0	<1.0	<10	<15	<20	**1.9**	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-18A	FM-18	2010	3	Phase I	0-15	4.0	**11**	2.0	<0.20	4.0	15	14	**2.0**	<0.10	<0.020	<10	<10	<20	20
FM12-18A-D	FM-18	2012	5	Phase I	0-15	4.2	**21**	2.8	<0.50	6.3	14	11	**1.9**	<0.50	<0.050	<10	<10	50	**60**
FM-CNO-18-S	FM-18	2014	7	Phase II	0-15	2.4	6.9	0.995	0.12	1.8	6.3	4.7	**3**	<0.10	<0.05	<10	<10	<50	35
	FM-18	2017	10	Phase II															#N/A
	FM-18	2022	15	Phase II															#N/A
	FM-18	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-18 depth																		
08-10837/38	FM-18	2008	1	Phase I	40	<3.0	5.7	<5.0	<1.0	<10	<15	<20	**1.9**	<0.10	<0.0030	<10	<4.0	18	25
FM10-18B	FM-18	2010	3	Phase I	40-50	4.0	**12**	3.0	<0.50	4.0	12	15	**2.0**	<0.10	<0.020	<10	<10	<20	20
FM12-18B	FM-18	2012	5	Phase I	40-50	4.8	**21**	3.3	<0.50	9.8	**16**	12	**2.0**	<0.50	<0.50	<10	<10	49	**59**
No sample collected - ma	FM-18	2014	7	Phase II															#N/A
	FM-18	2017	10	Phase II															#N/A
	FM-18	2022	15	Phase II															#N/A
	FM-18	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-19 surface																		
08-10839/40	FM-19	2008	1	Phase I	0	3.5	7.2	<5.0	<1.0	<10	<15	<20	1.7	<0.10	<0.0030	<10	<4.0	12	19
FM10-19A	FM-19	2010	3	Phase I	0-15	5.0	**12**	3.0	<0.50	4.0	10	16	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-19A	FM-19	2012	5	Phase I	0-15	4.6	**21**	3.2	<0.50	4.9	13	12	**2.2**	<0.50	<0.050	<10	<10	14	24
FM-CNO-19-S	FM-19	2014	7	Phase II	0-15	5.6	**9.0**	2.2	<0.10	4.9	14	11	**2.5**	<0.050	<0.1	<10	<10	<10	15
	FM-19	2017	10	Phase II															#N/A
	FM-19	2022	15	Phase II															#N/A
	FM-19	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications North Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-19 depth																		
08-10841/42	FM-19	2008	1	Phase I	40	3.8	**7.8**	<5.0	<1.0	<10	<15	<20	**2.6**	<0.10	<0.0030	<10	<4.0	9.4	16
FM10-19B	FM-19	2010	3	Phase I	40-50	**7.0**	**15**	3.0	<0.50	4.0	**22**	**20**	1.0	<0.10	<0.020	<10	15	<20	30
FM12-19B	FM-19	2012	5	Phase I	40-50	4.6	**23**	3.0	<0.50	3.8	12	11	**2.0**	<0.50	<0.050	<10	<10	<10	15
FM-CNO-19-D	FM-19	2014	7	Phase II	40-50	**5.9**	**11**	2.4	<0.10	4.6	**19**	13	**2.8**	<0.050	<0.1	<10	<10	<10	15
	FM-19	2017	10	Phase II															#N/A
	FM-19	2022	15	Phase II															#N/A
	FM-19	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-20 surface																		
08-10843/44	FM-20	2008	1	Phase I	0	4.1	**8.3**	<5.0	<1.0	<10	<15	<20	1.5	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-20A	FM-20	2010	3	Phase I	0-15	5.0	**14**	3.0	<0.50	3.0	11	**20**	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-20A	FM-20	2012	5	Phase I	0-15	**6.2**	**22**	4.8	<0.50	5.6	**18**	15	1.6	<0.50	<0.050	20	<10	<10	30
FM-CNO-20-S	FM-20	2014	7	Phase II	0-15	**6.9**	**11**	3.1	<0.10	5.6	**17**	13	**2.0**	<0.050	<0.1	<10	<10	<10	15
	FM-20	2017	10	Phase II															#N/A
	FM-20	2022	15	Phase II															#N/A
	FM-20	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-20 depth																		
08-10845/46	FM-20	2008	1	Phase I	40	3.8	**8.6**	<5.0	<1.0	<10	<15	<20	0.7	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-20B	FM-20	2010	3	Phase I	40-50	5.0	**14**	3.0	<0.50	3.0	13	16	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-20B	FM-20	2012	5	Phase I	40-50	**8.5**	**27**	**5.3**	<0.50	**12**	**27**	19	**2.4**	<0.50	<0.050	<10	<10	<10	15
FM-CNO-20-D	FM-20	2014	7	Phase II	40-50	5.3	**12**	3.0	<0.10	3.7	**16**	14	1.3	<0.050	<0.1	<10	<10	<10	15
	FM-20	2017	10	Phase II															#N/A
	FM-20	2022	15	Phase II															#N/A
	FM-20	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications North Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-21 surface																		
08-10847/48 (no depth)	FM-21	2008	1	Phase I	0	4.4	**9.6**	<5.0	<1.0	<10	<15	<20	1.3	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-21A	FM-21	2010	3	Phase I	0-15	5.0	**13**	3.0	<0.50	5.0	12	14	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-21A	FM-21	2012	5	Phase I	0-15	**6.2**	**28**	4.3	<0.50	5.7	**19**	18	1.4	<0.50	<0.050	<10	<10	12	22
FM-CNO-21-S	FM-21	2014	7	Phase II	0-15	4.6	**9.7**	2.1	<0.10	3.3	11	10	1.5	<0.050	<0.1	<10	<10	<10	15
	FM-21	2017	10	Phase II															#N/A
	FM-21	2022	15	Phase II															#N/A
	FM-21	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-21 depth																		
No Sample Collected	FM-21	2008	1	Phase I															
FM10-21B	FM-21	2010	3	Phase I	40	4.0	**12**	2.0	<0.50	3.0	9.0	15	<1.0	<0.10	<0.020	<10	<10	<20	20
FM12-21B	FM-21	2012	5	Phase I	40-50	**6.5**	**28**	4.6	<0.50	5.5	**27**	19	1.0	<0.50	<0.050	<10	<10	<10	15
FM-CNO-21-D	FM-21	2014	7	Phase II	40-50	4.6	**9.2**	2.3	<0.10	3.0	11	10	1.2	<0.050	<0.1	<10	<10	<10	15
	FM-21	2017	10	Phase II															#N/A
	FM-21	2022	15	Phase II															#N/A
	FM-21	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A
	FM-22 surface																		
08-10849/50	FM-22	2008	1	Phase I	0	4.1	7.1	<5.0	<1.0	<10	<15	<20	**2.1**	<0.10	<0.0030	<10	<4.0	7.8	15
FM10-22A	FM-22	2010	3	Phase I	0-15	**6.0**	**13**	3.0	<0.50	4.0	12	14	**2.0**	<0.10	<0.020	<10	<10	<20	20
FM12-22A	FM-22	2012	5	Phase I	0-15	5.2	**22**	3.3	<0.50	4.0	**16**	16	1.3	<0.50	<0.050	<10	<10	<10	15
FM-CNO-22-S	FM-22	2014	7	Phase II	0-15	4.2	**8.8**	2.1	<0.10	3.0	12	11	1.2	<0.050	<0.1	<10	<10	<10	15
	FM-22	2017	10	Phase II															#N/A
	FM-22	2022	15	Phase II															#N/A
	FM-22	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

FOX-M Hall Beach - Communications North Landfill - Summary of Monitoring Soil Analytical Data

Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Depth (cm)	Cu (mg/kg)	Ni* (mg/kg)	Co* (mg/kg)	Cd* (mg/kg)	Pb* (mg/kg)	Zn* (mg/kg)	Cr (mg/kg)	As (mg/kg)	Hg* (mg/kg)	Total PCB* (mg/kg)	F1 C_6-C_{10} (mg/kg)	F2 C_{10}-C_{16} (mg/kg)	F3 C_{16}-C_{34} (mg/kg)	Modified TPH^ - Total C6-C34 (mg/kg)
	FM-22 depth																		
08-10851/52	FM-22	2008	1	Phase I	40	3.2	6.8	<5.0	<1.0	<10	<15	<20	1.3	<0.10	<0.0030	<10	<4.0	<9.0	12
FM10-22B	FM-22	2010	3	Phase I	40-50	5.0	**12**	2.0	<0.50	3.0	13	13	1.0	<0.10	<0.020	<10	<10	<20	20
FM12-22B	FM-22	2012	5	Phase I	40-50	3.3	**20**	2.8	<0.50	2.7	13	11	0.80	<0.50	<0.050	<10	<10	<10	15
FM-CNO-22-D	FM-22	2014	7	Phase II	40-50	4.3	**9.6**	2.2	<0.10	2.9	13	12	1.4	<0.050	<0.1	<10	<10	<10	15
	FM-22	2017	10	Phase II															#N/A
	FM-22	2022	15	Phase II															#N/A
	FM-22	2032	25	Phase II															#N/A
				Phase III															#N/A
																			#N/A
																			#N/A
																			#N/A
																			#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

Note: All locations are downgradient, there are no identified upgradient locations.

N/A = not analyzed

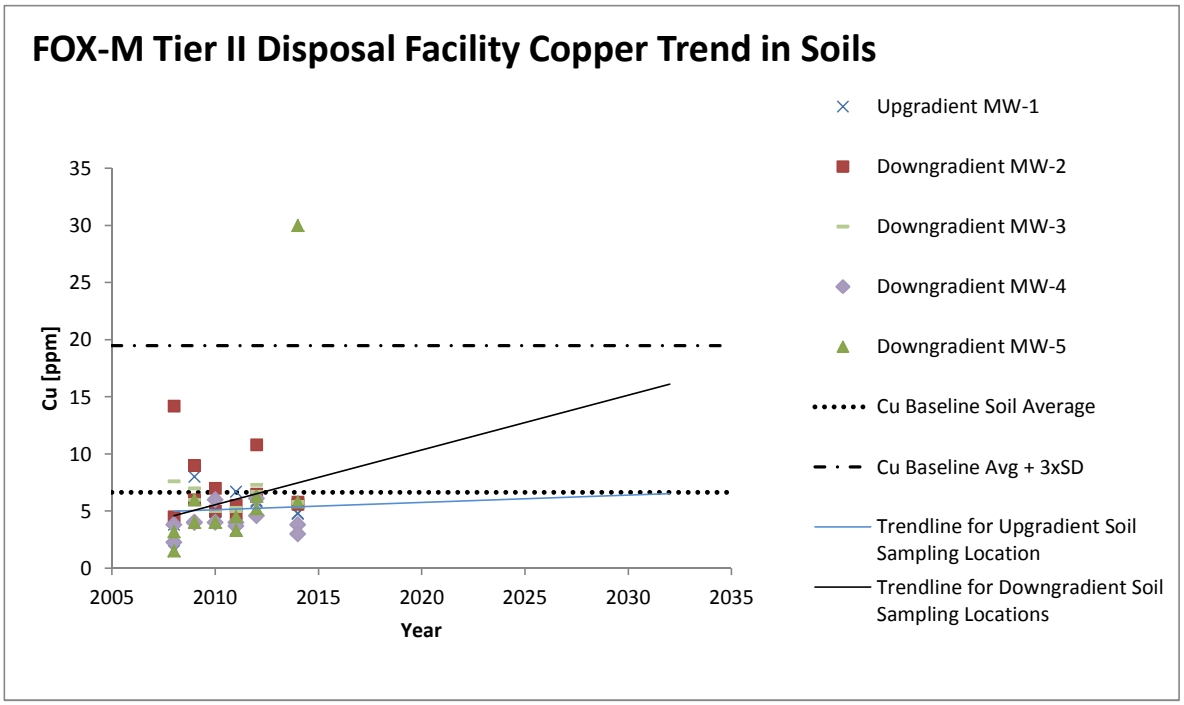
Legend

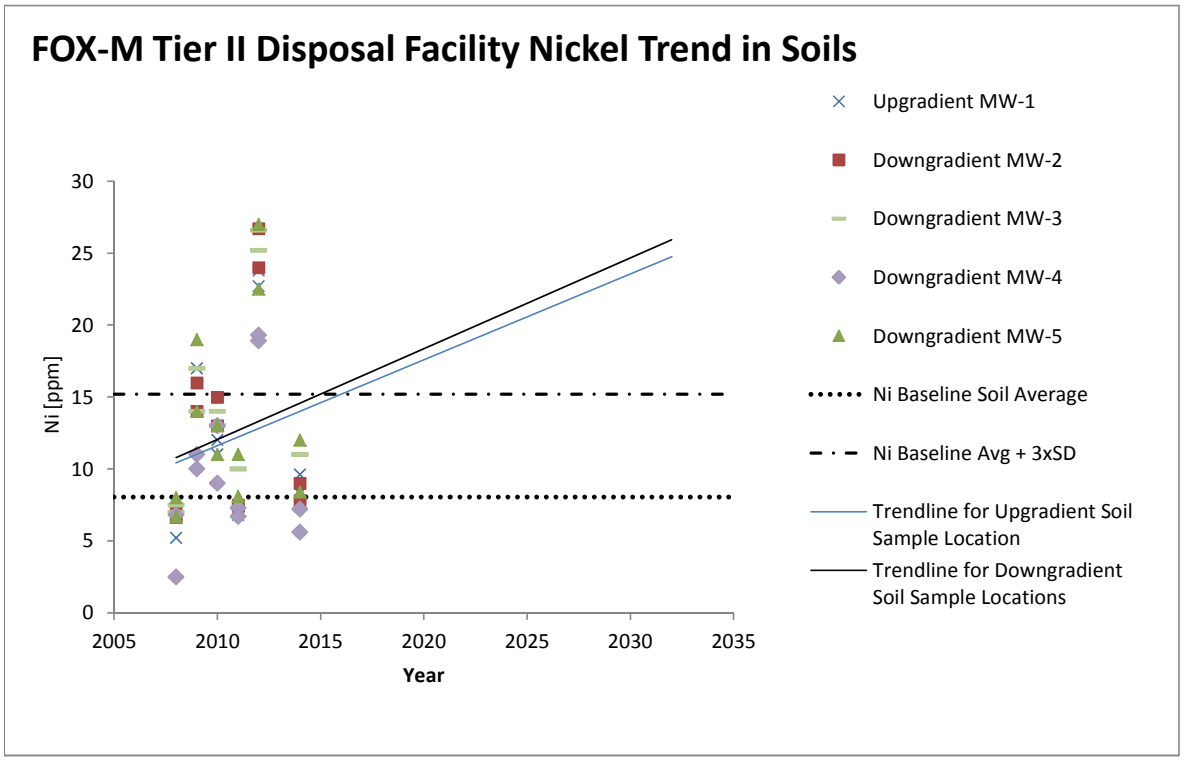
XX	sample exceeds background
XX	**sample exceeds baseline**
XX	*sample exceeds DLCU Tier I criteria*
XX	*sample exceeds DLCU Tier II criteria*

APPENDIX F

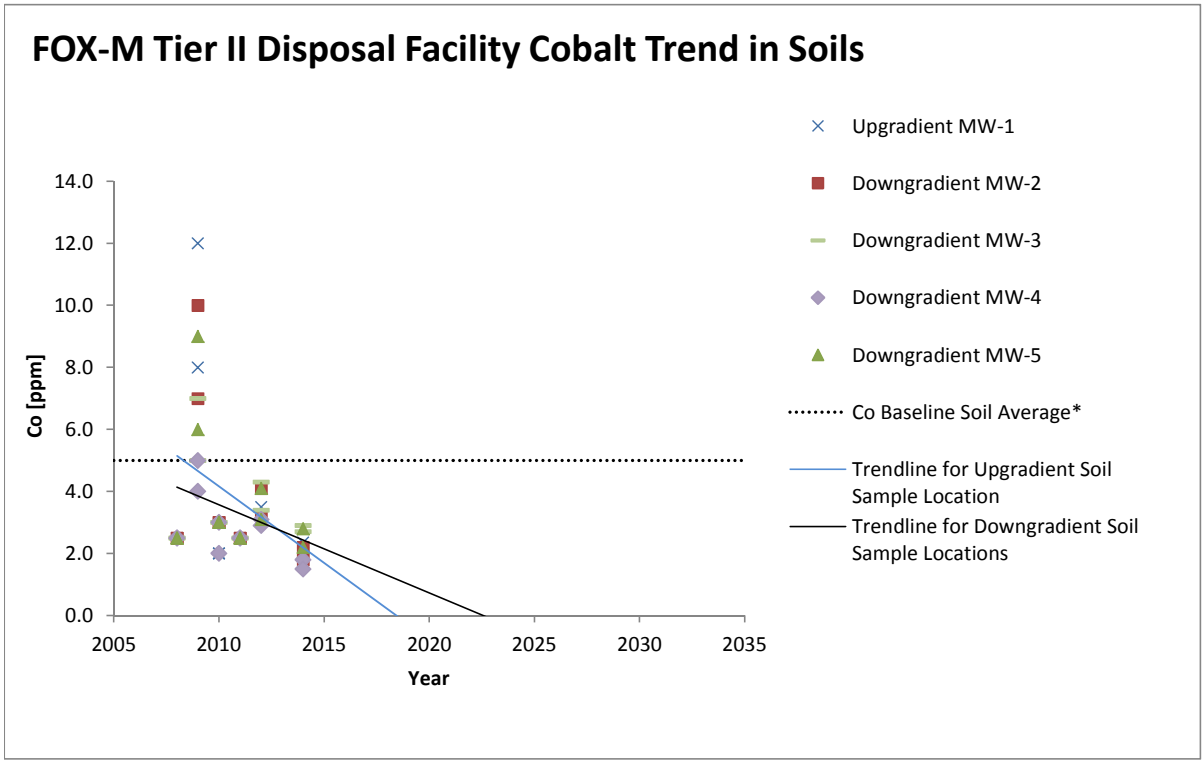
CHEMICAL CONCENTRATION TREND GRAPHS (SOIL)

FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)
Where results are below detection, half of the detection limit has been used in the charts.

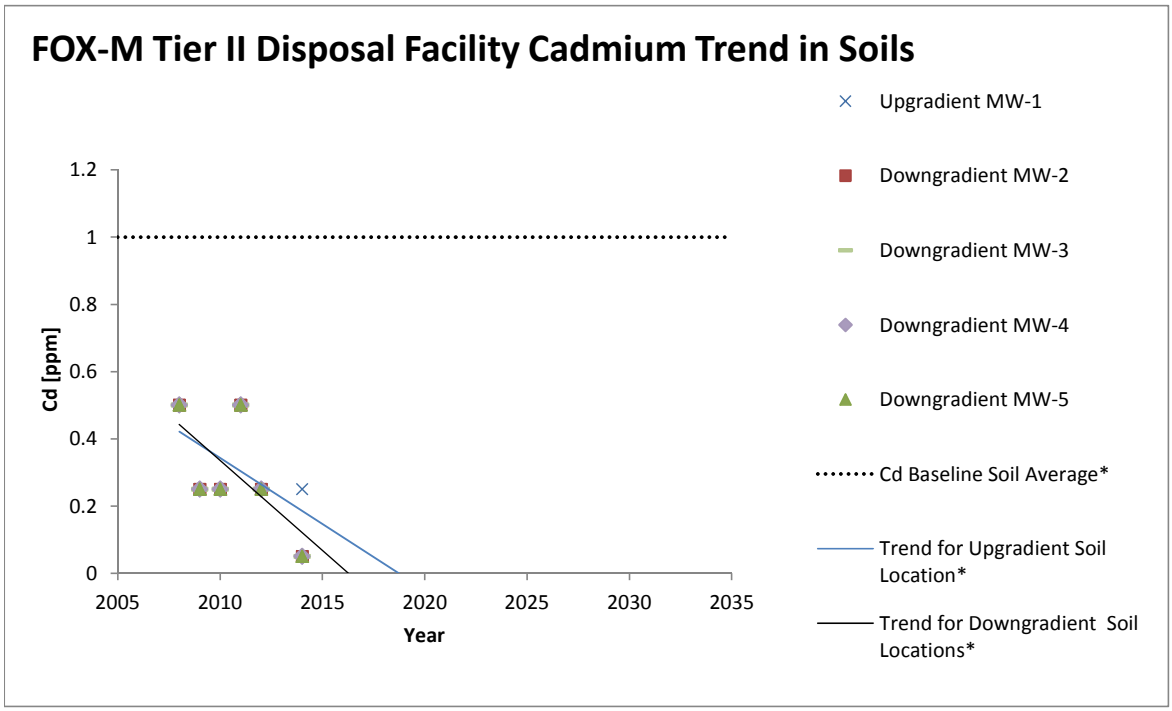




FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

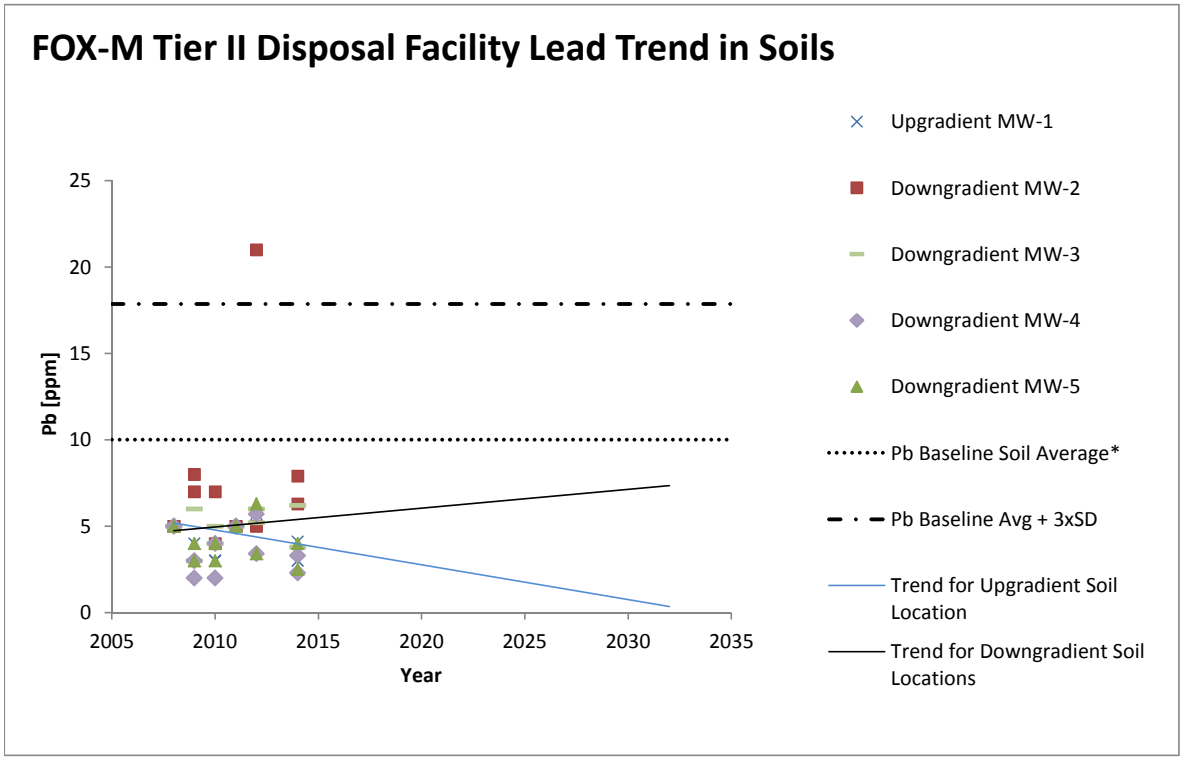


*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0

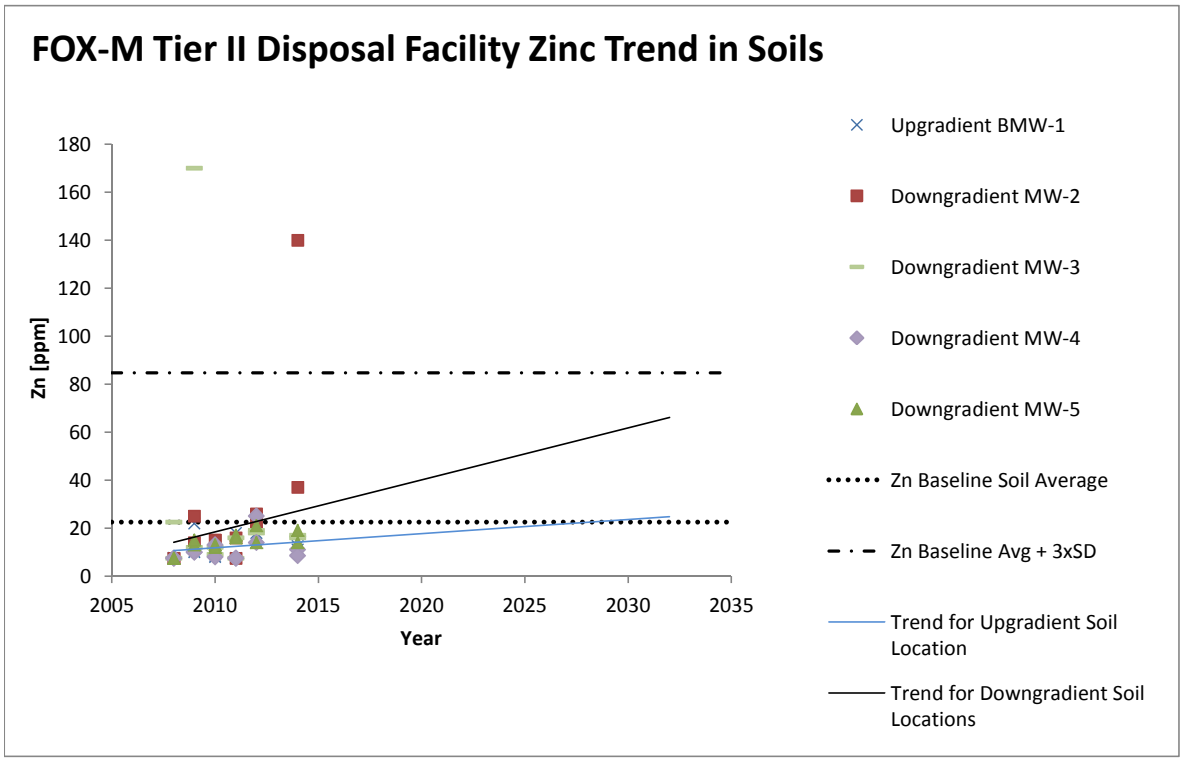


*Cd Baseline Average is equal to the baseline detection limit.
*Cd baseline SD = 0.65. Baseline + 3xSD = 2.95 ppm which is above the range of the y-axis.
Results below detection in all monitoring samples. Trend indicates changes in detection limits.

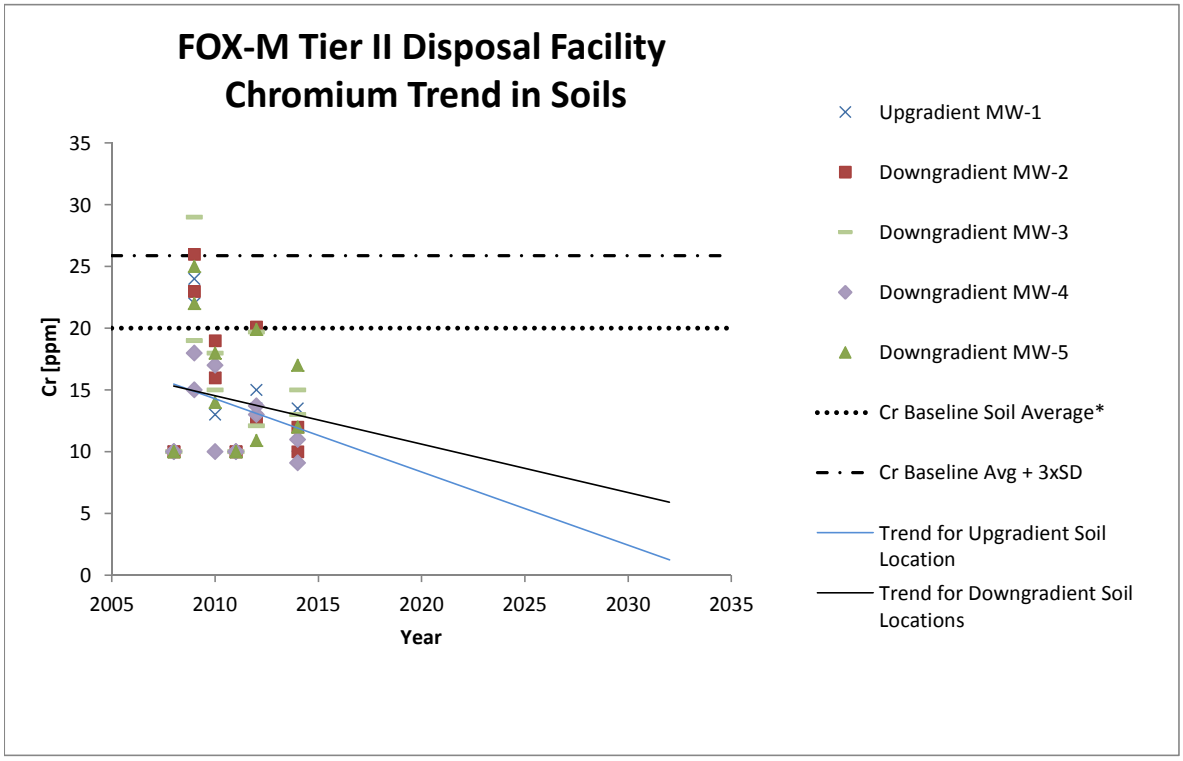
FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



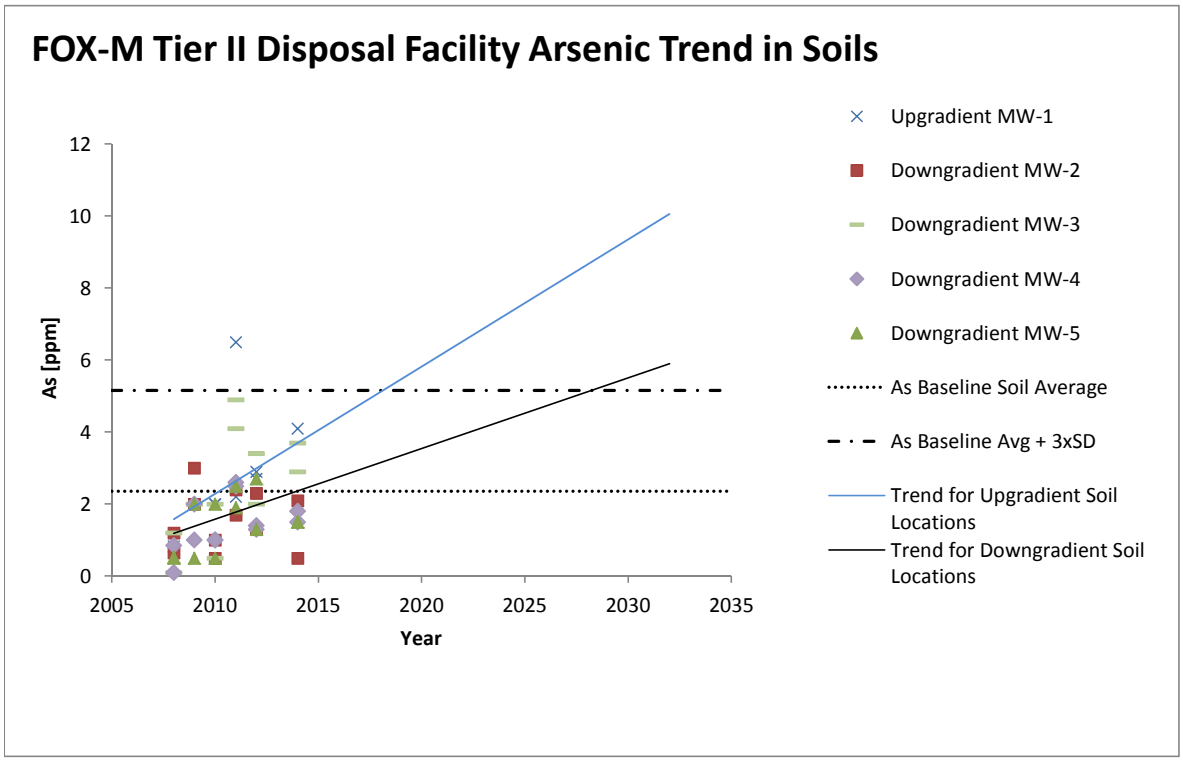
*Pb Baseline Average is equal to the baseline detection limit.



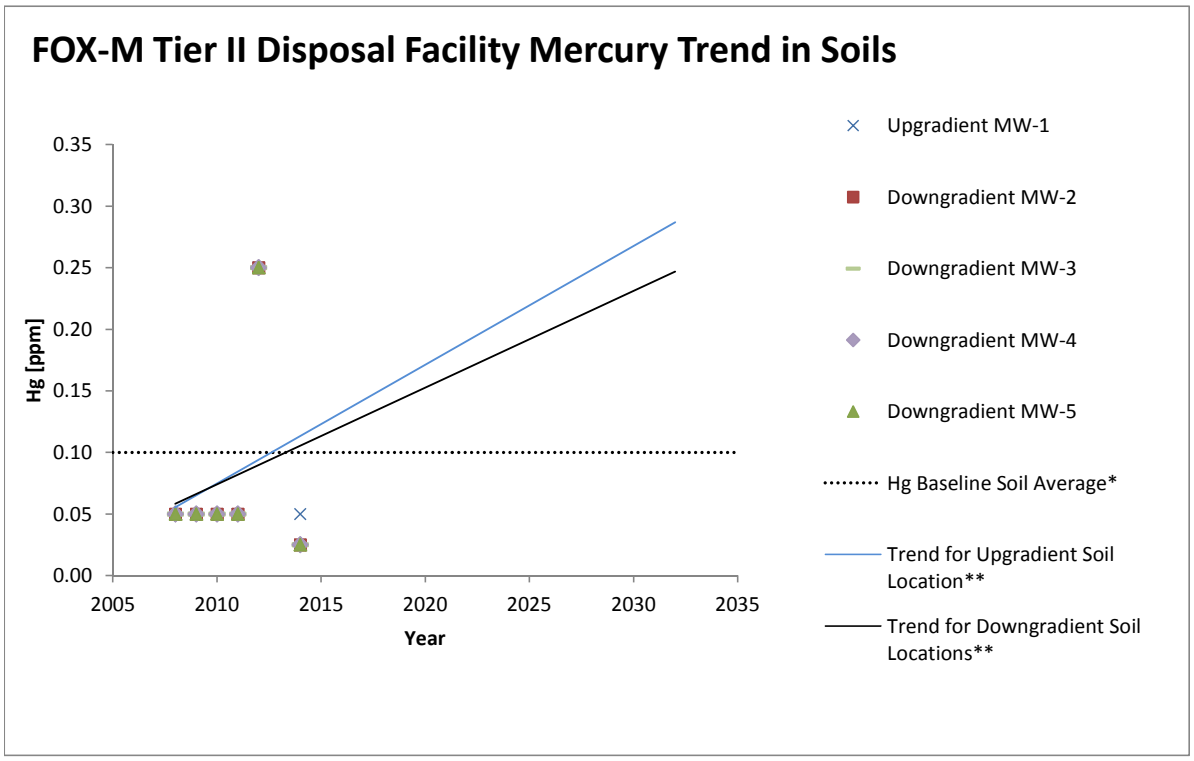
FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



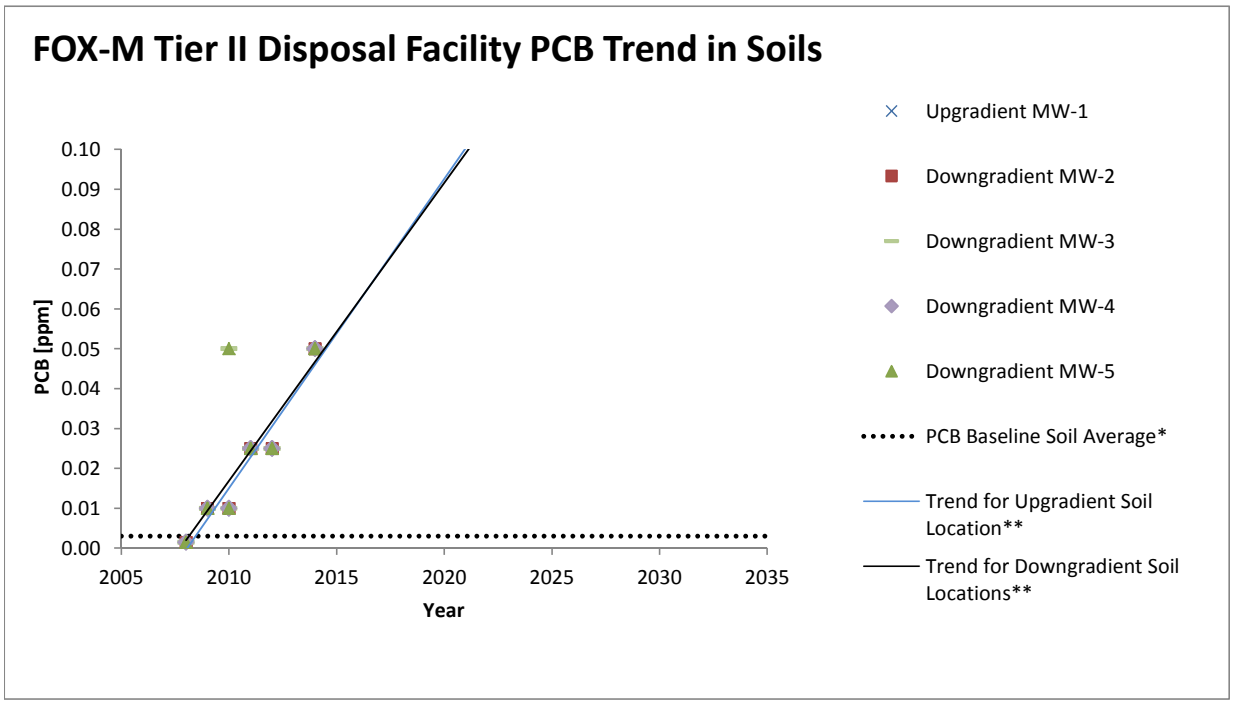
*Cr Baseline Avaerage is equal to the baseline detection limit.



FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

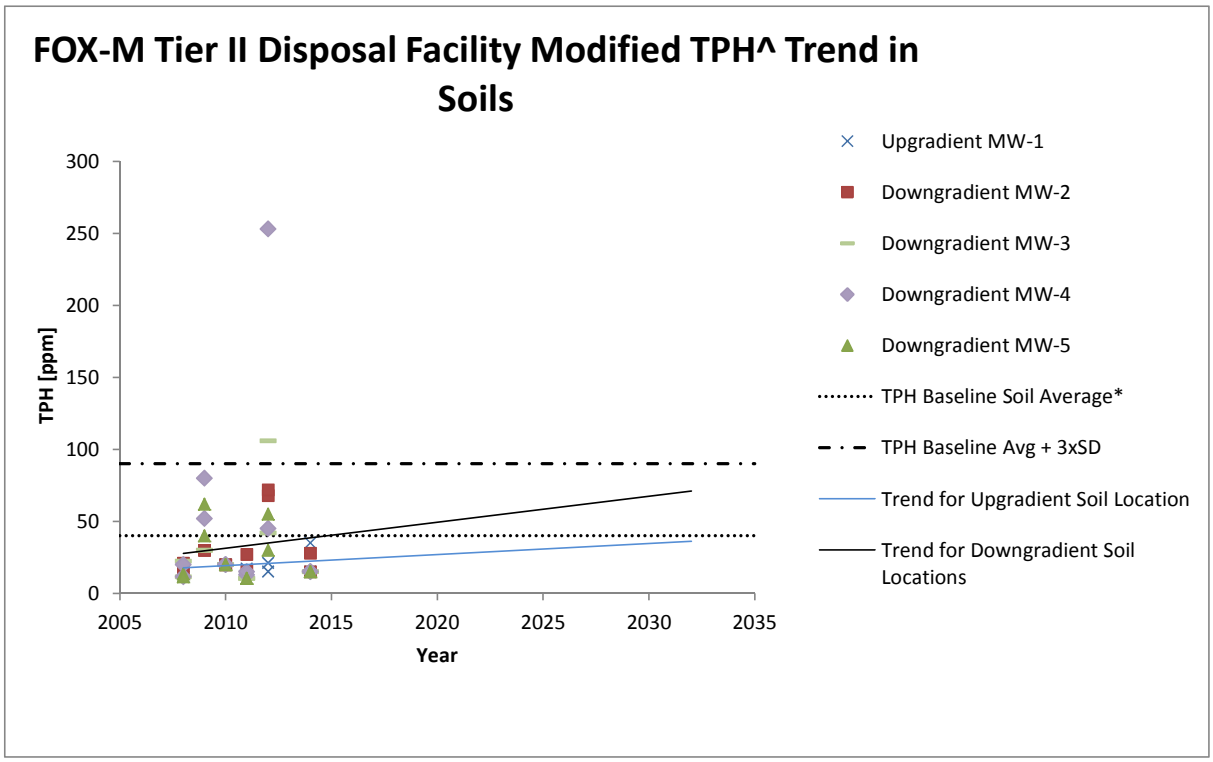


*Hg Baseline Average is equal to the baseline detection limit.
*Hg SD = 0
** Hg results below detection for all monitoring samples. Trendlines reflect changes in detection limit.



*PCB Baseline Average is equal to the baseline detection limit.
*PCB SD=0
**PCB results below detection for all monitoring samples. Trendlines reflect changes in detection limit.
2010 PCB detection limit for MW-3 and MW-5 locations elevated due to matrix interferences.

FOX-M Tier II Disposal Facility Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



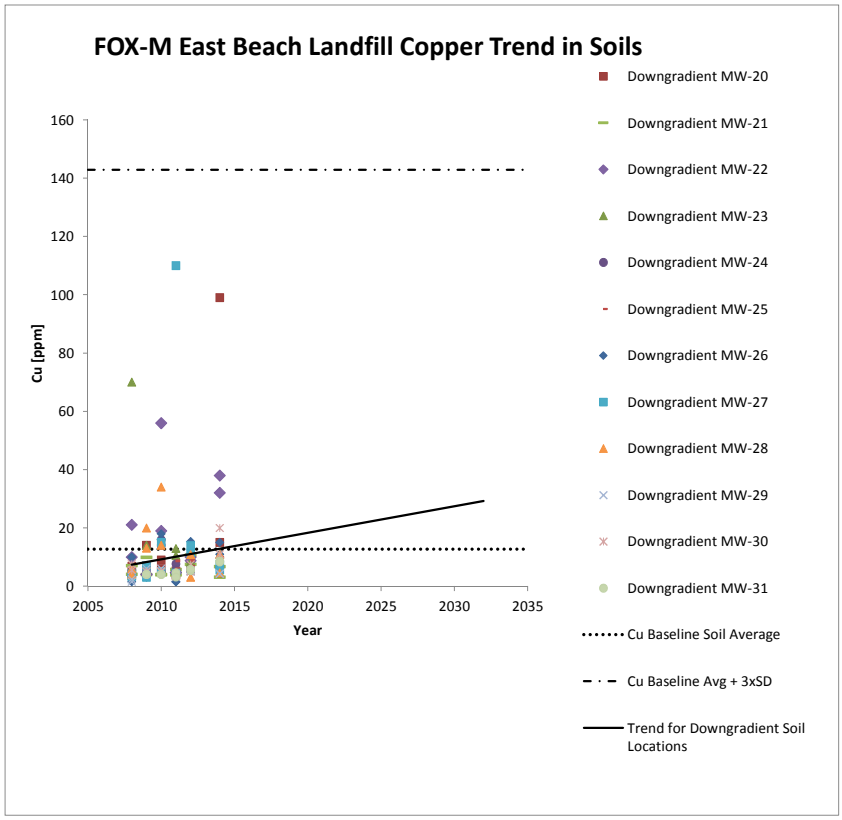
*TPH Baseline Average is equal to the baseline detection limit.

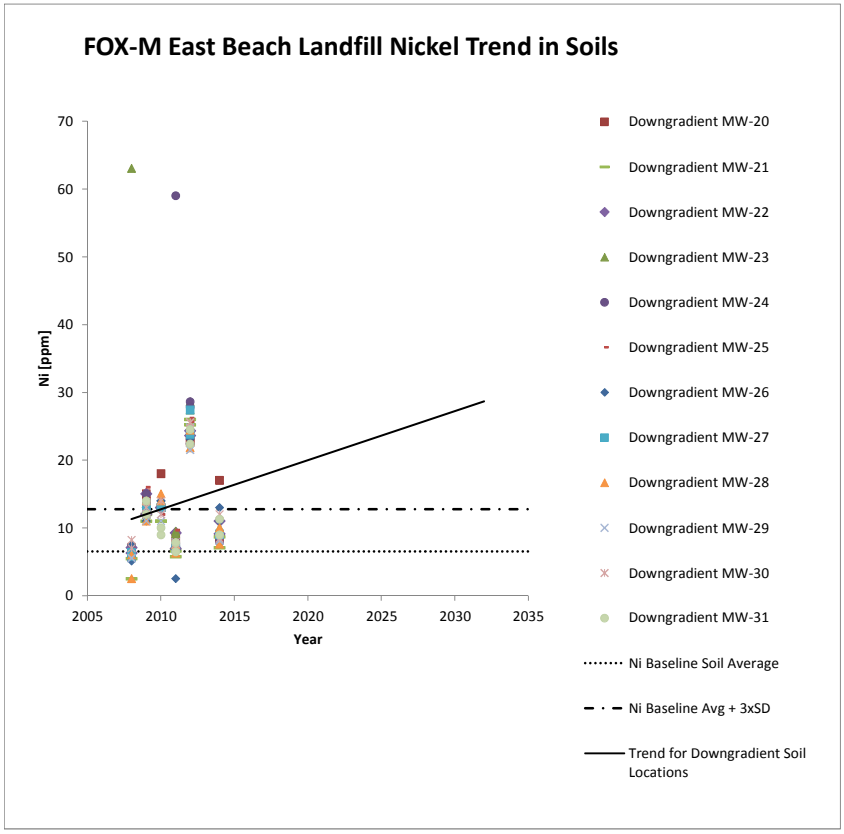
^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

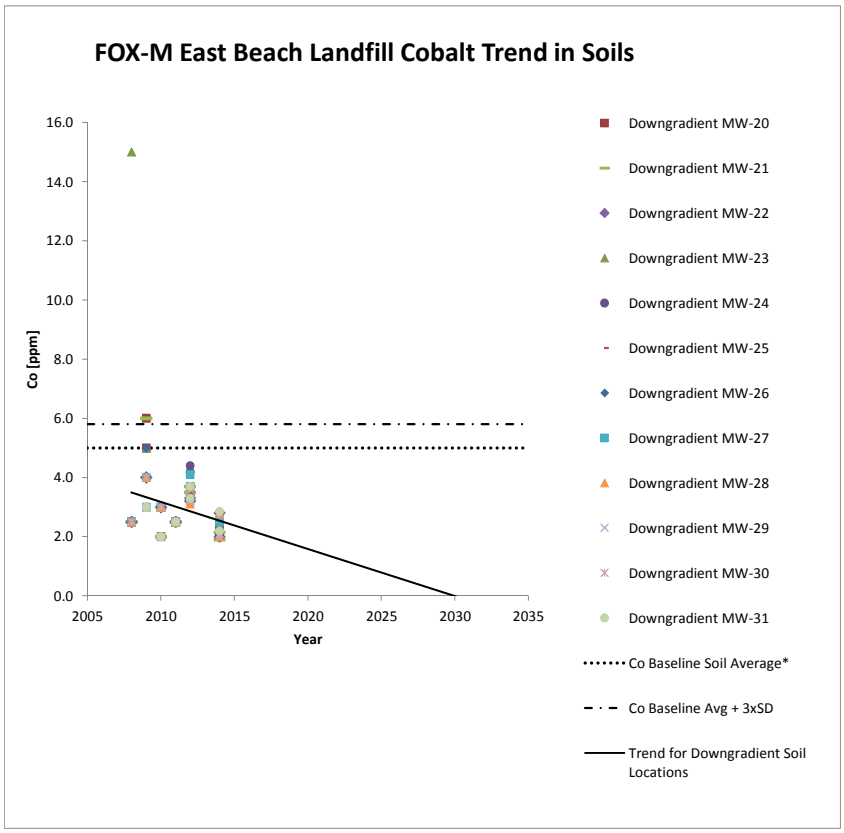
Note: All wells are downgradient wells, there are no upgradient wells.

Where results are below detection, half of the detection limit has been used in the charts.

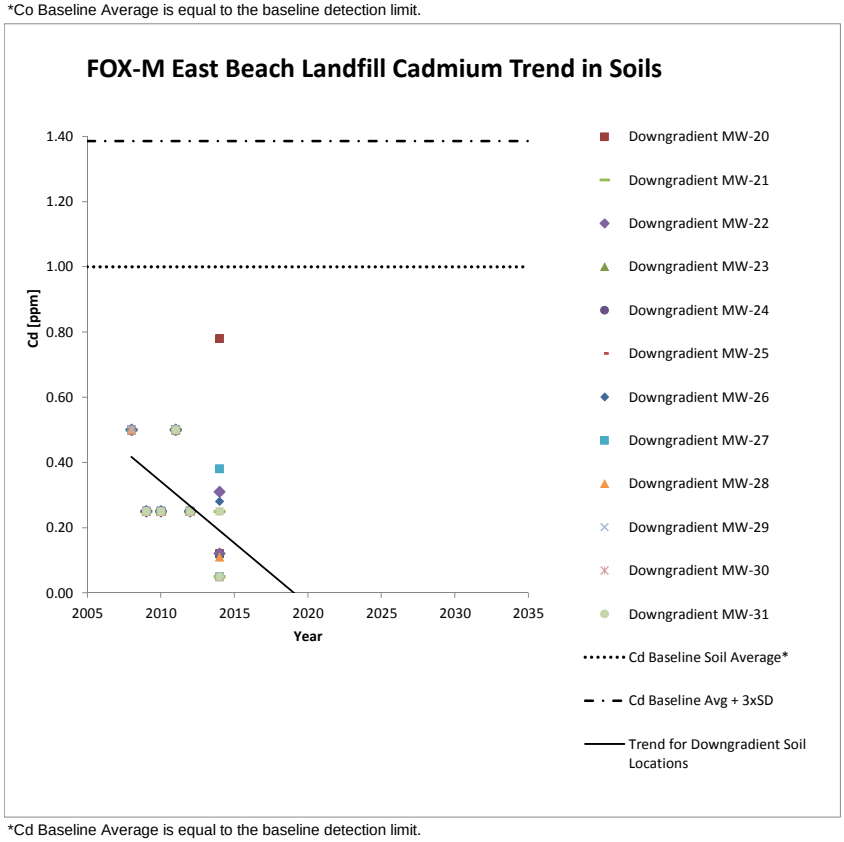




FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

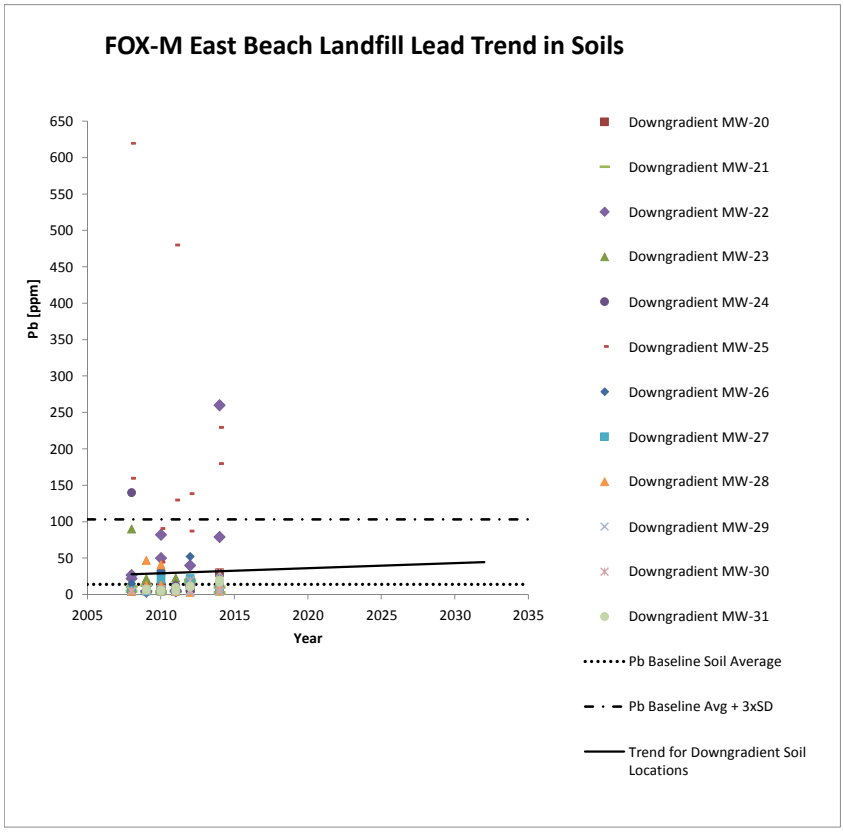


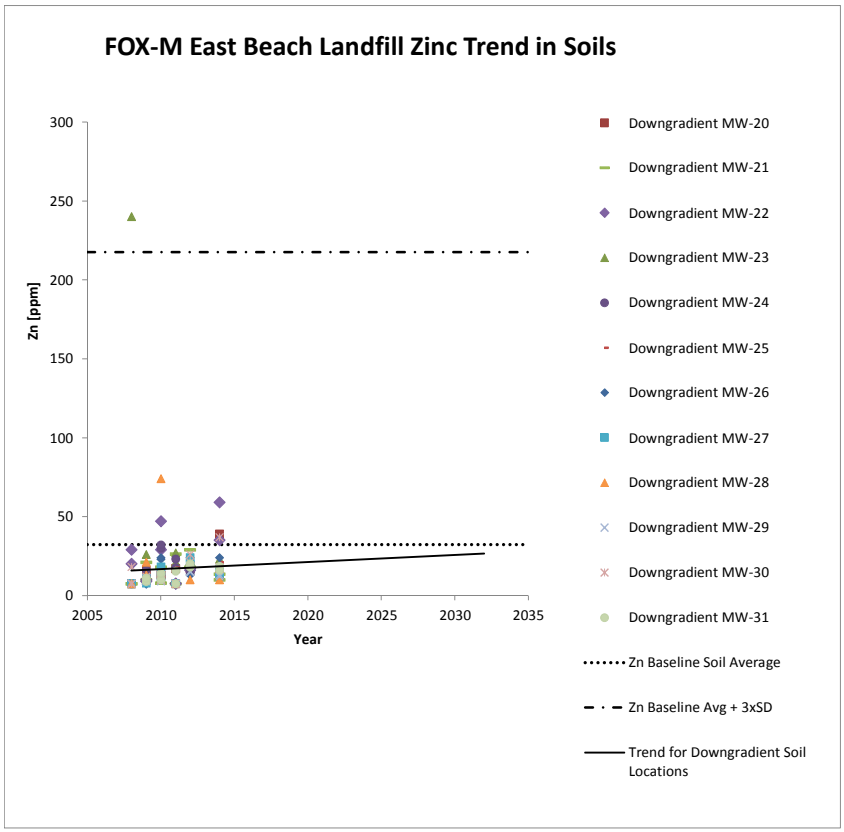
*Co Baseline Average is equal to the baseline detection limit.



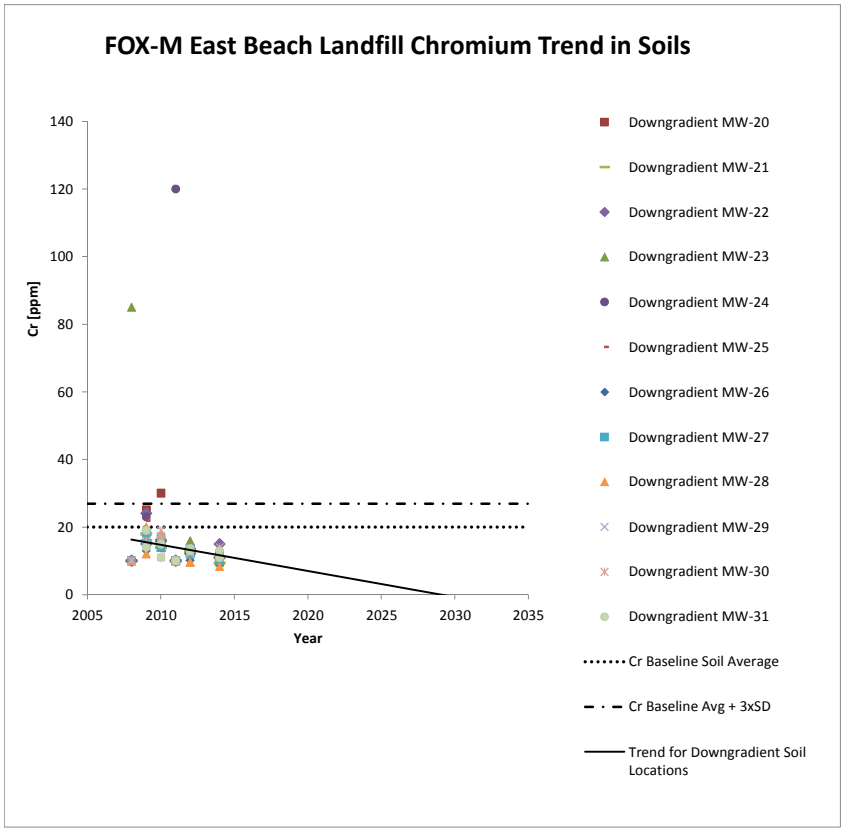
*Cd Baseline Average is equal to the baseline detection limit.

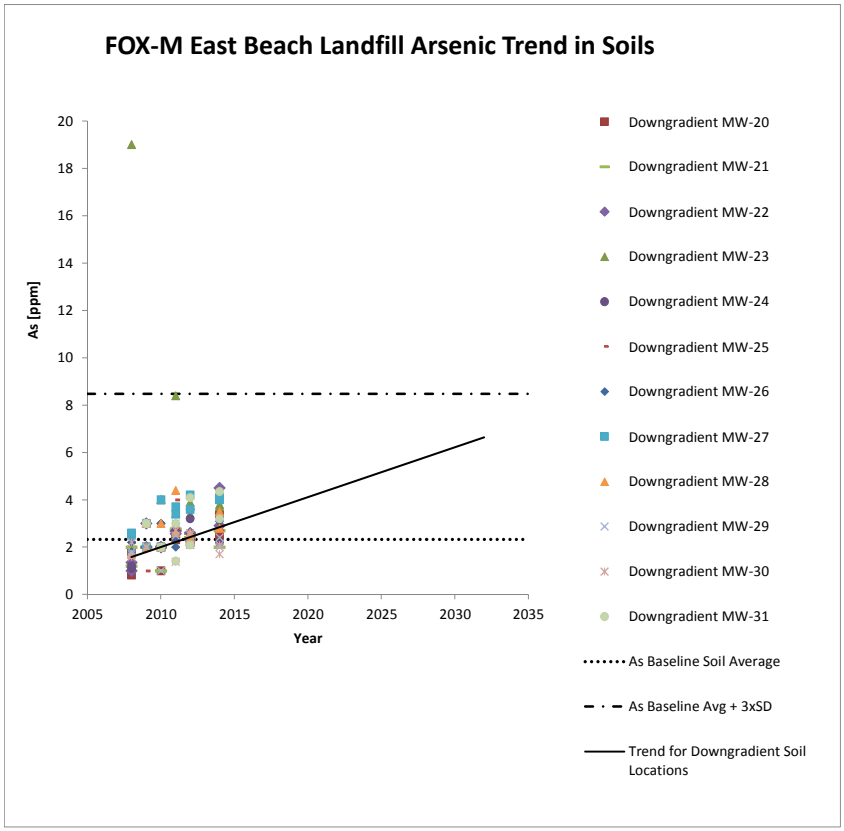
FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



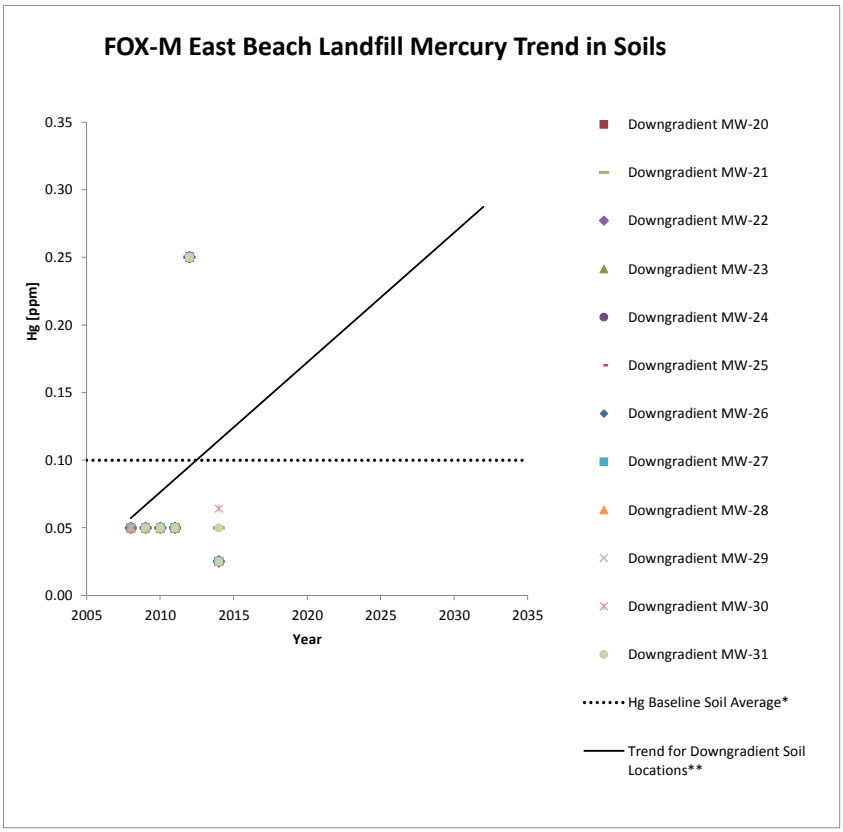


FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

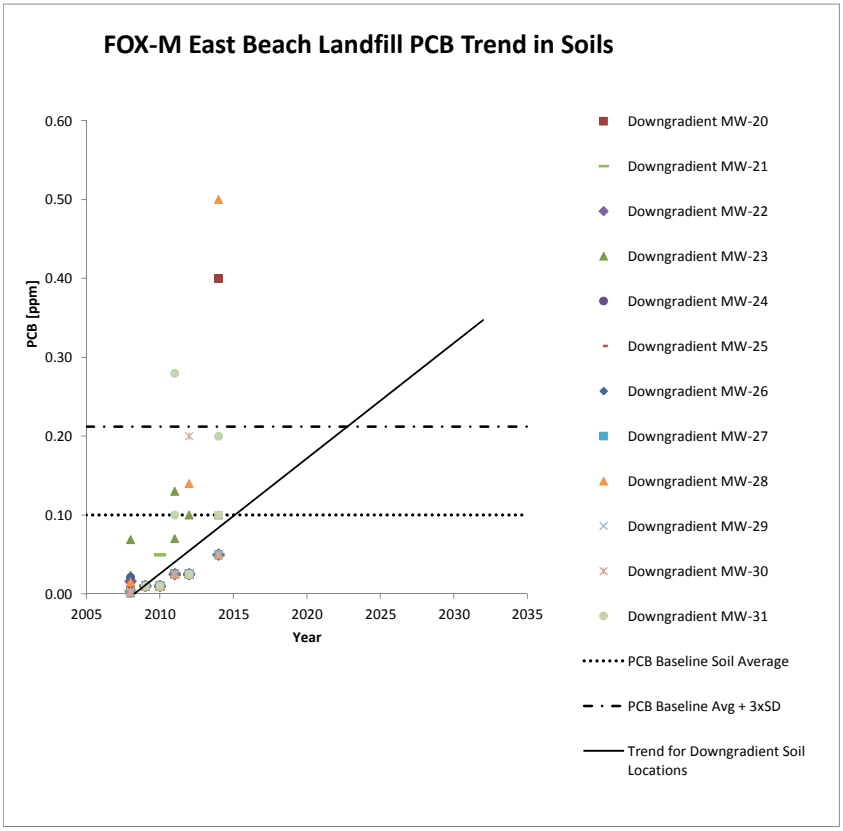




FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

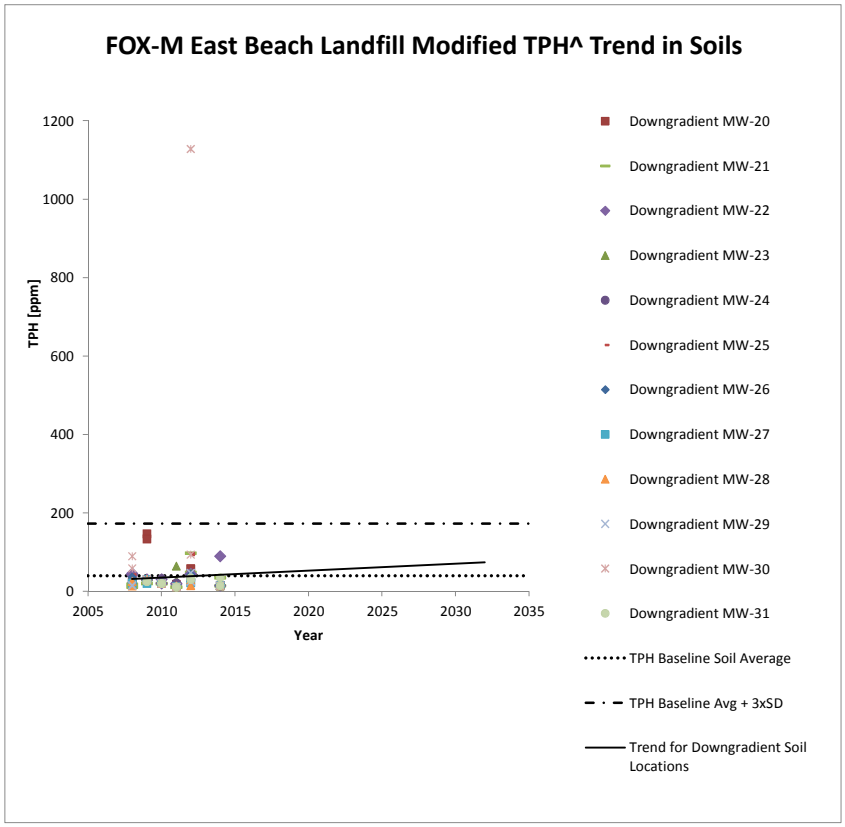


*Hg Baseline Average is equal to the baseline detection limit.
*Hg SD=0



FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

TPH chart shows result of trend analysis including all values.

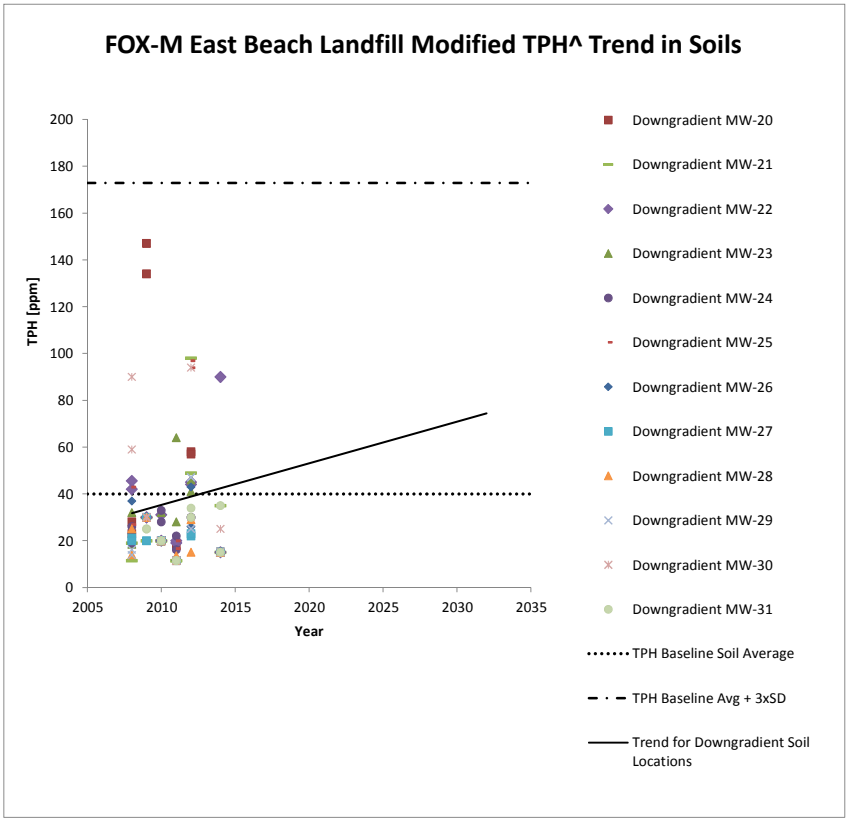


^ modified TPH is a sum of C_6 - C_{34} PHC fractions

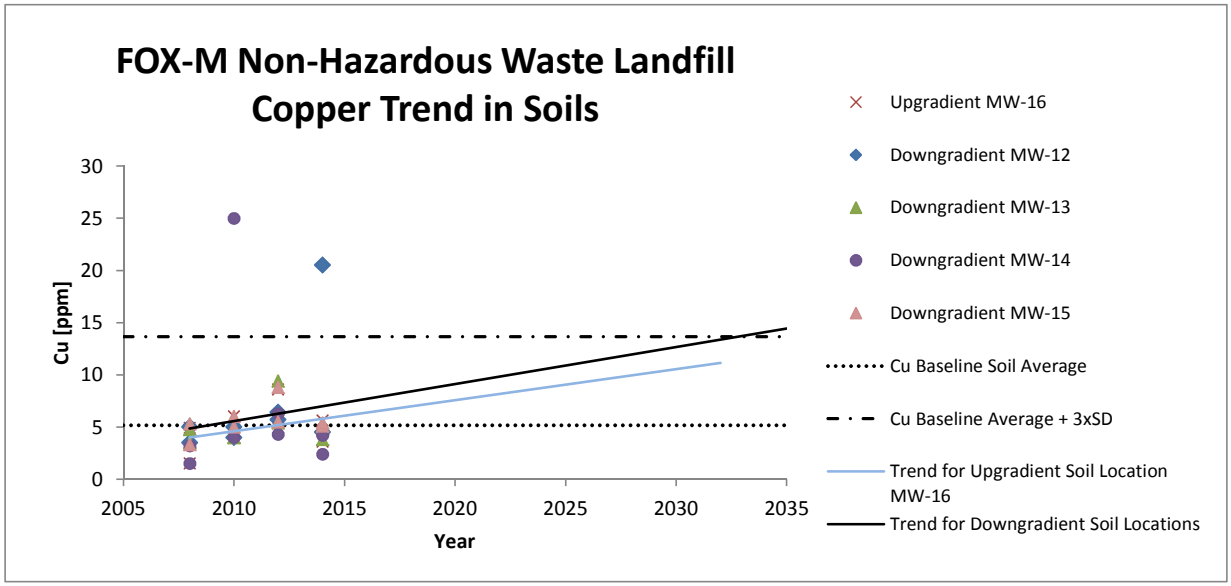
^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

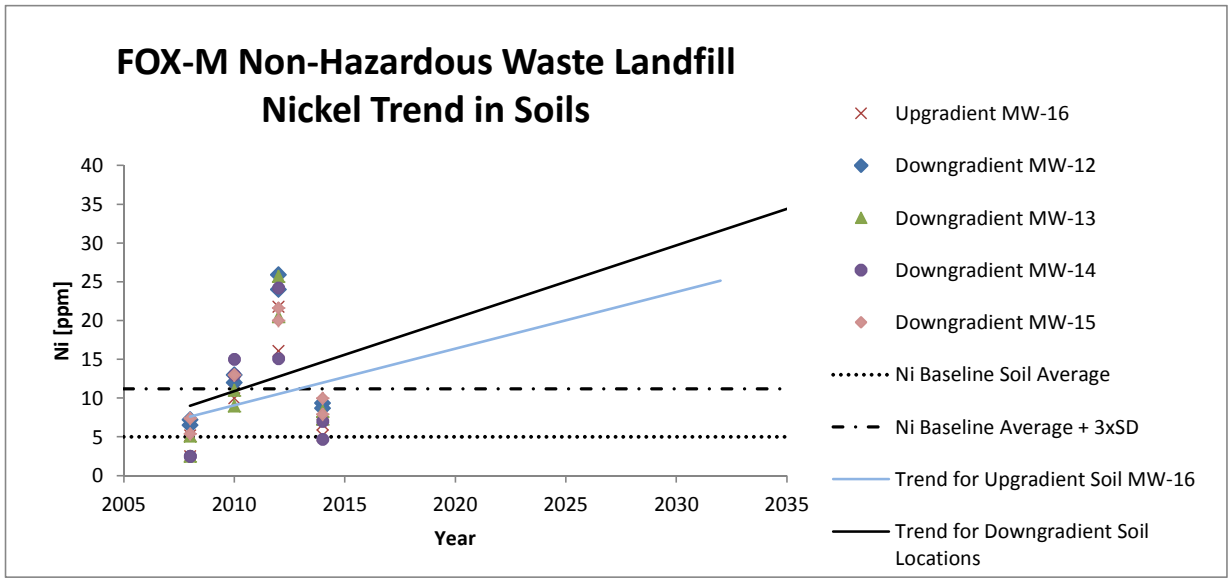
FOX-M East Beach Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

Note: All wells are downgradient wells, there are no upgradient wells.
Where results are below detection, half of the detection limit has been used in the charts.
TPH chart shows trend without displaying the 2012 result for TPH of 1128 at MW-30 surface, however the value has been included in trend analysis

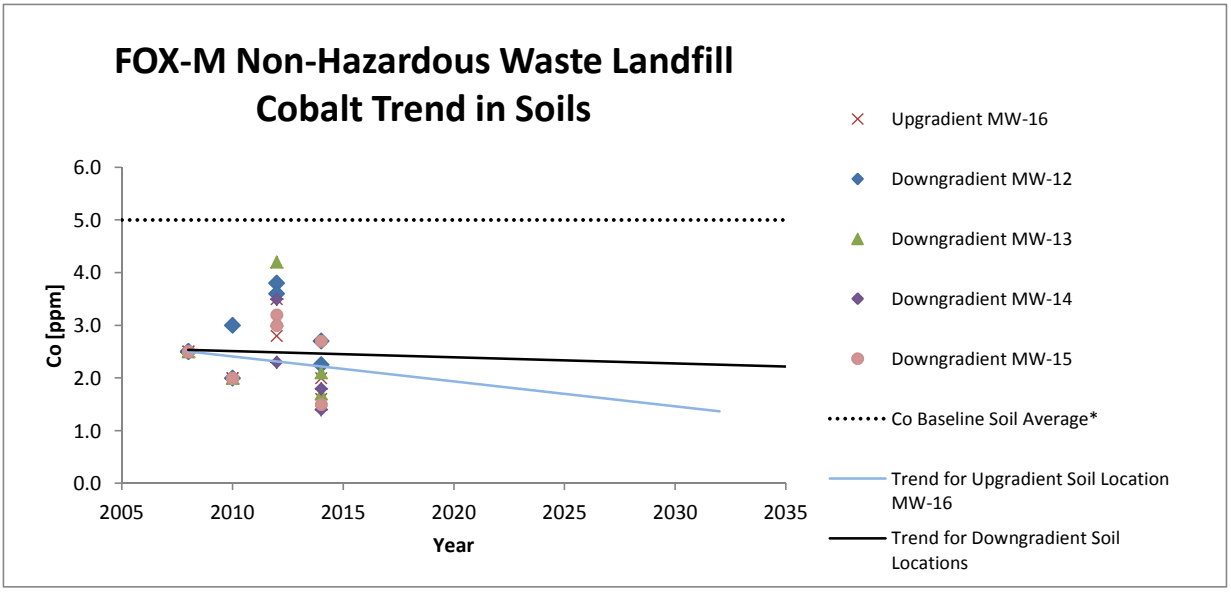


FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)
Where results are below detection, half of the detection limit has been used in the charts.

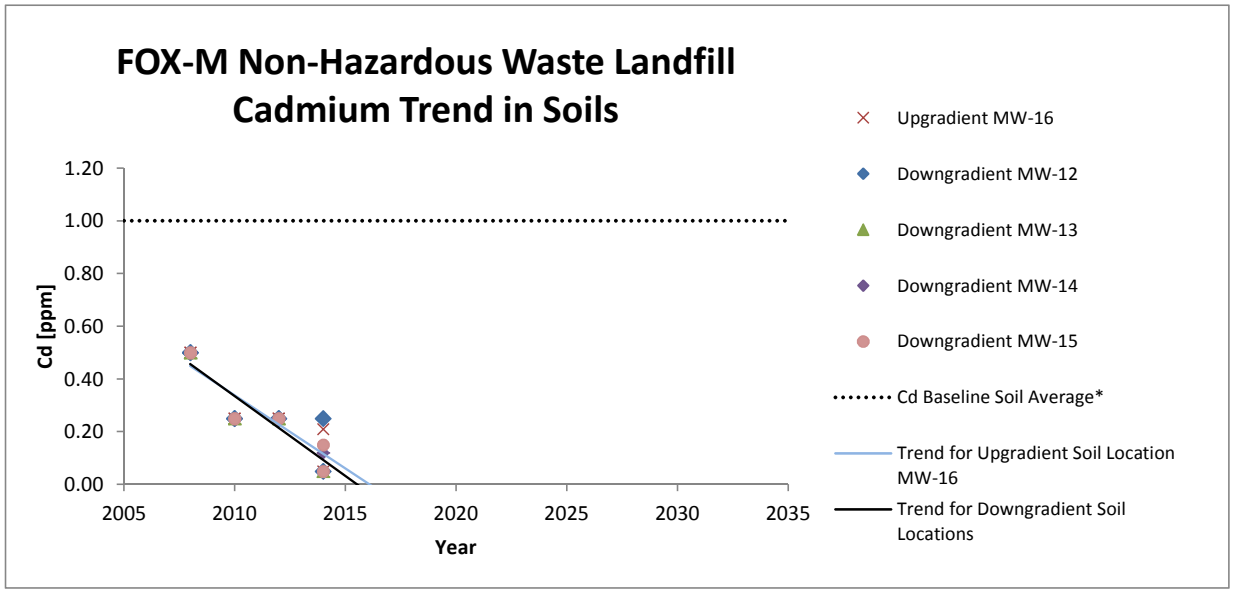




FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

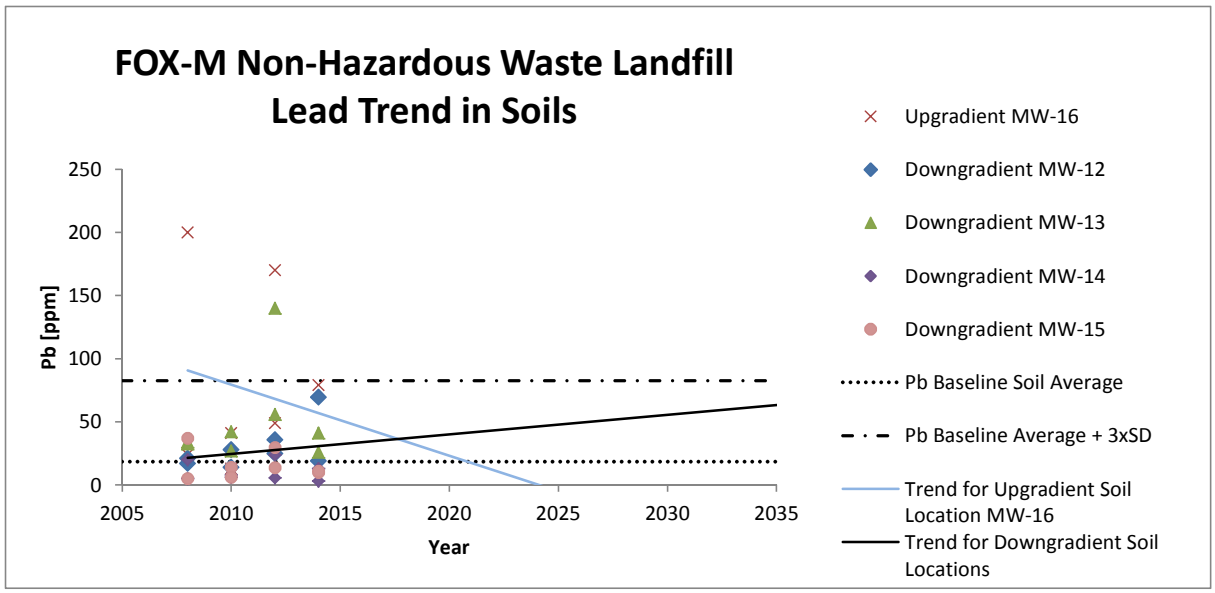


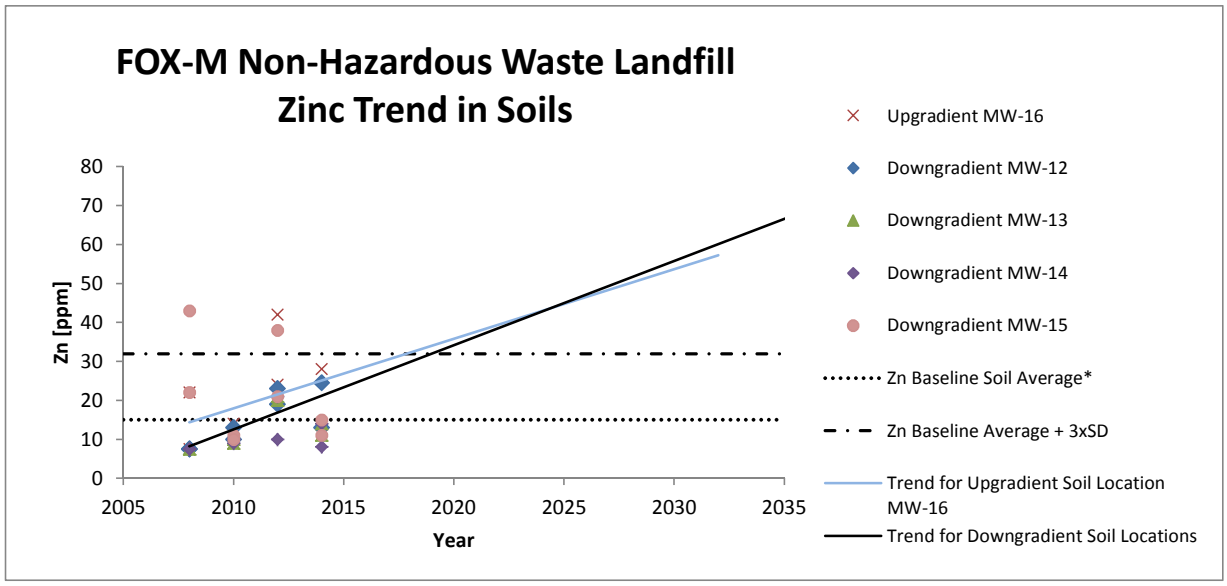
*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0



*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline SD = 0

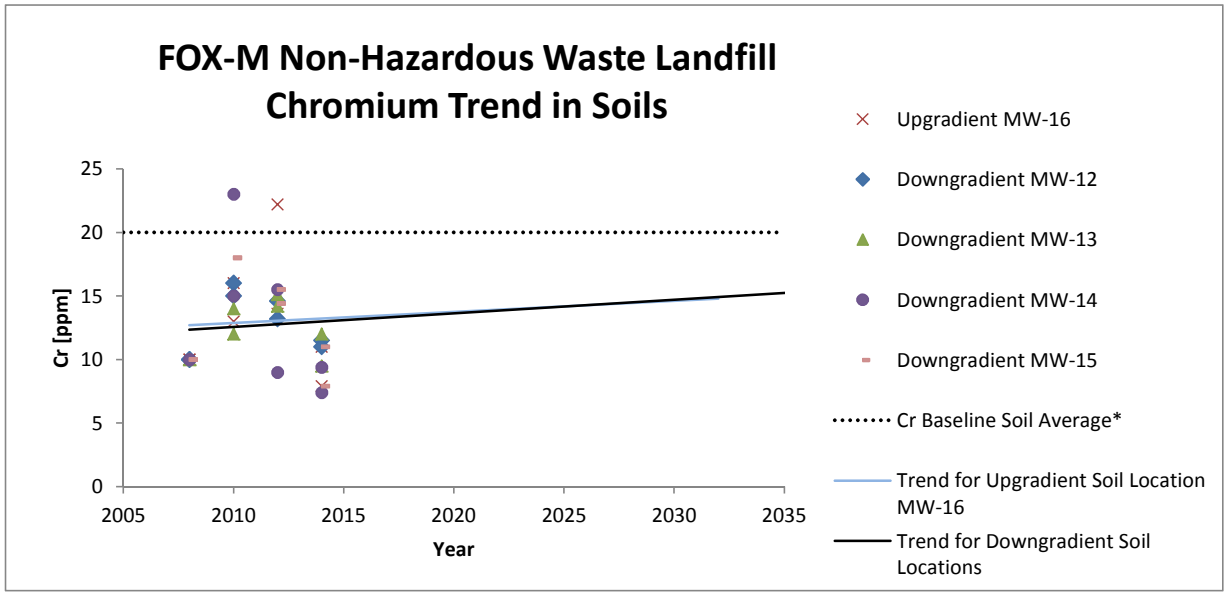
FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



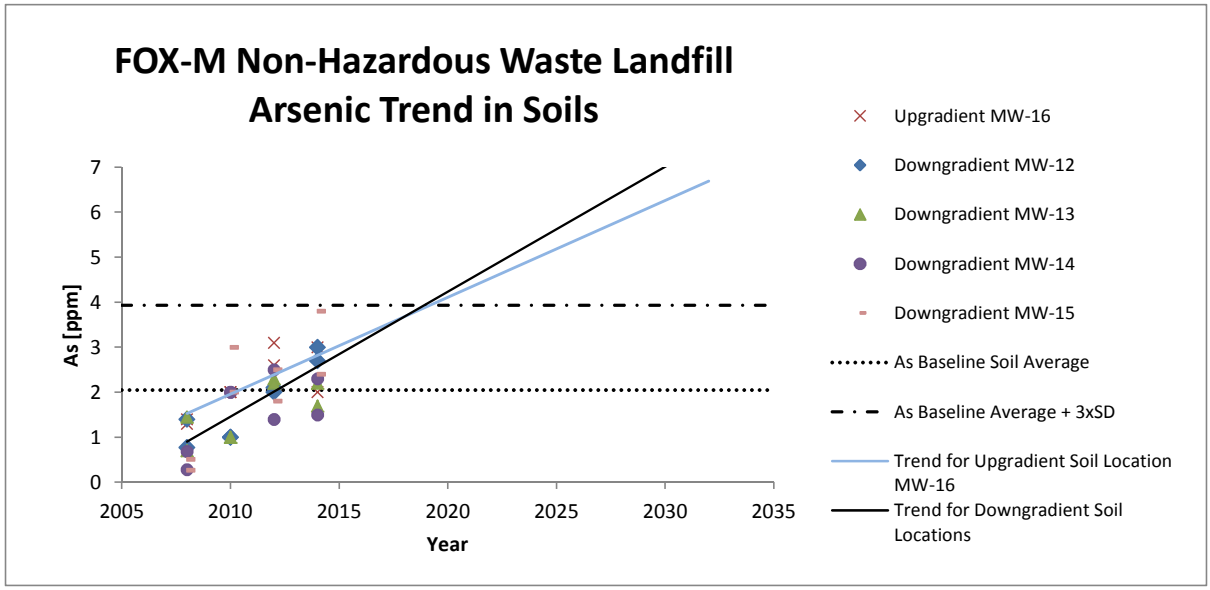


*Zn Baseline Average is equal to the baseline detection limit.

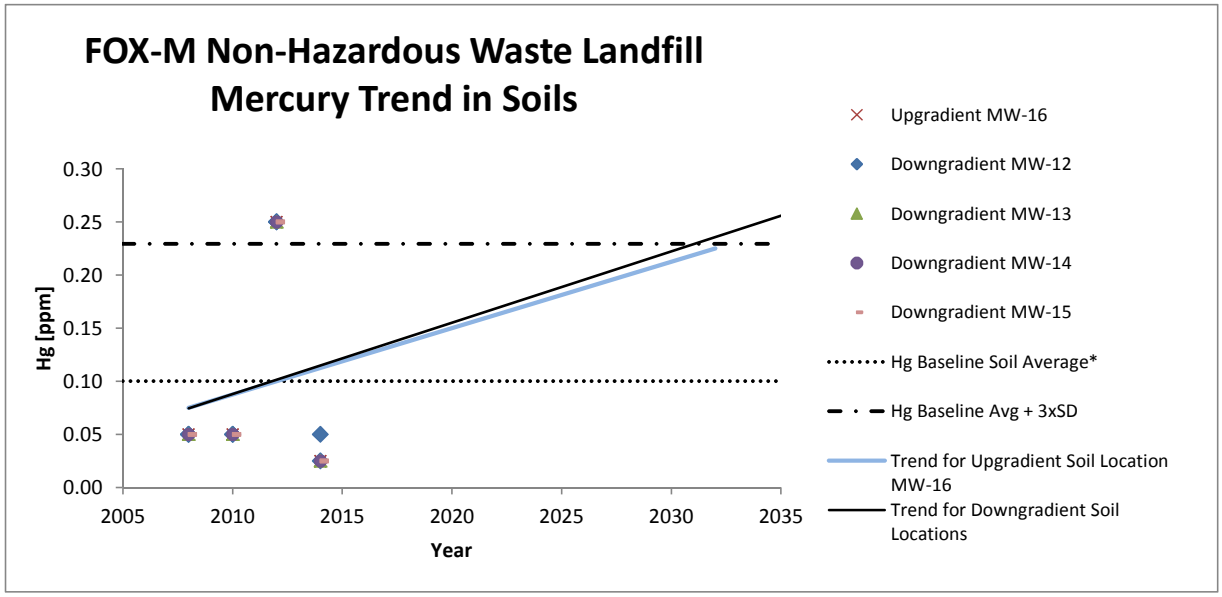
FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



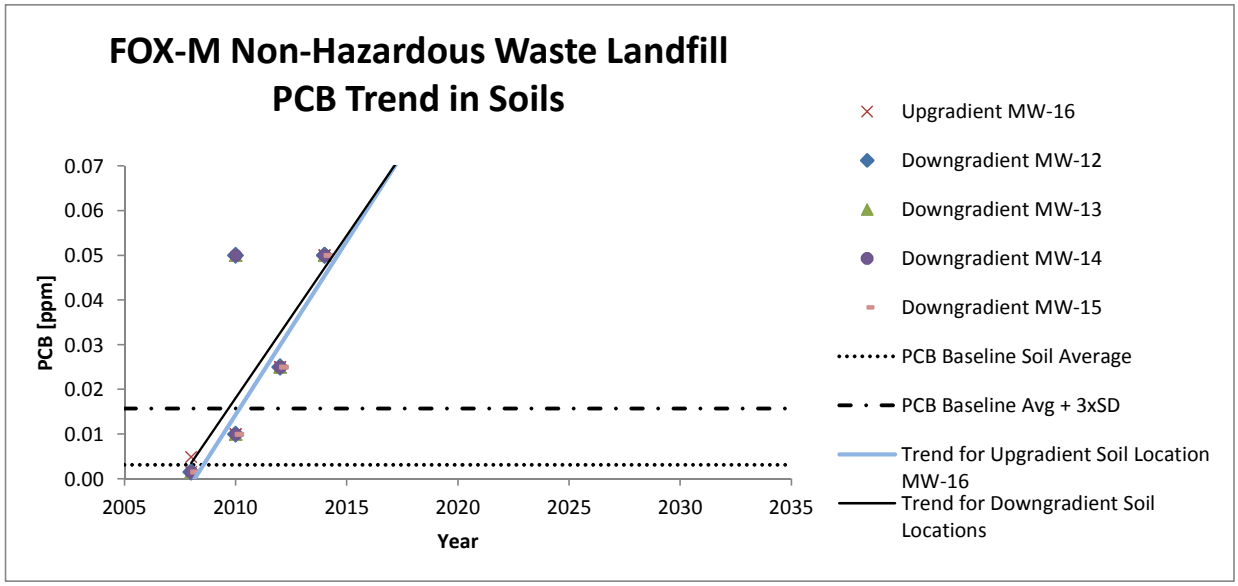
*Cr Baseline Average is equal to the baseline detection limit.
*Cr Baseline Avg + 3xSD = 0



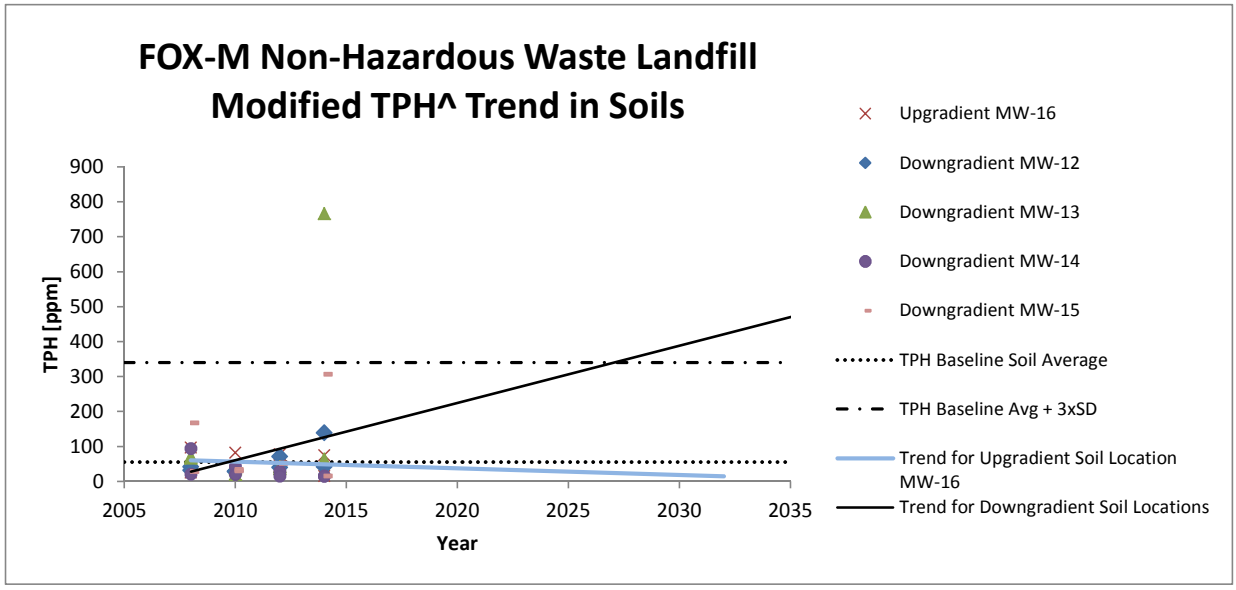
FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



*Hg Baseline Average is equal to the baseline detection limit.
** Hg results below detection for all monitoring samples. Trendlines reflect changes in detection limit.



FOX-M Non-Hazardous Waste Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

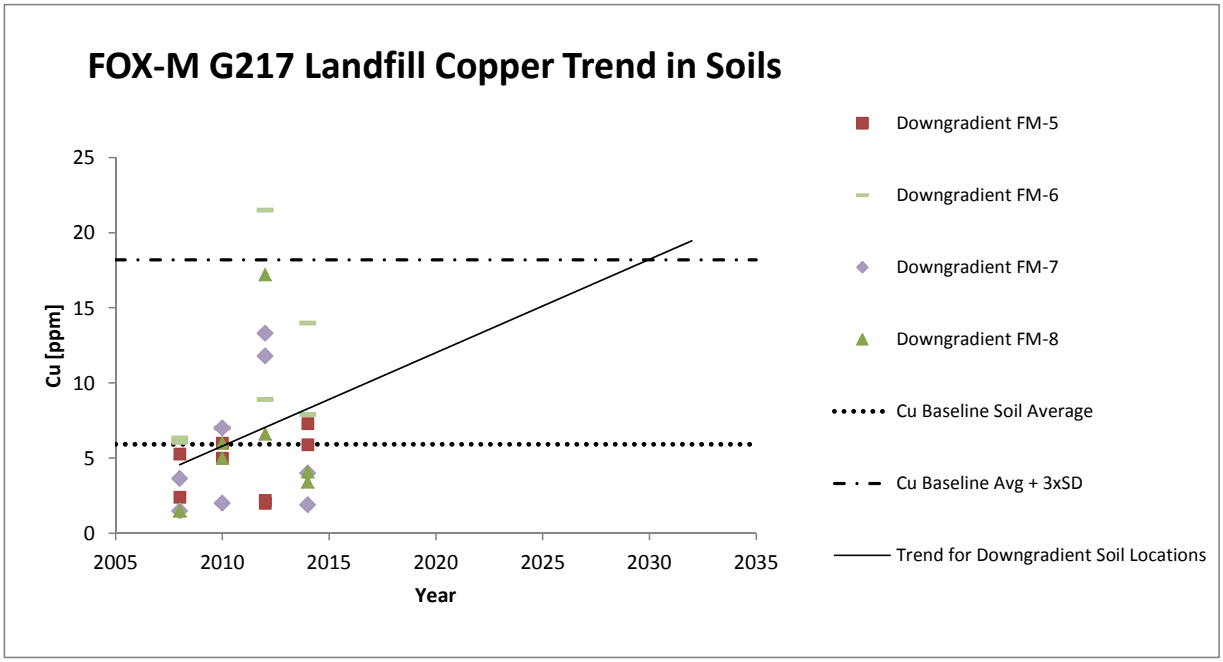


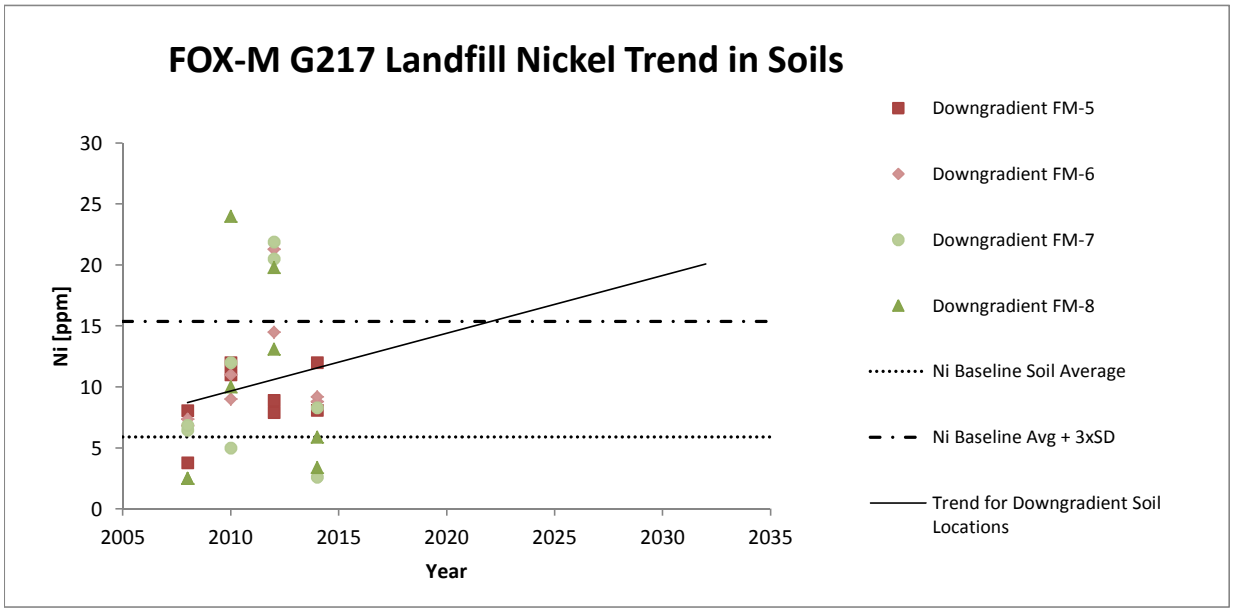
^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

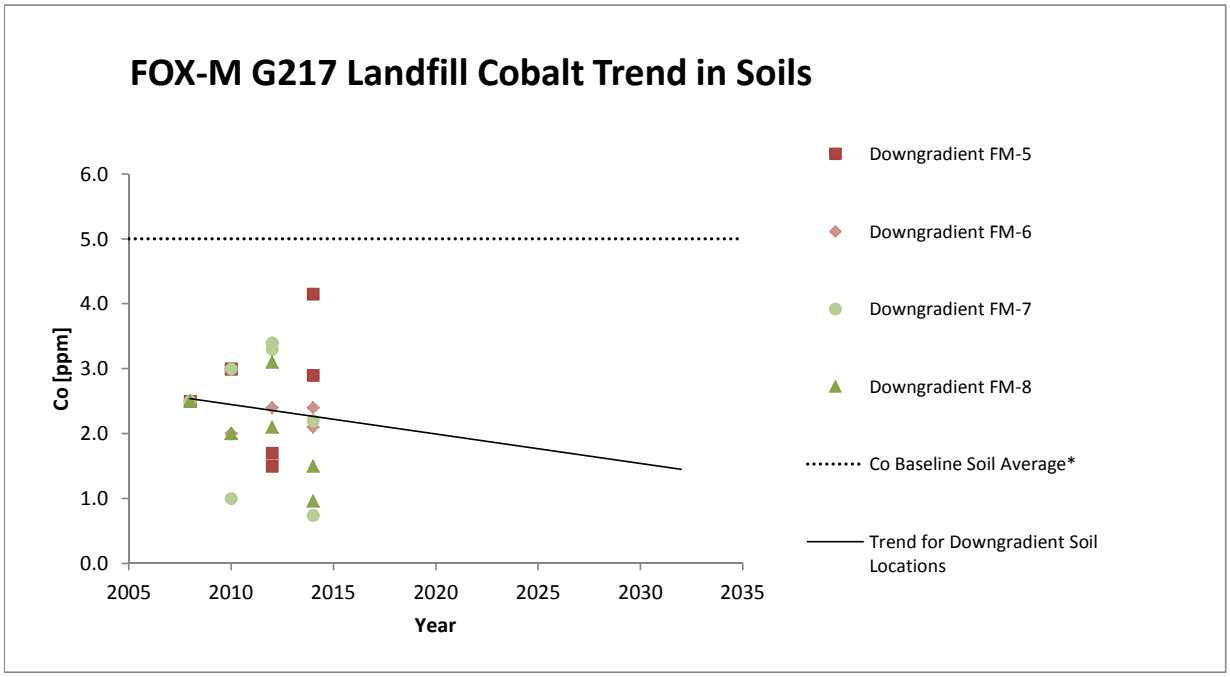
Note: All locations are downgradient, there are no upgradient locations.

Where results are below detection, half of the detection limit has been used in the charts.

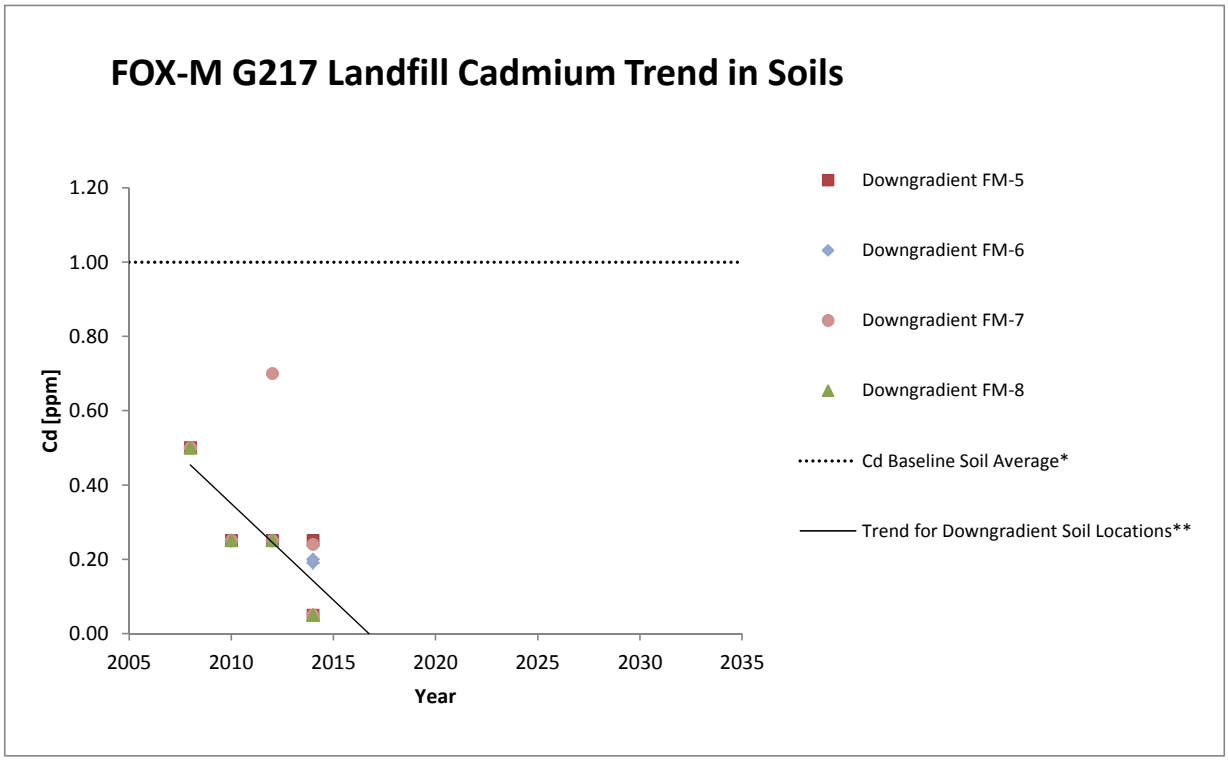




FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

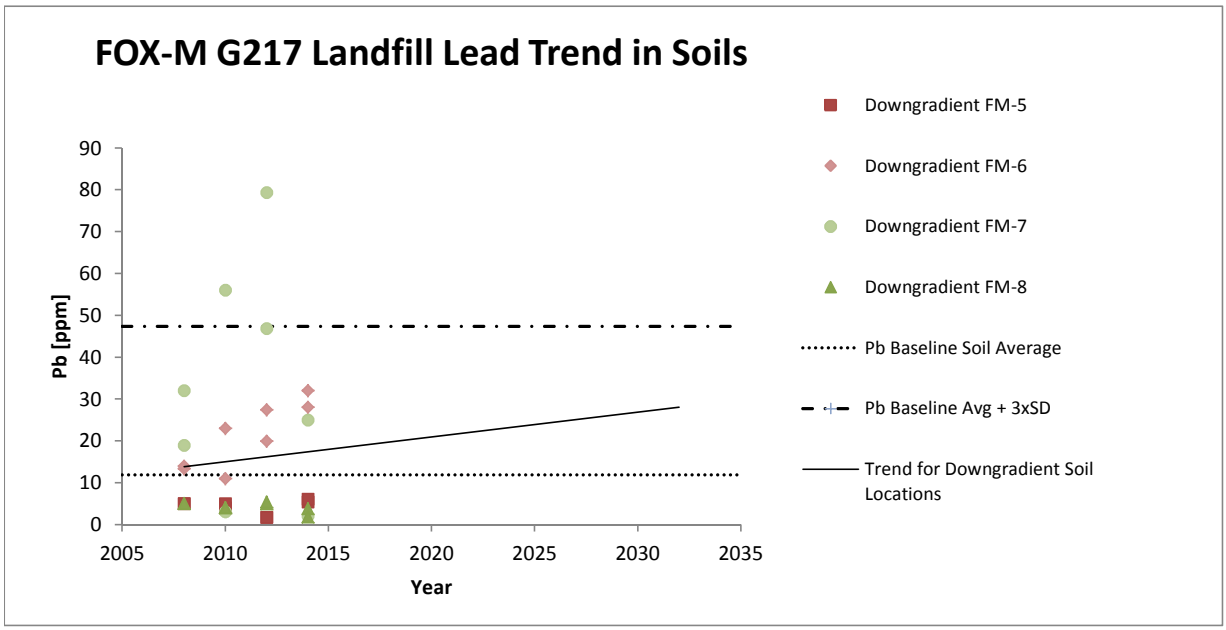


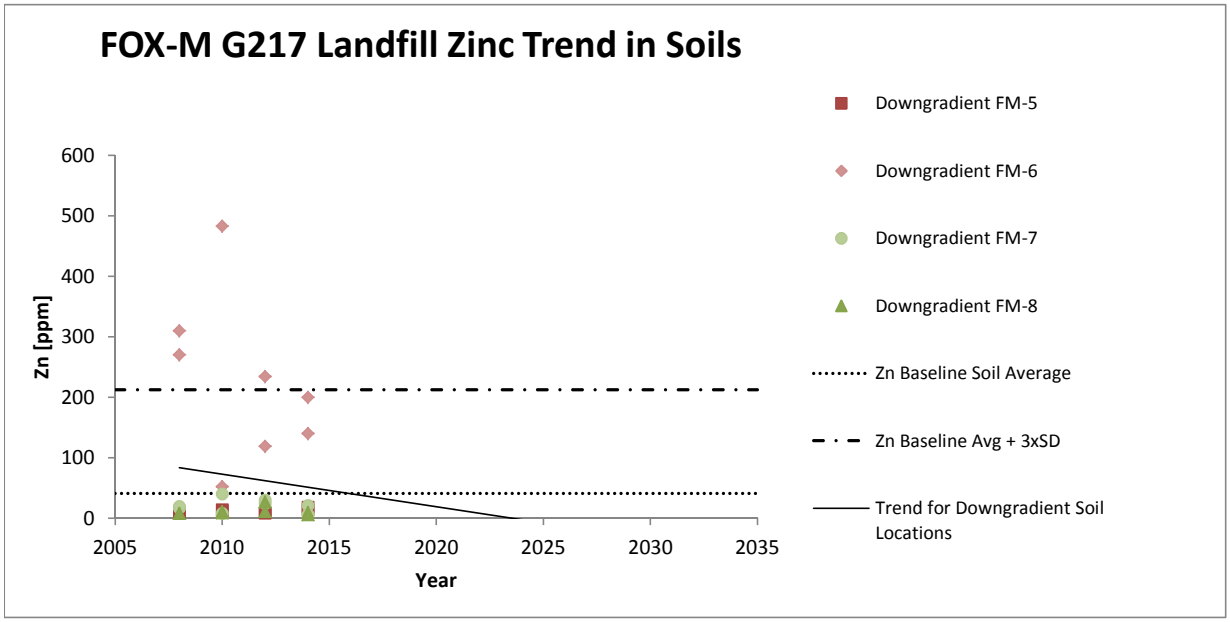
*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0

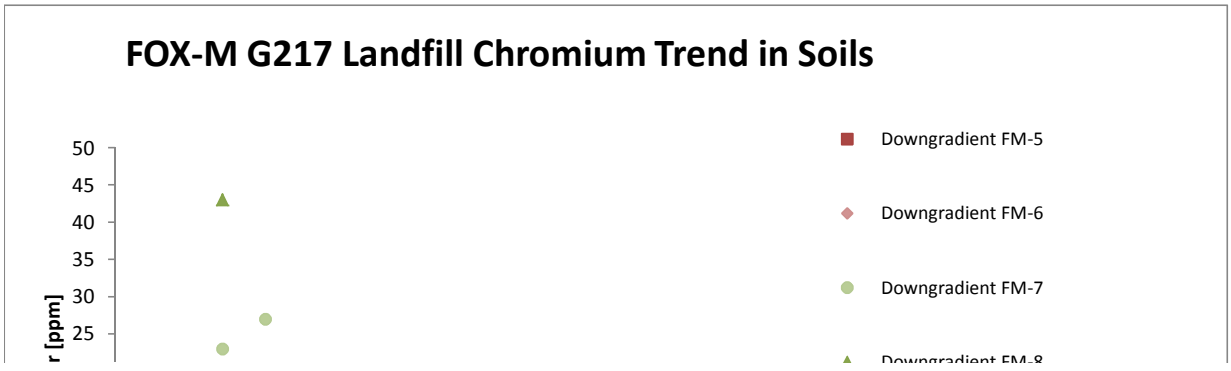


*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline SD = 0
** Cd monitoring results below detection. Trendline reflects changes in detection limits.

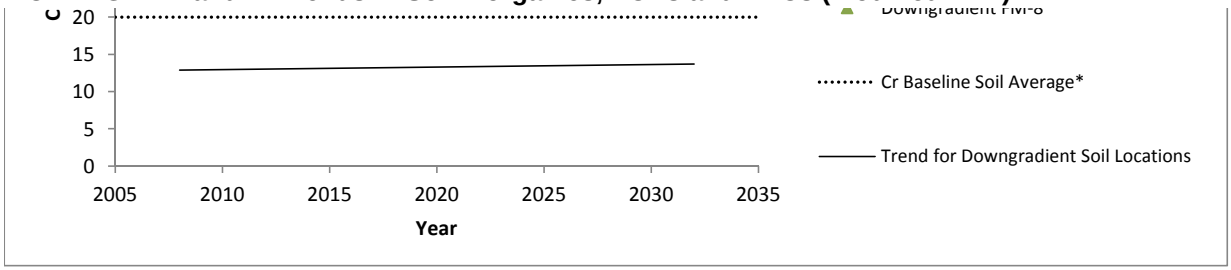
FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



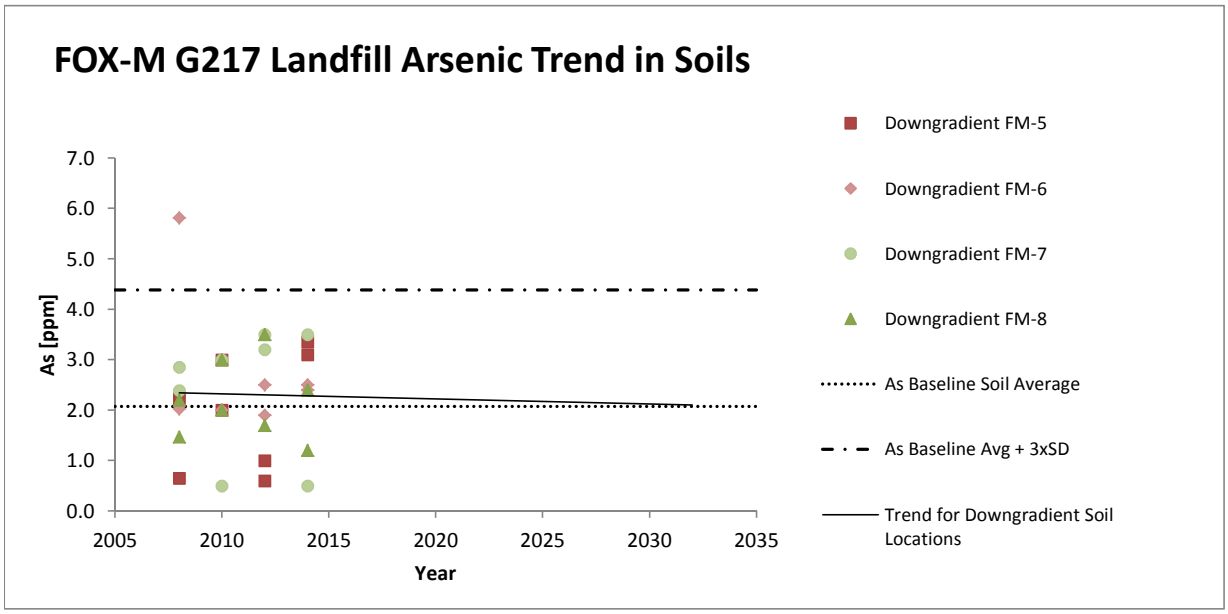




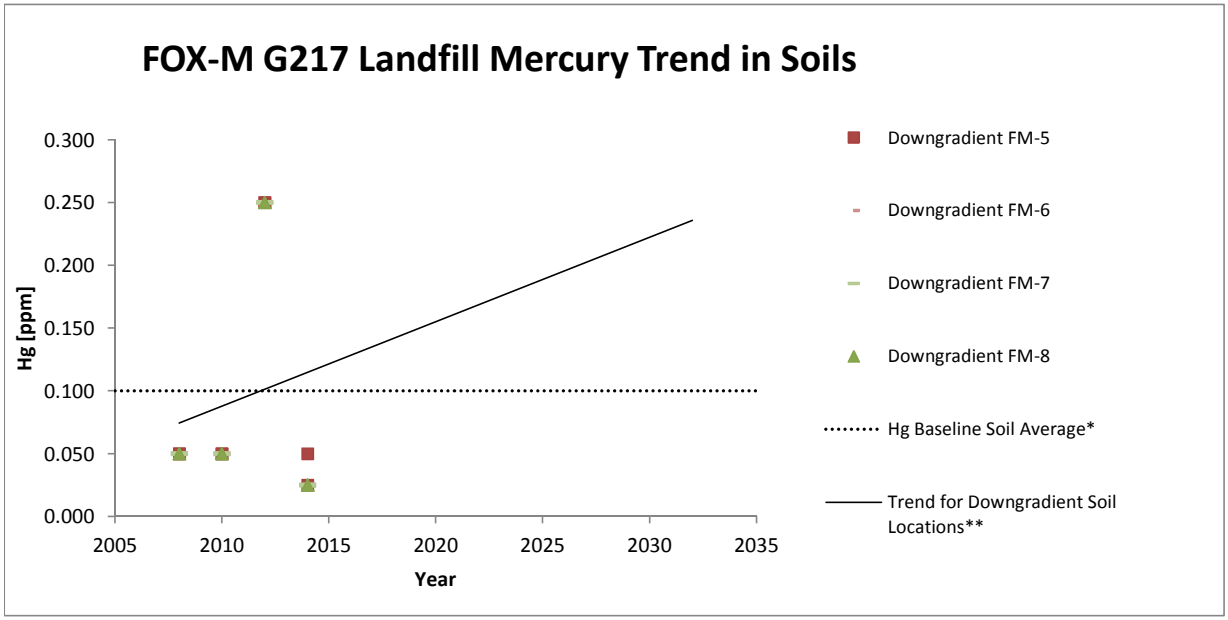
FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



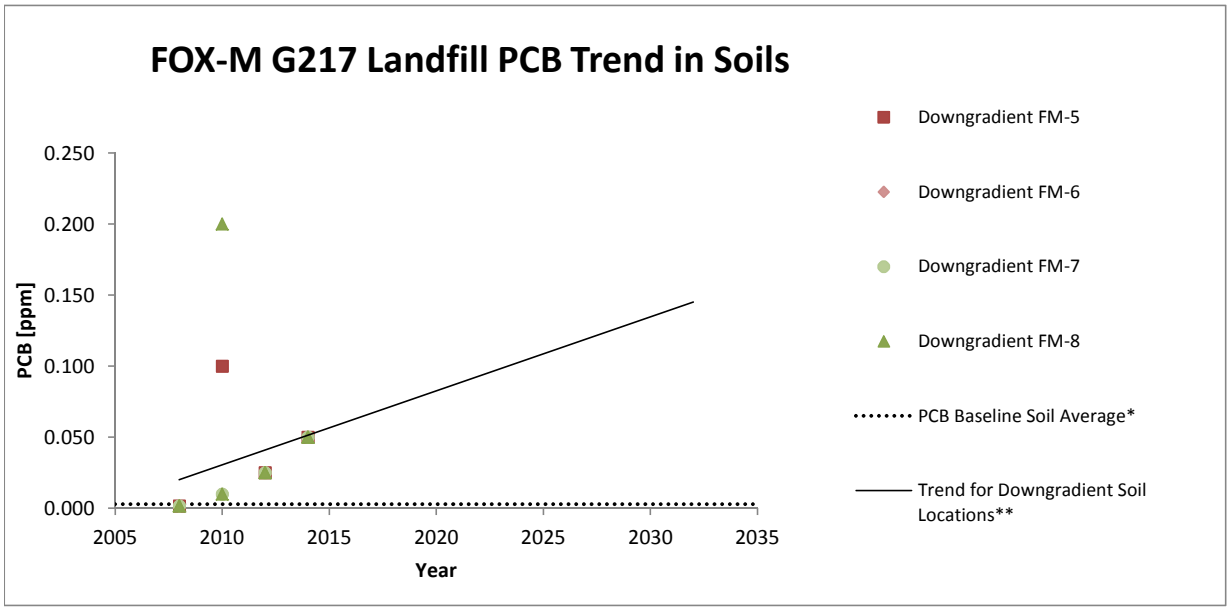
*Cr Baseline Average is equal to the baseline detection limit.
*Cr Baseline SD = 0



FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

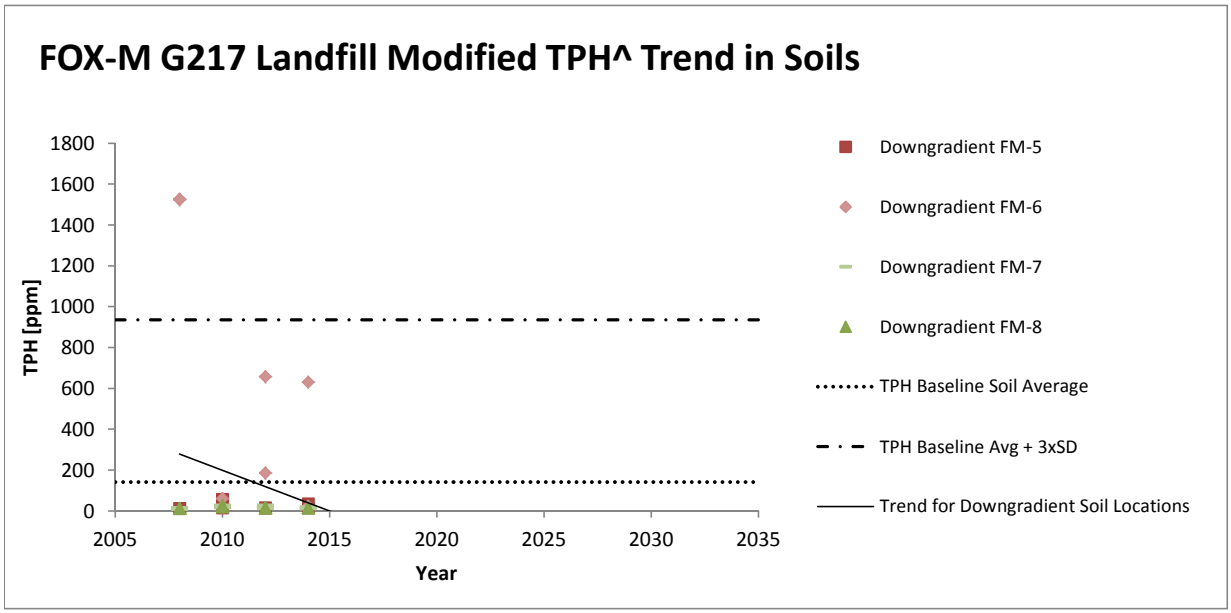


*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline SD = 0
** Hg monitoring results below detection. Trendline reflects changes in detection limit.



*PCB Baseline Average is equal to the baseline detection limit.
*PCB Baseline SD = 0
**All PCB monitoring results below detection. Trendline reflects changes in detection limit due to matrix interferences or method differences.

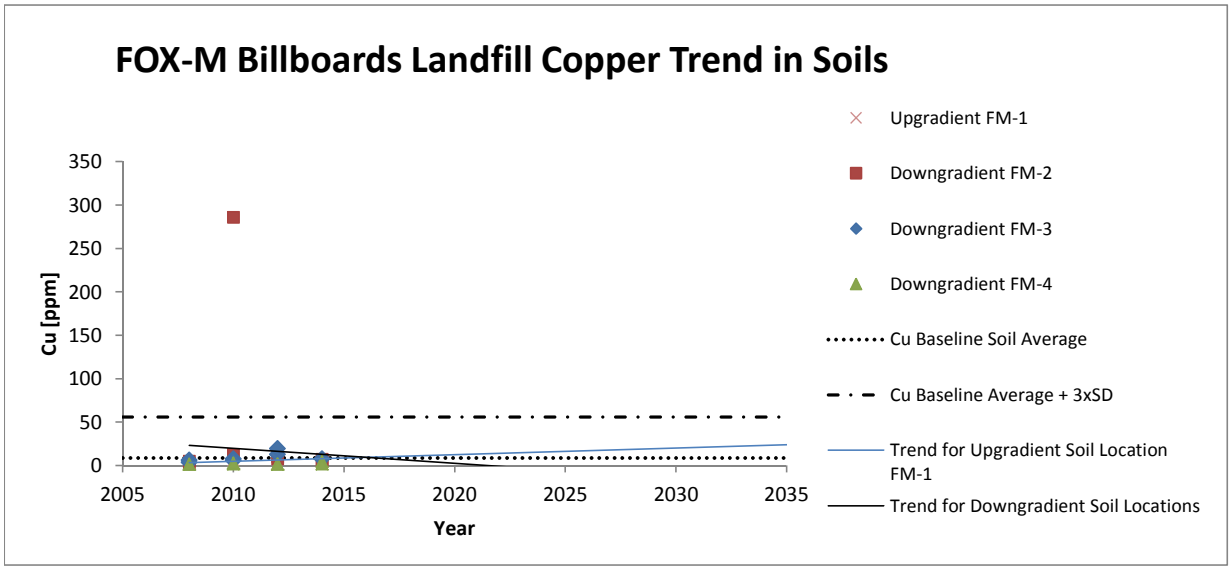
FOX-M G217 Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

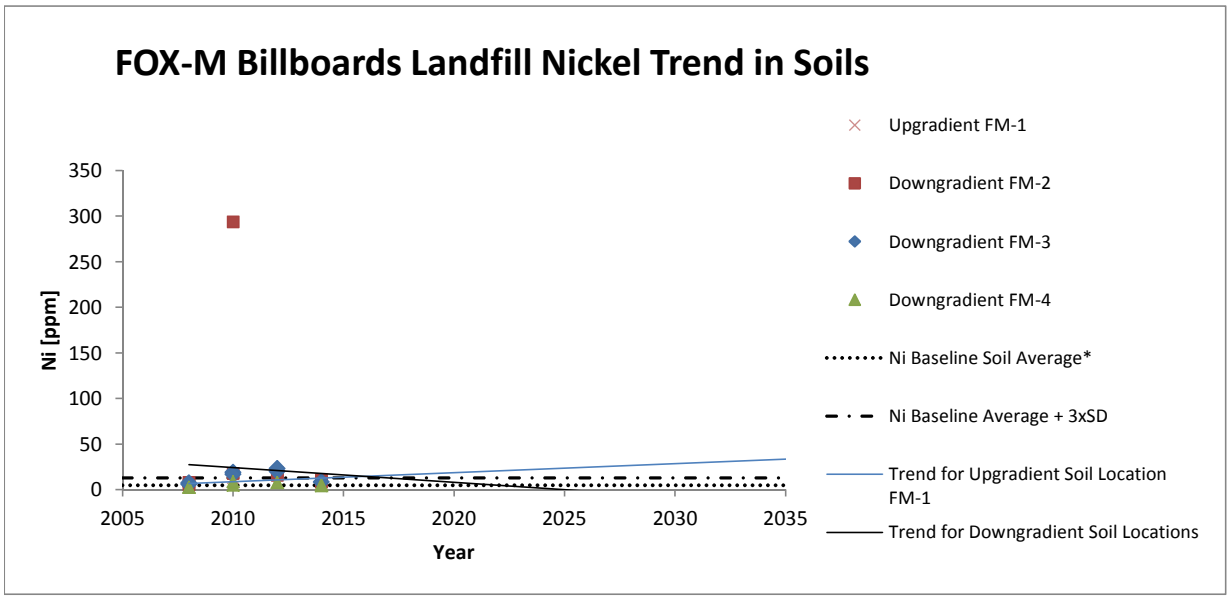


^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

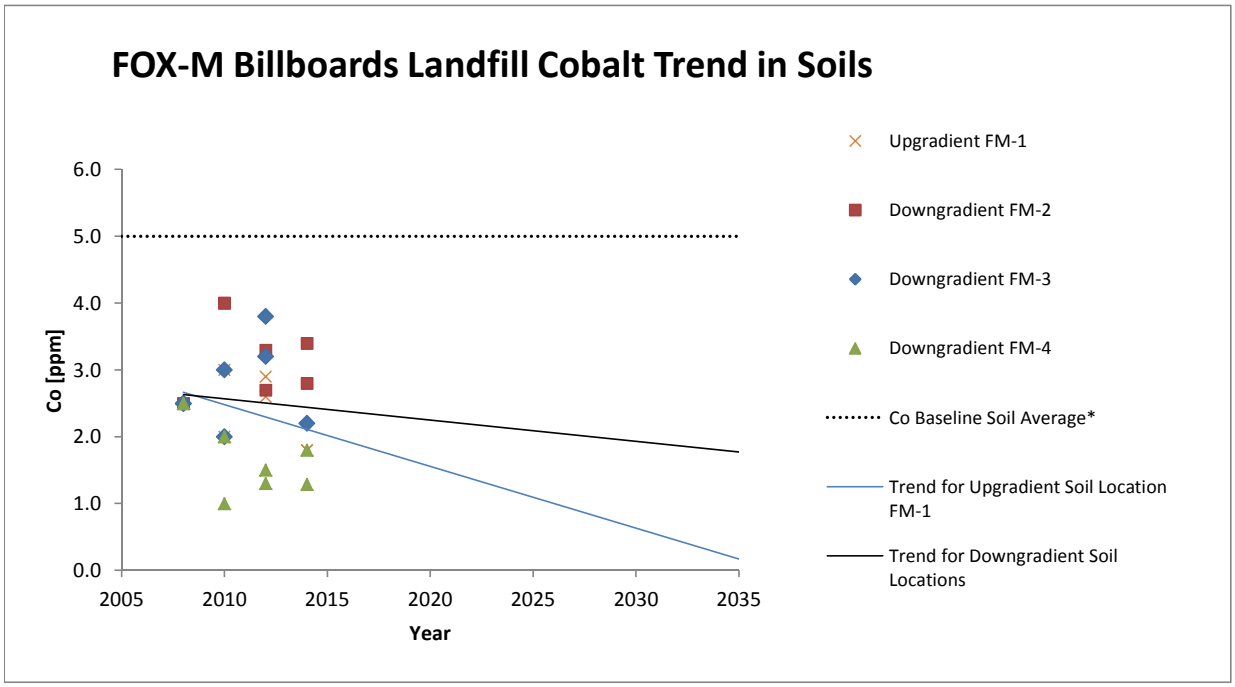
Where results are below detection, half of the detection limit has been used in the charts.



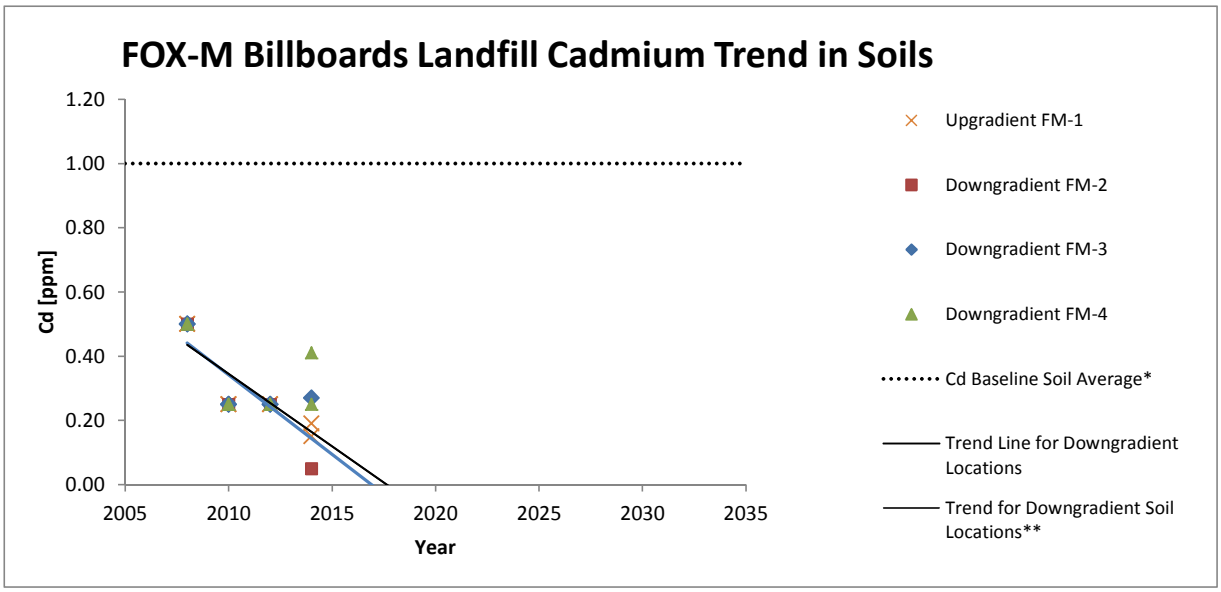


*Ni Baseline Average is equal to the baseline detection limit.

FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

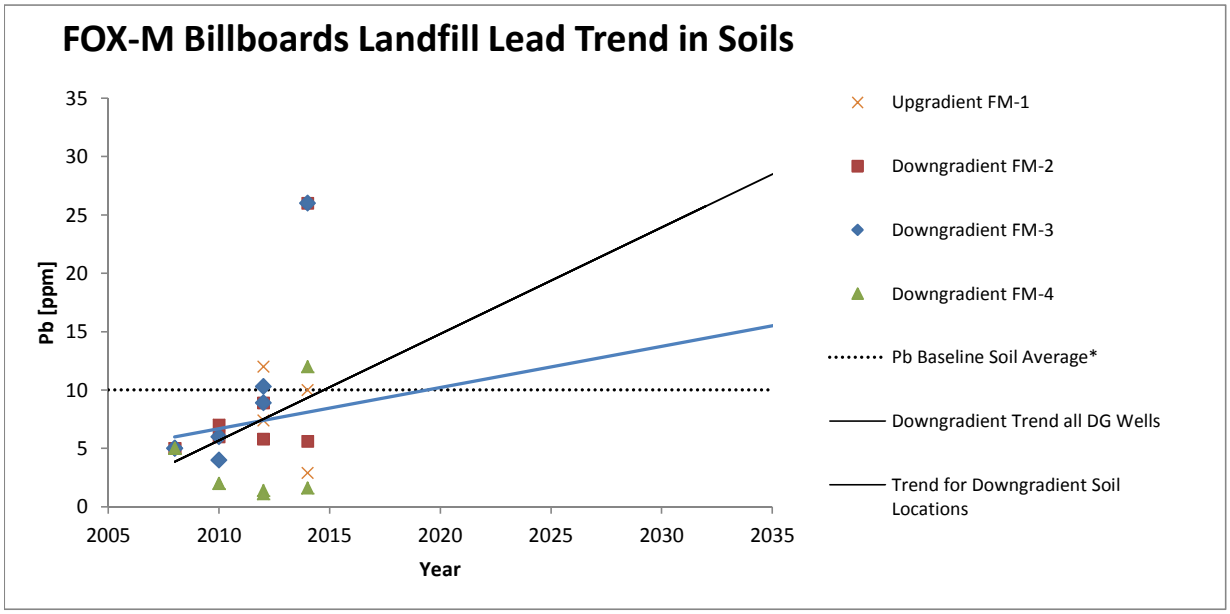


*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline Avg + 3xSD = 0

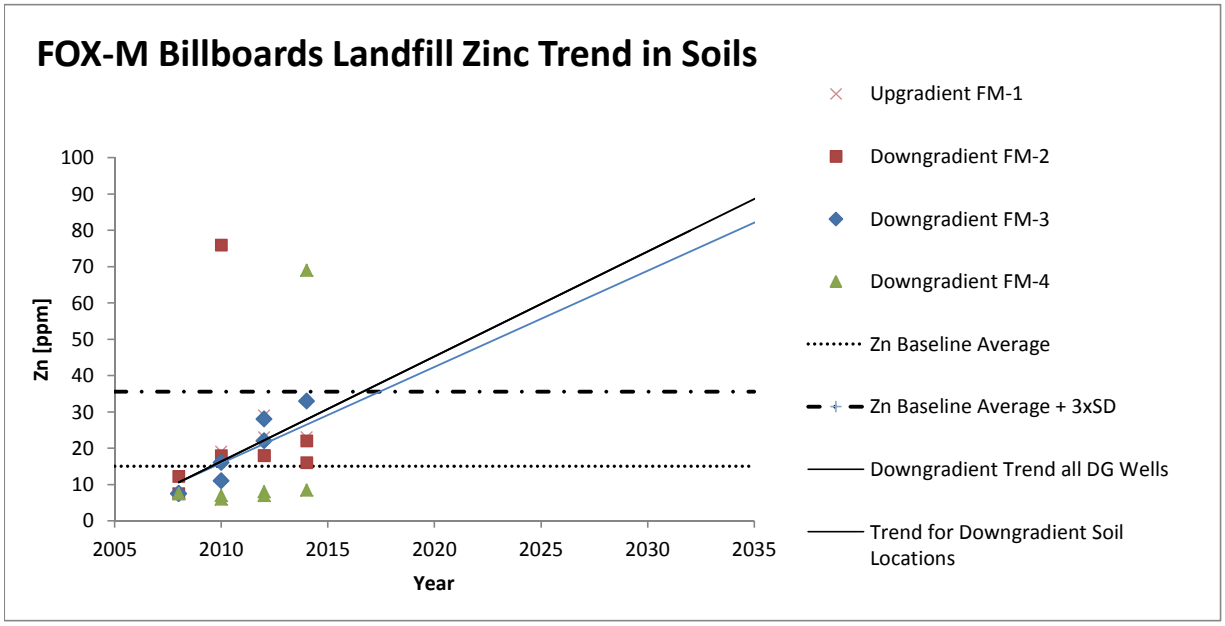


*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline SD = 0
** Cd Monitoring results below detection. Trend reflects changes in detection limits

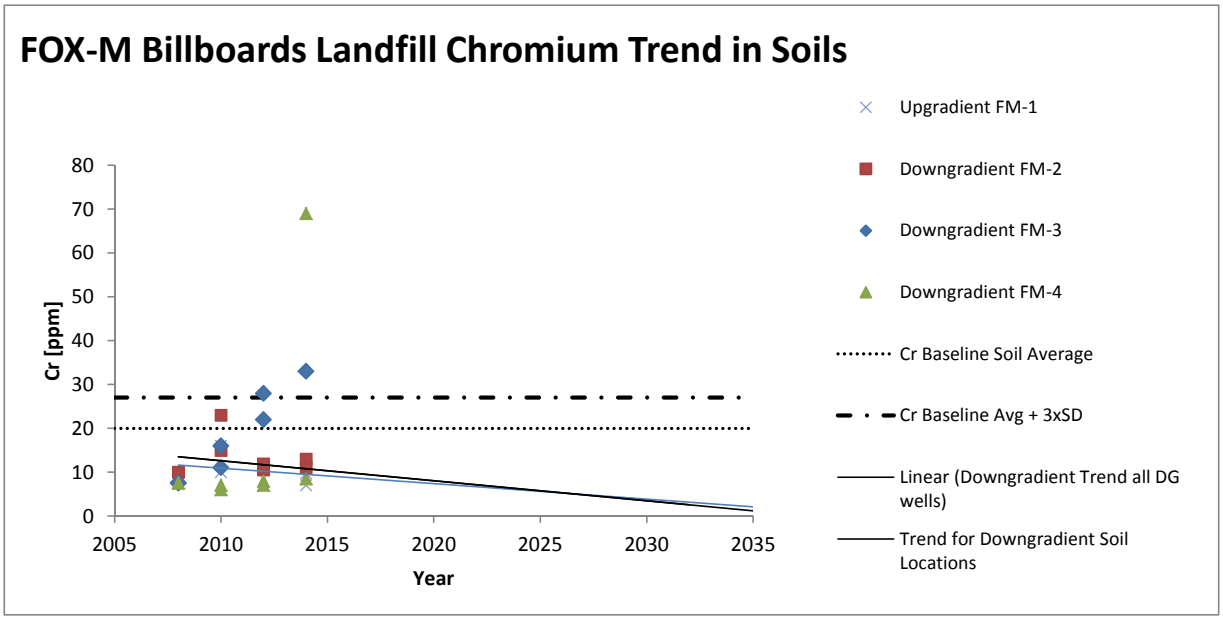
FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

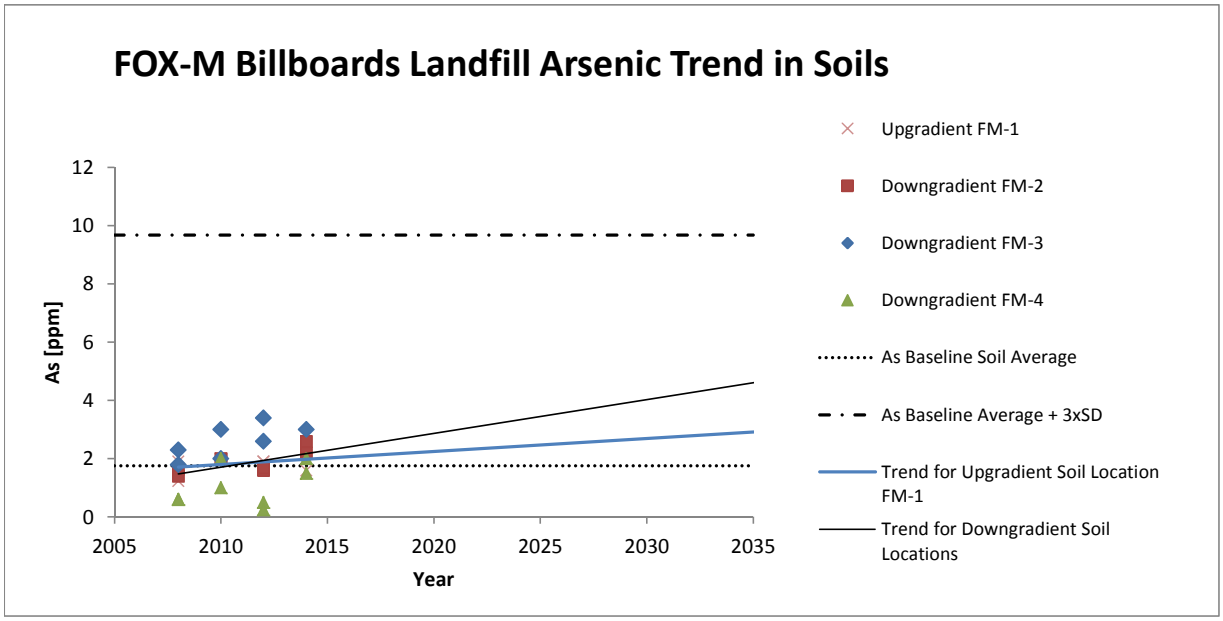


*Pb Baseline Average is equal to the baseline detection limit.
*Pb Baseline SD = 0

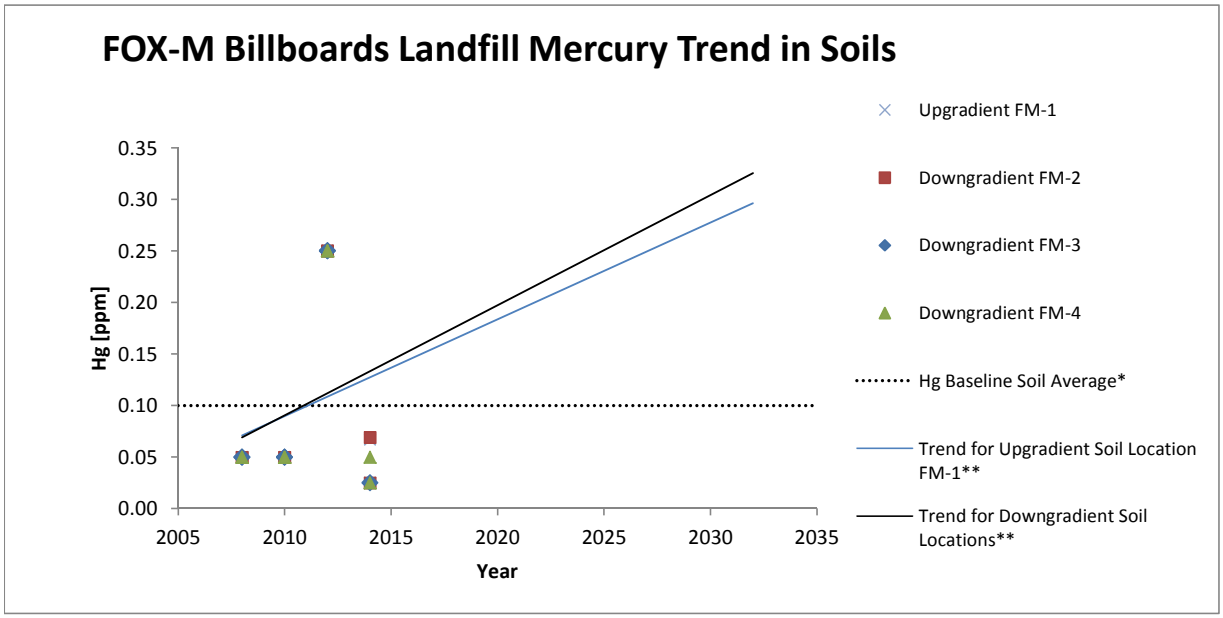


FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

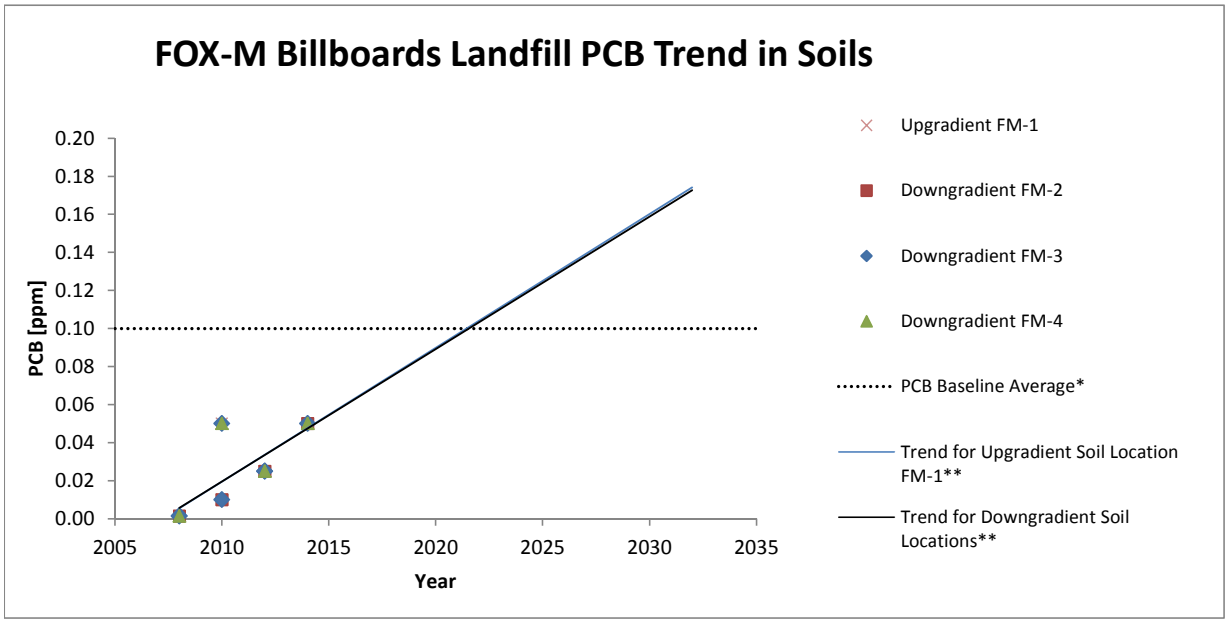




FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline Avg SD = 0
**Hg monitoring results below detection. Trendline reflects changes in detection limit.



*PCB Baseline Average is equal to the baseline detection limit.
* PCB Baseline SD = 0
** PCB monitoring results below detection. Trendline reflects changes in detection limit.

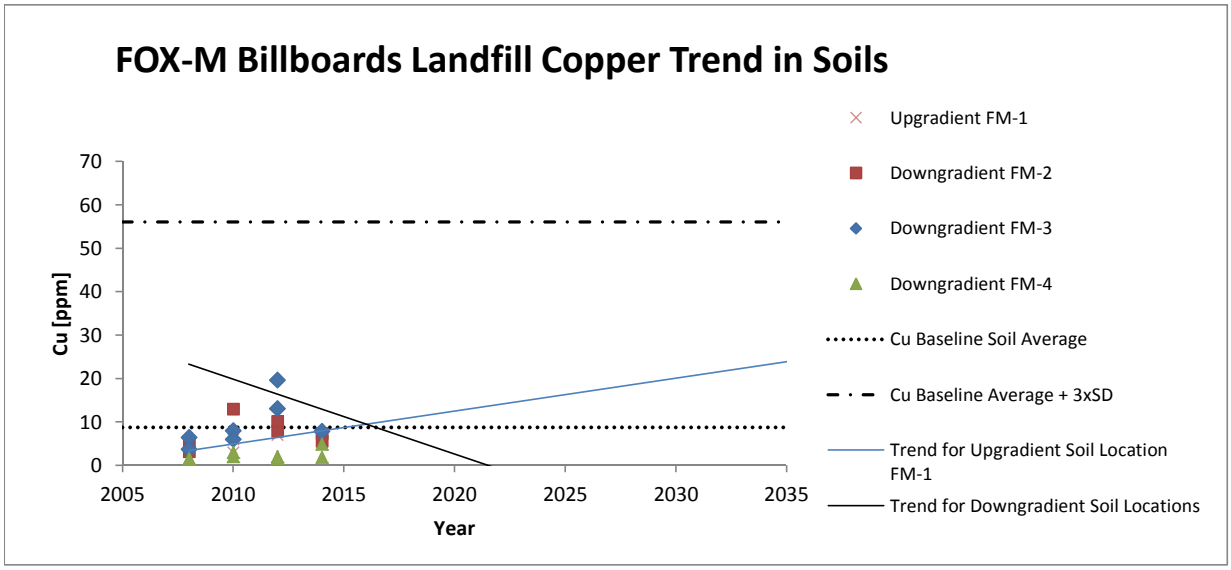
FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

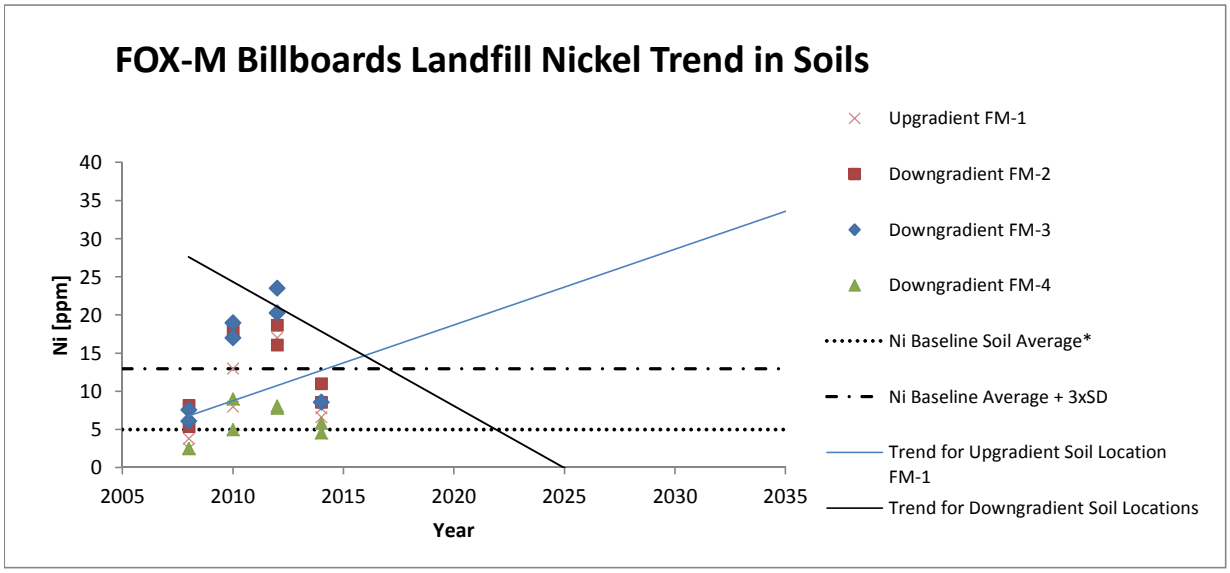
FOX-M Billboards Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

Where results are below detection, half of the detection limit has been used in the charts.

Copper chart with y-axis modified to show trend without displaying the 2010 value of 286 ppm at FM-2. The value is included in the trend analysis.



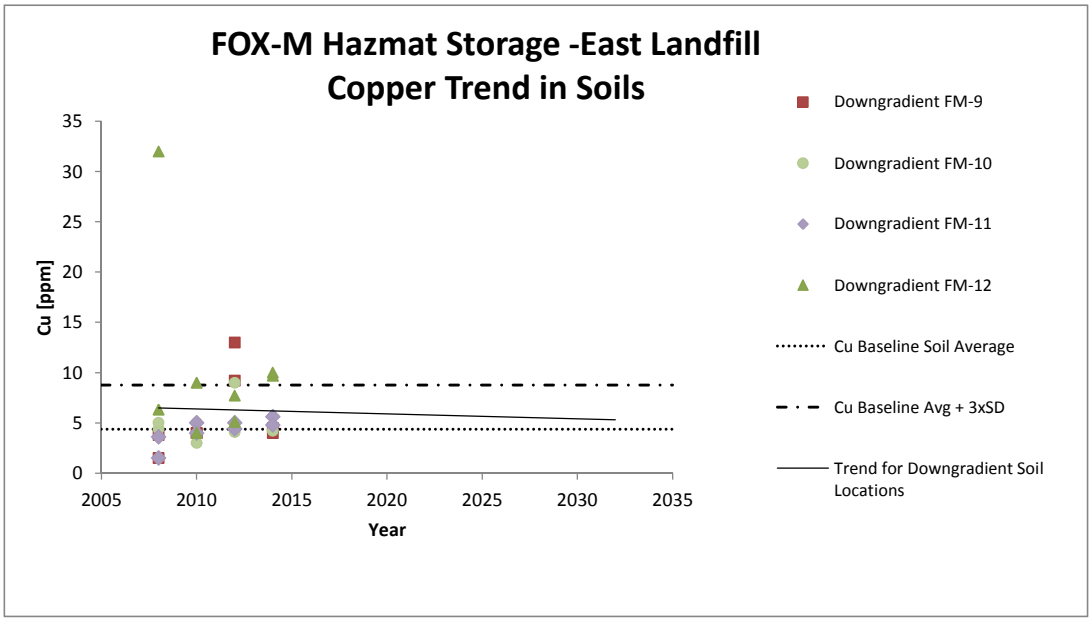
Nickel chart with y-axis modified to show trend without displaying the 2010 value of 294 ppm at FM-2. The value is included in the trend analysis.

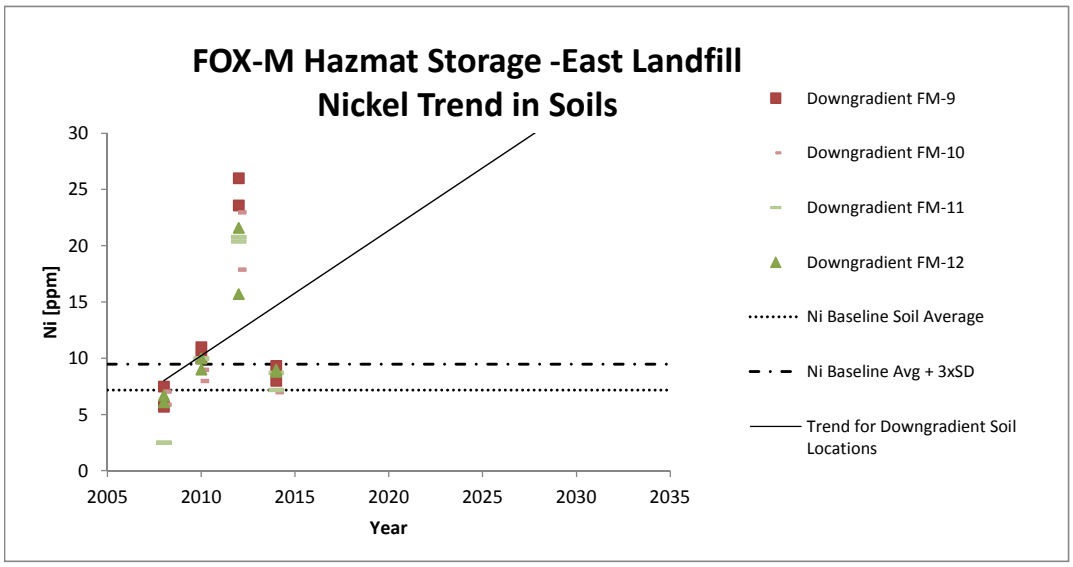


FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

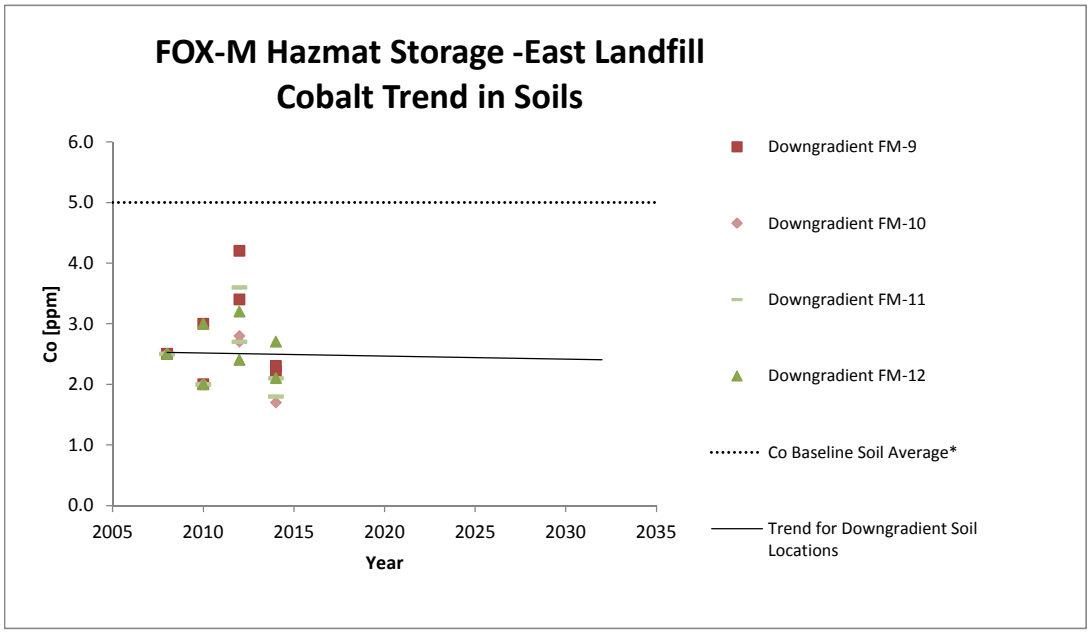
Note: All locations are downgradient, there are no upgradient locations.

Where results are below detection, half of the detection limit has been used in the charts.

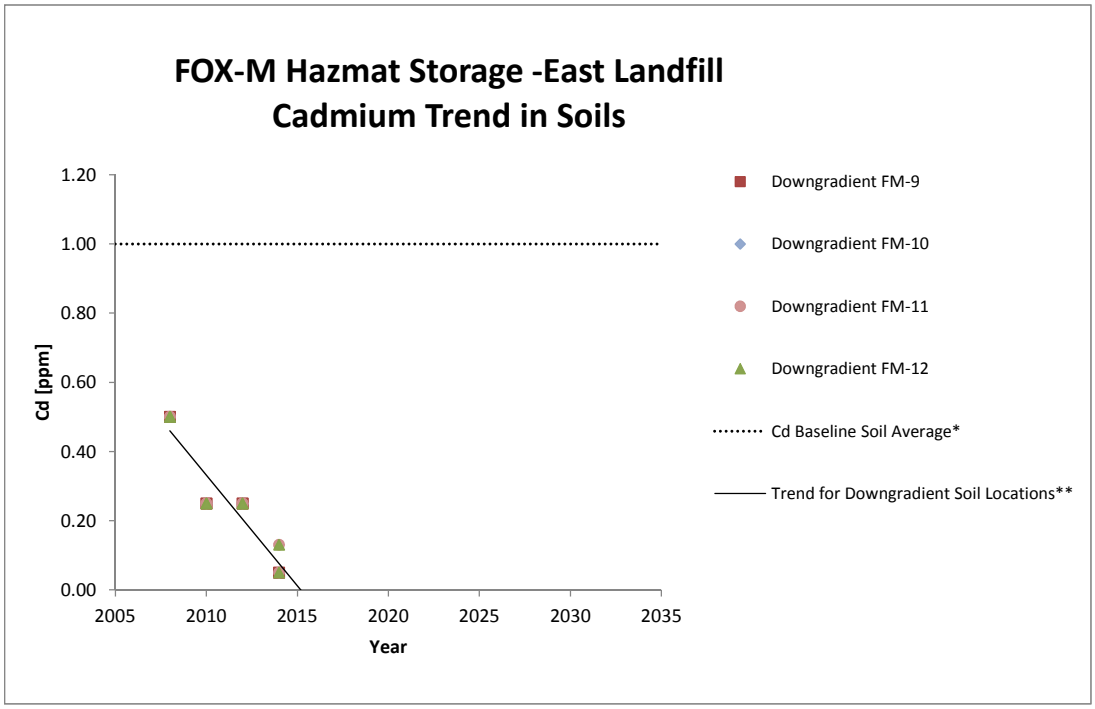




FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

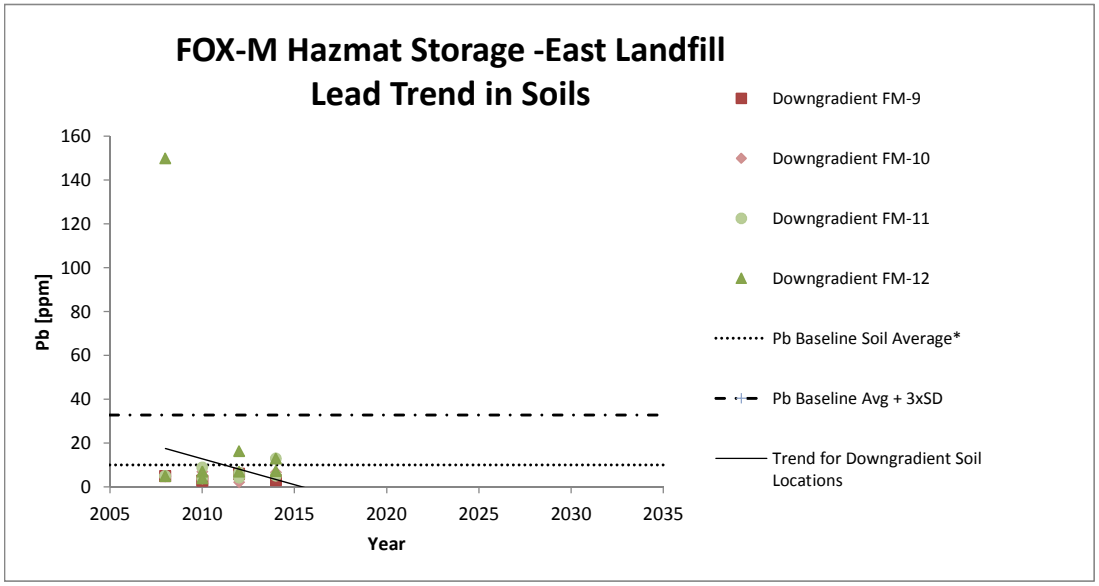


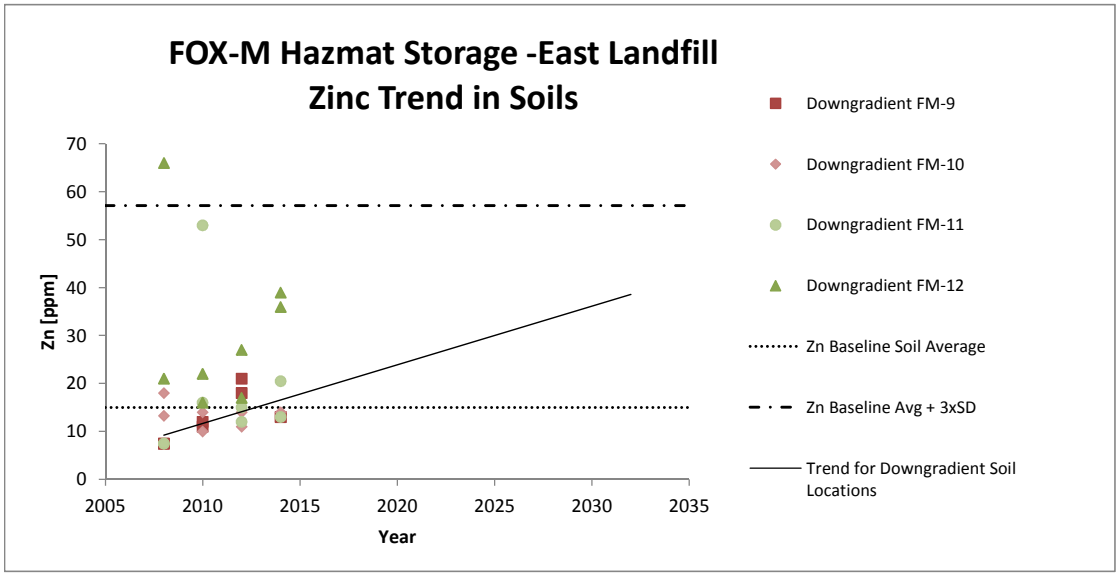
*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0



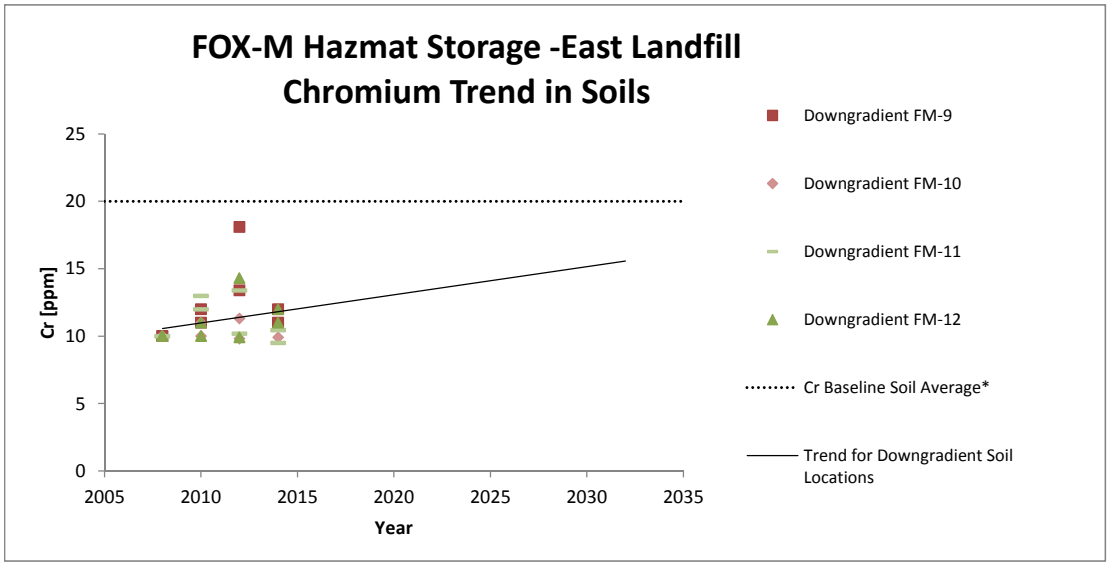
*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline Avg SD = 0
** Cd Monitoring results below detection. Trendline reflects changes in detection limit.

FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

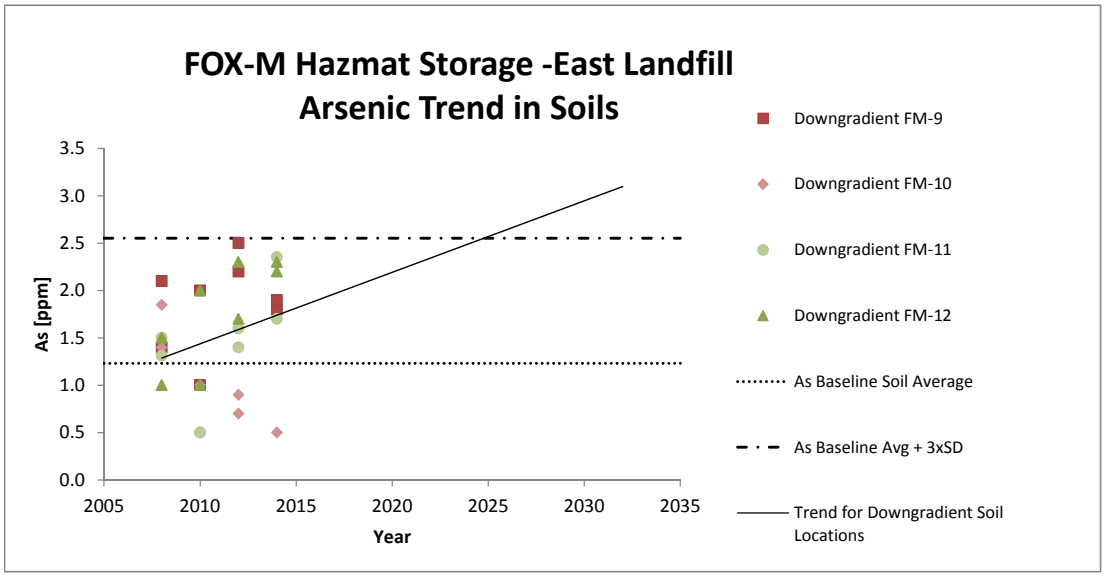




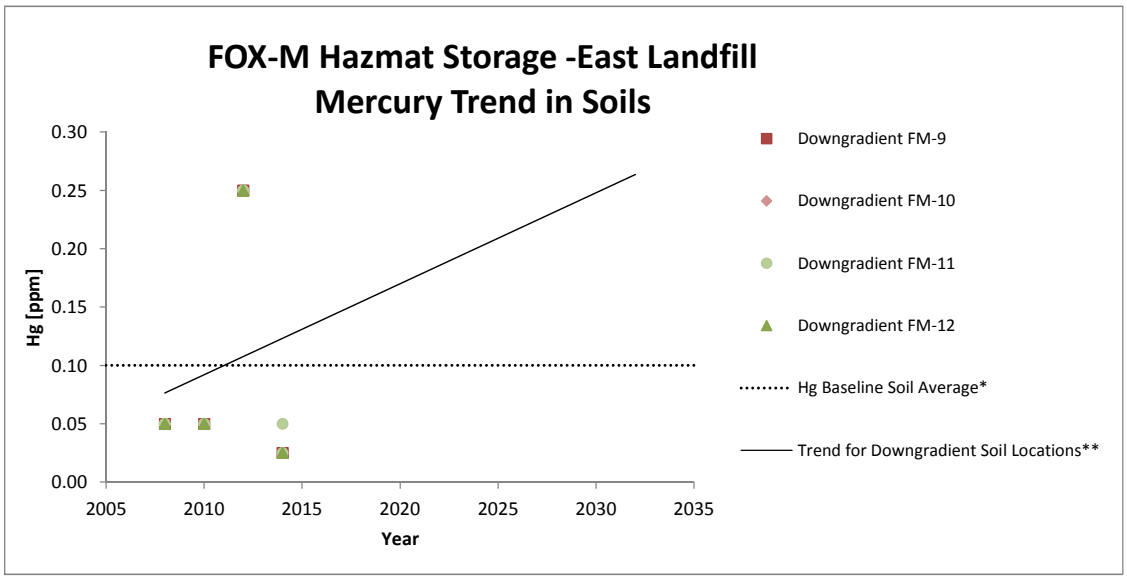
FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



*Cr Baseline Average is equal to the baseline detection limit.
*Cr Baseline SD = 0



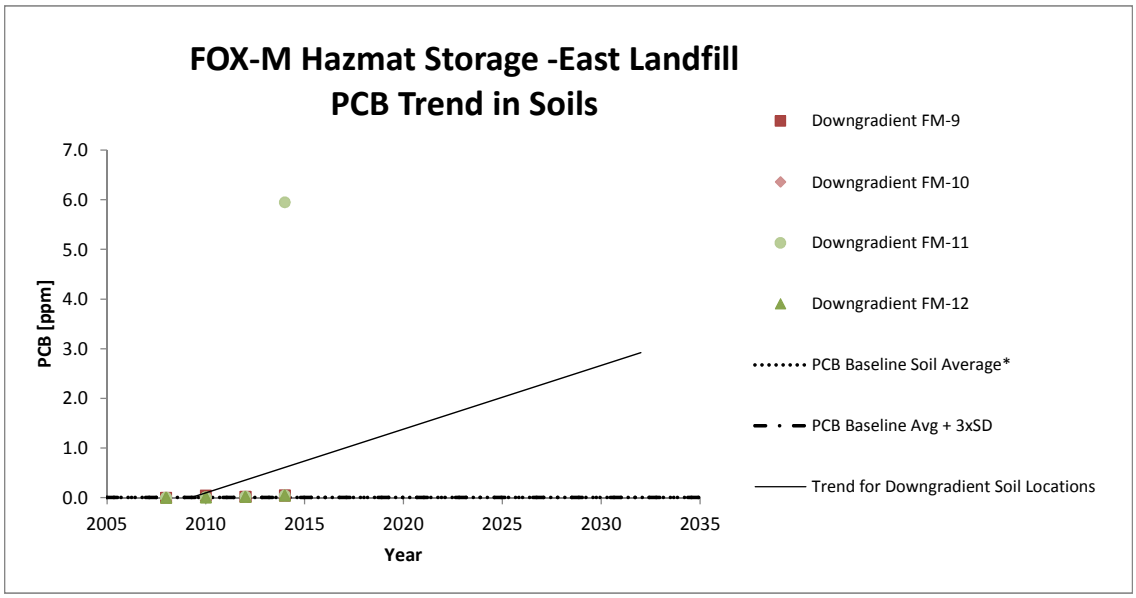
FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



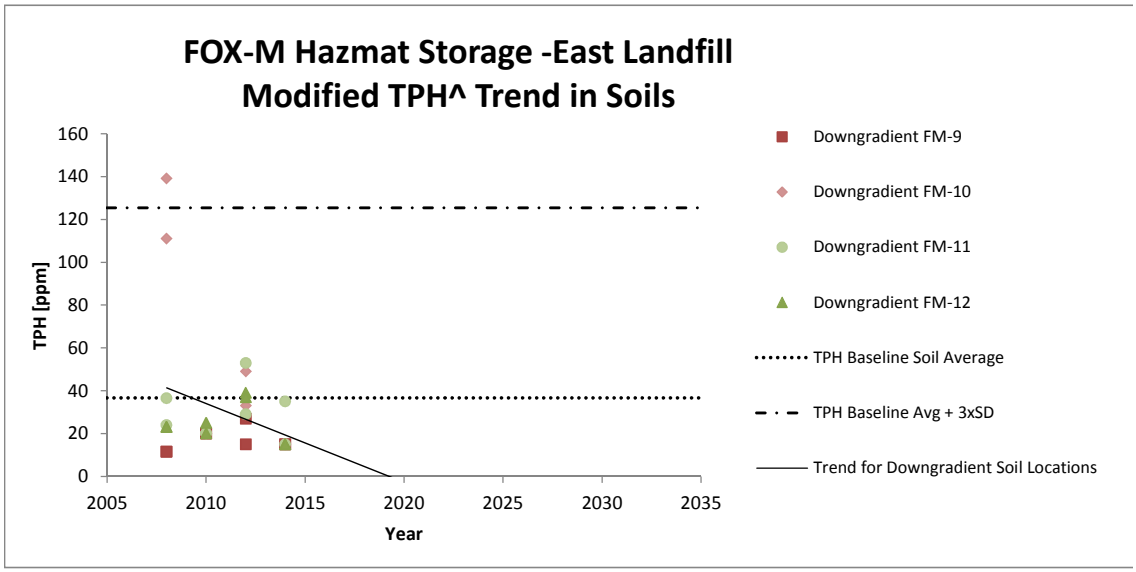
*Hg Baseline Average is equal to the baseline detection limit.

* Hg Baseline Avg SD = 0

** Hg monitoring results below detection. Trendline reflects changes in detection limits.



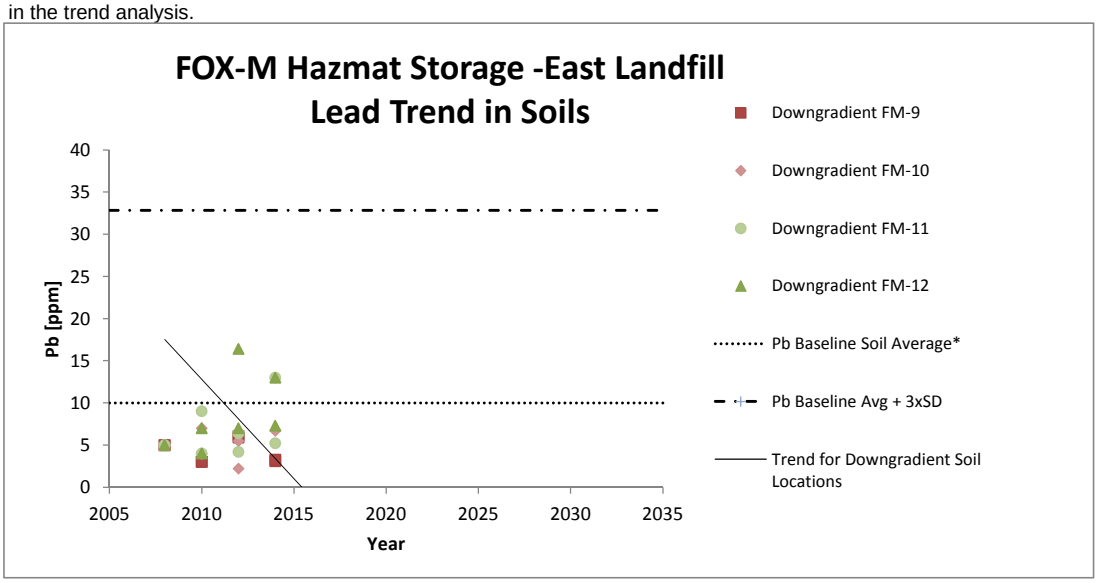
FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})

FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

Note: All locations are downgradient, there are no upgradient locations.
Where results are below detection, half of the detection limit has been used in the charts.
Lead chart with y-axis modified to show trend without displaying the 2008 value of 150 ppm at FM-12. The value is included in the trend analysis.

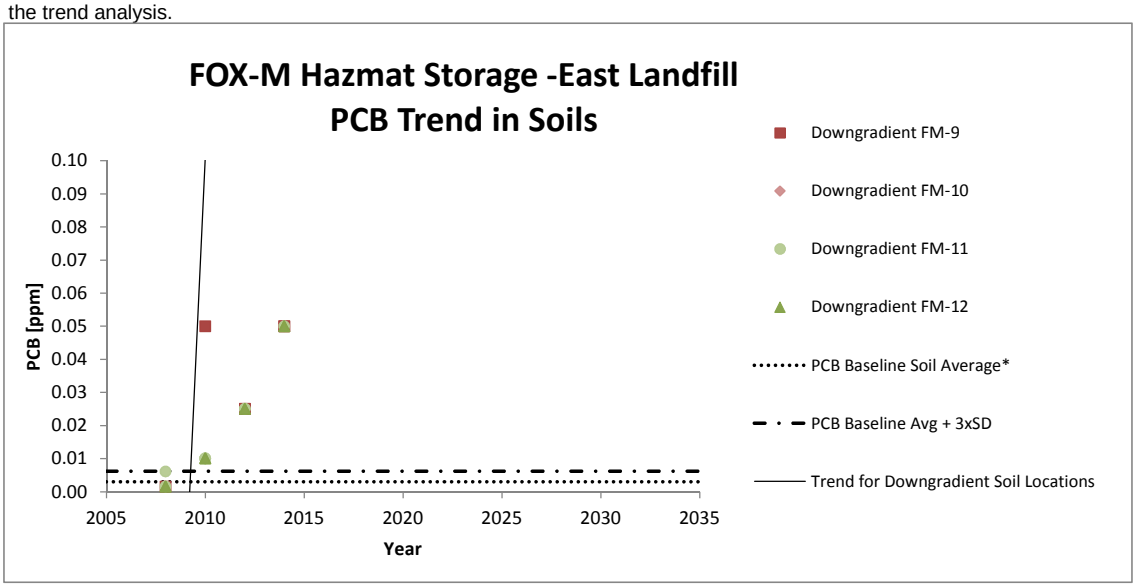


FOX-M Hazmat Storage-East Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

Note: All locations are downgradient, there are no upgradient locations.

Where results are below detection, half of the detection limit has been used in the charts.

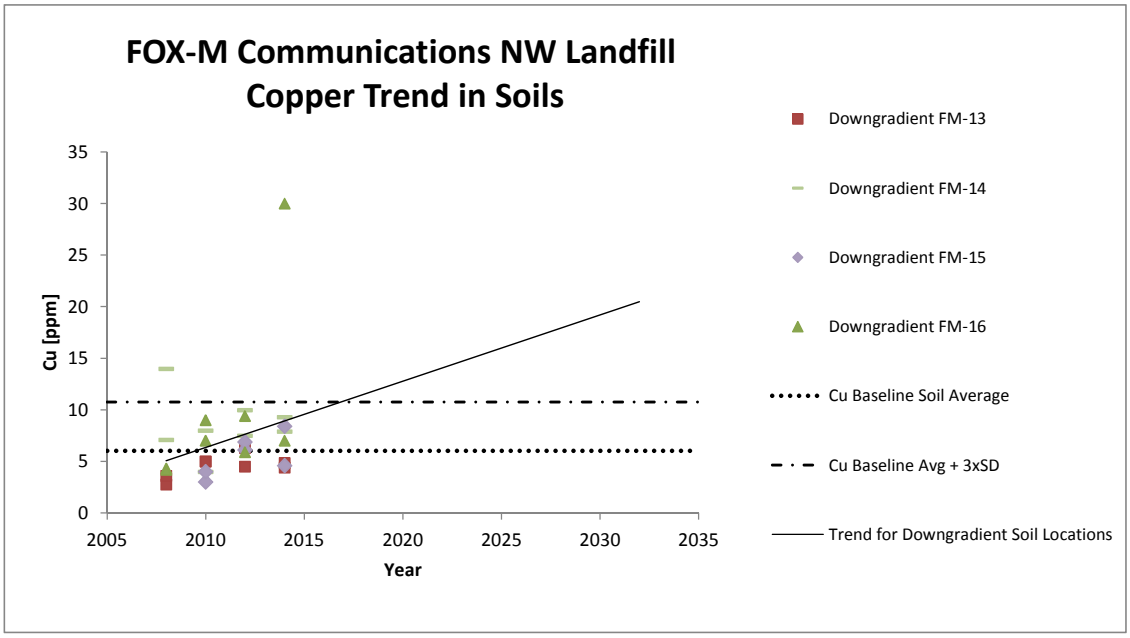
PCB chart with y-axis modified to show trend without displaying the 2014 value of 8.8 ppm at FM-11. The value is included in the trend analysis.

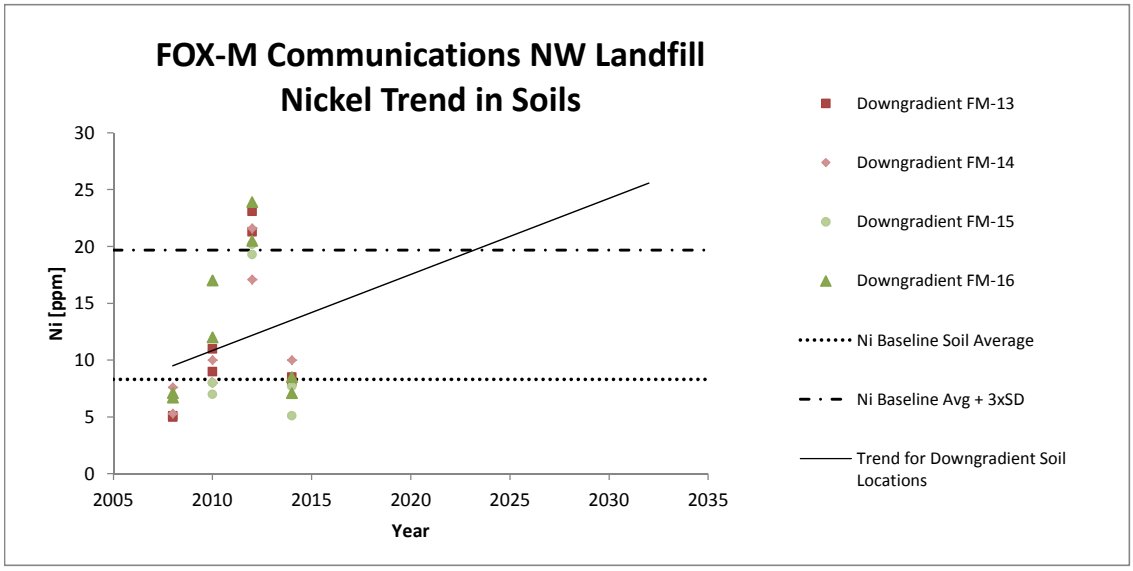


FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

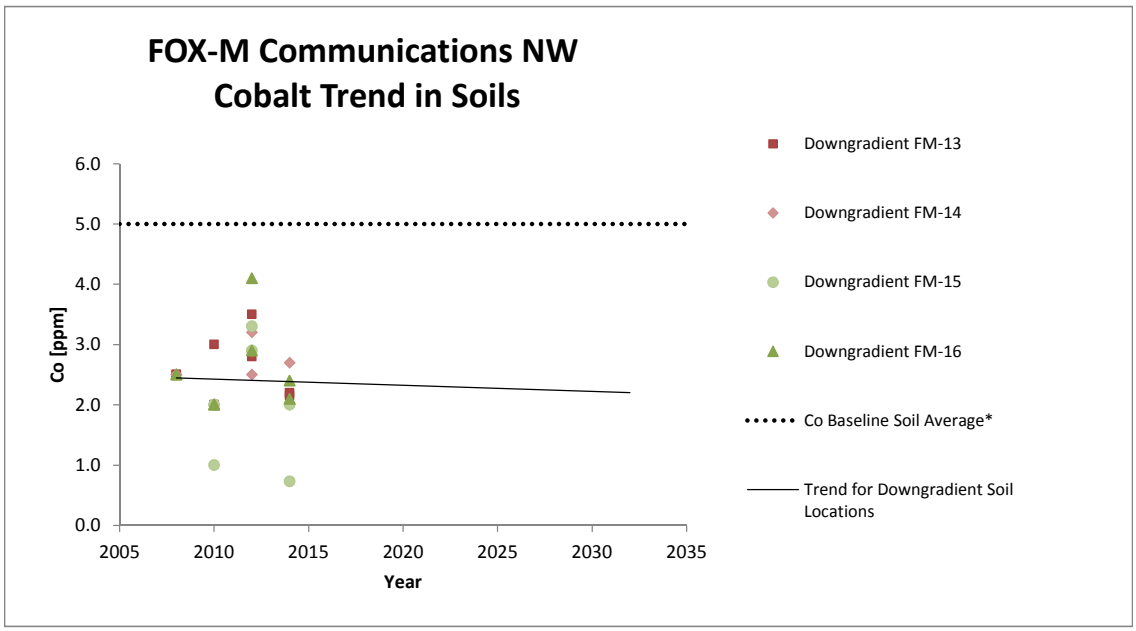
Note: All locations are downgradient, there are no upgradient locations.

Where results are below detection, half of the detection limit has been used in the charts.

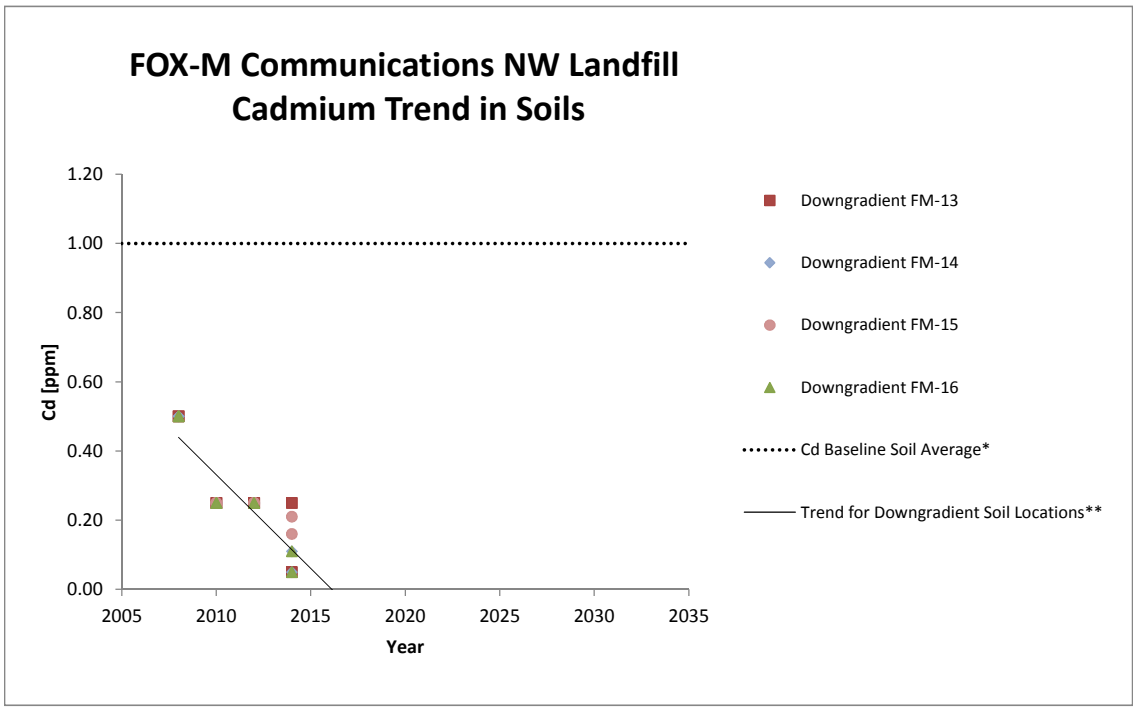




FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

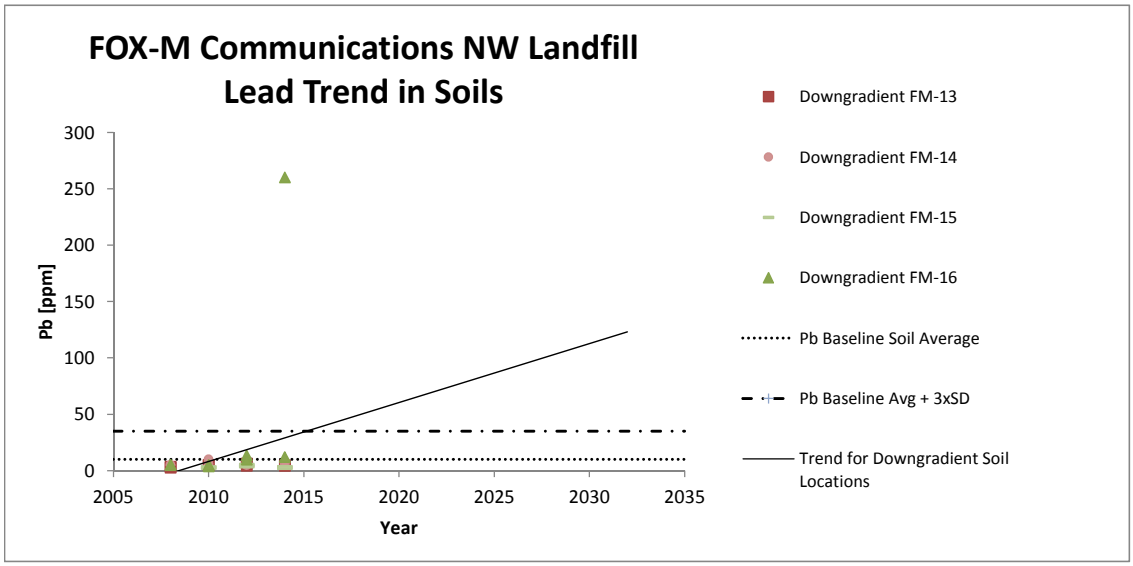


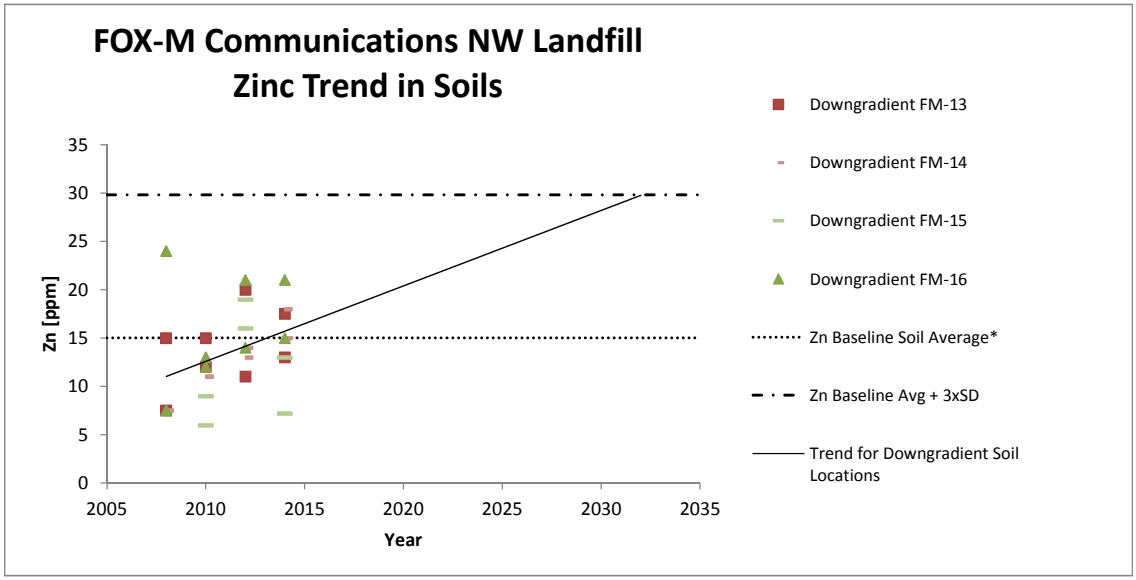
*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0



*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline Avg SD = 0
** Cd monitoring results all below detection. Trendline reflects changes in detection limits.

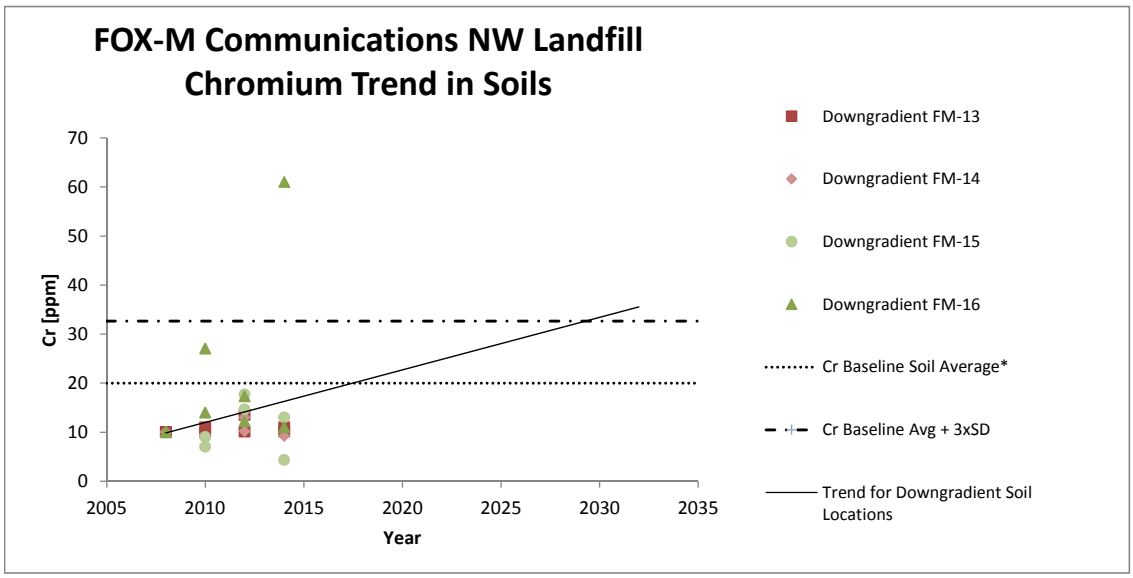
FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



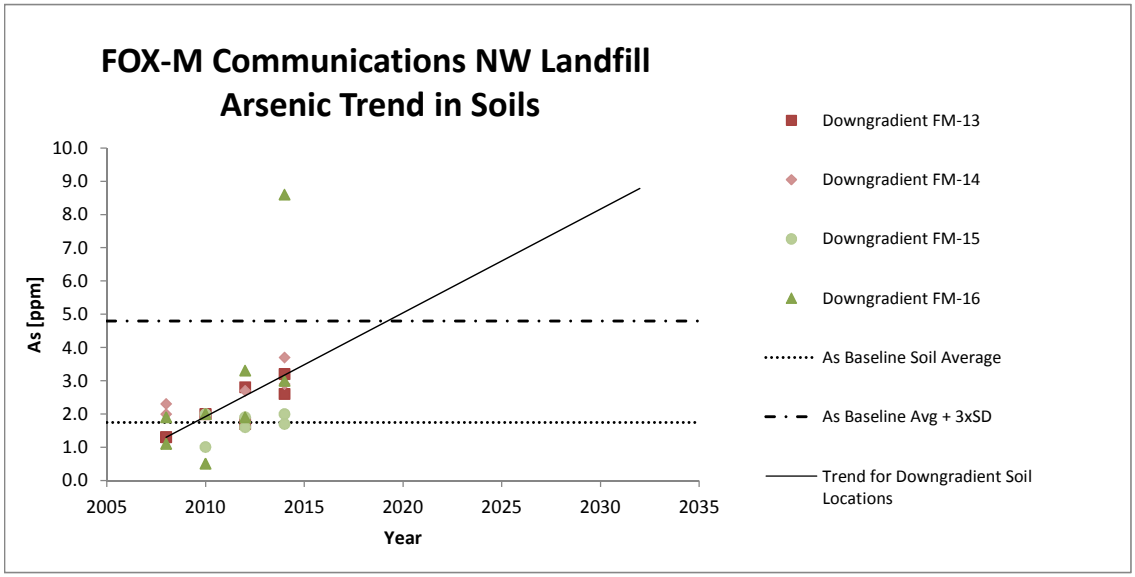


*Zn Baseline Average is equal to the baseline detection limit.

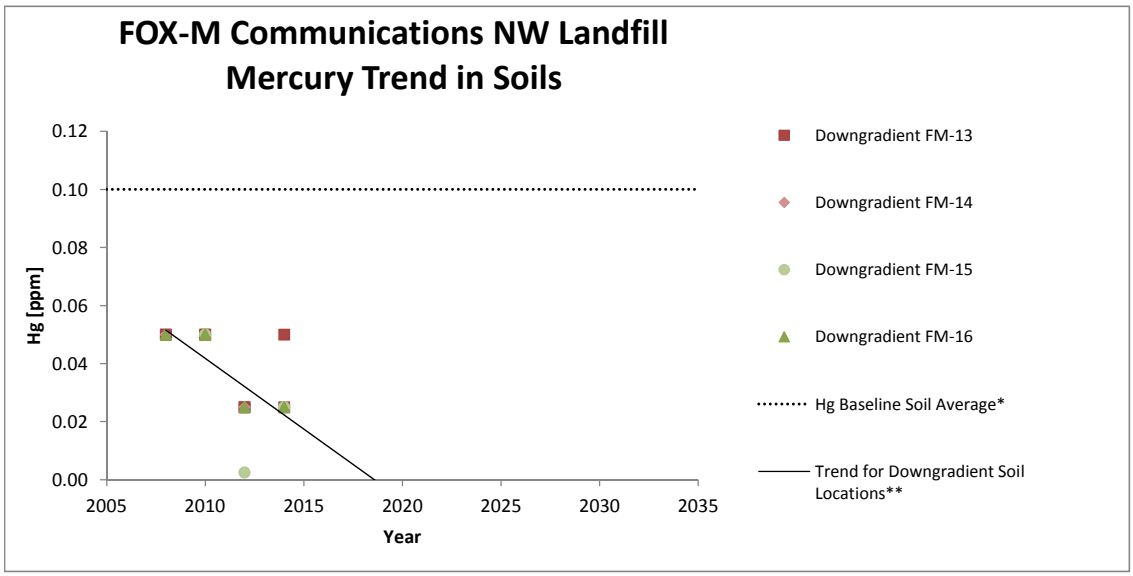
FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



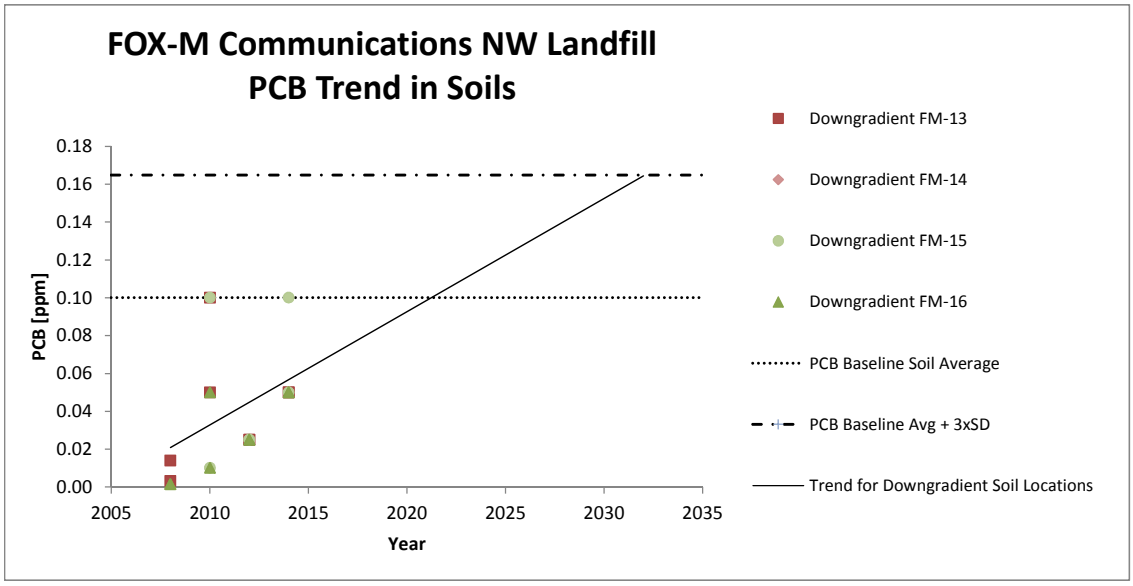
*Cr Baseline Average is equal to the baseline detection limit.



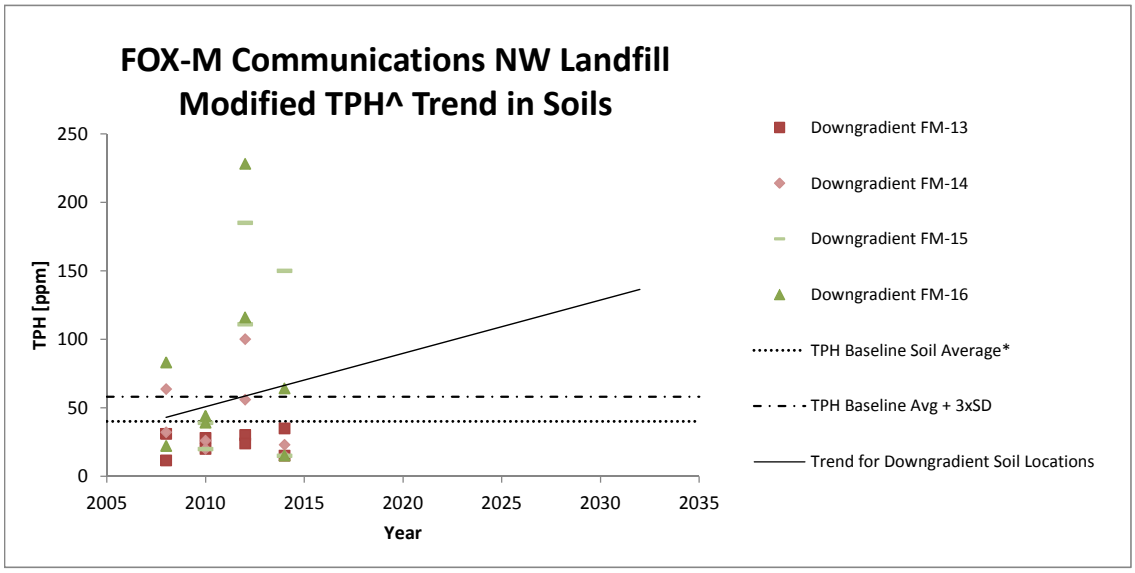
FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline Avg SD = 0
** Hg monitoring results below detection. Trendline reflects changes in detection limits.



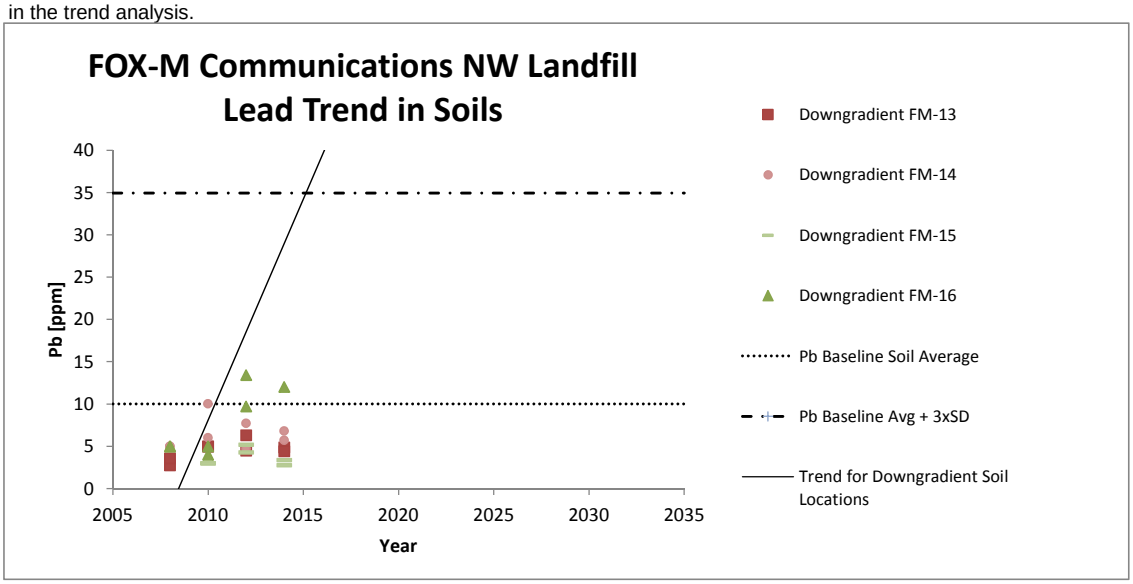
FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



^ Modified TPH is Sum of F1, F2 and F3 fractions (C_6 - C_{34})
*TPH Baseline Average is equal to the baseline detection limit.

FOX-M Communications NW Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

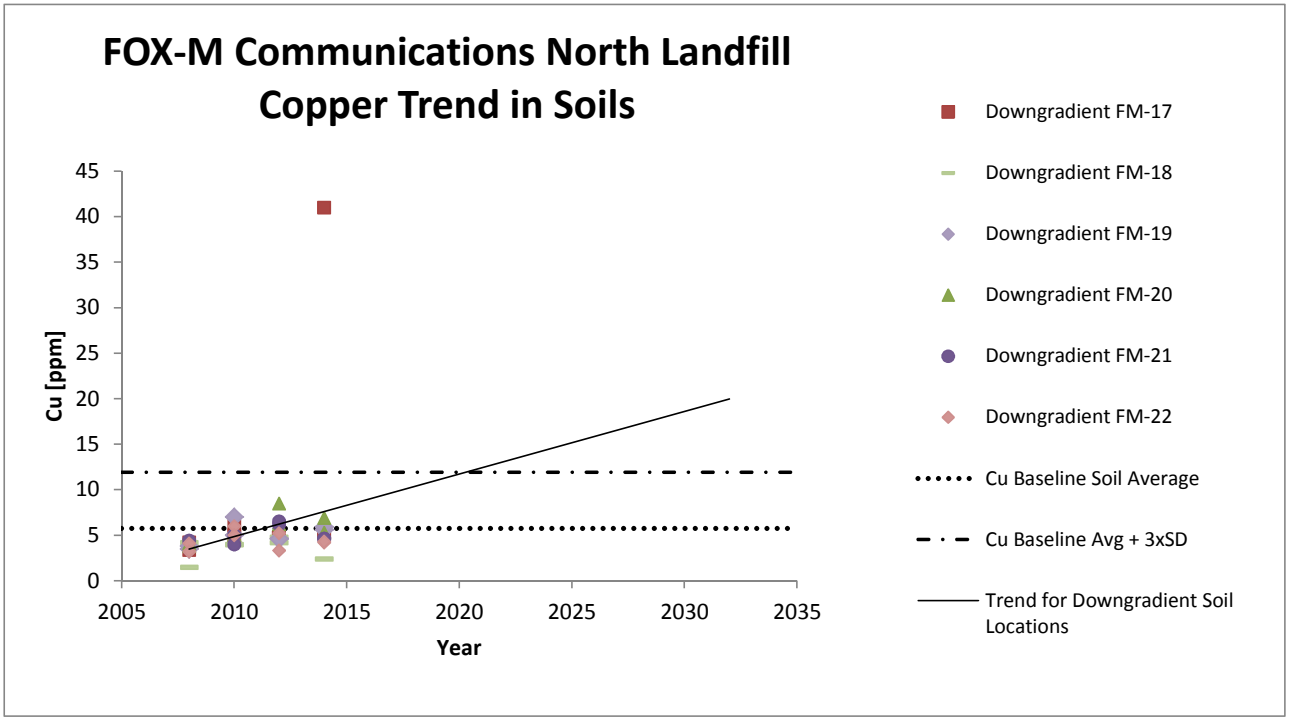
Note: All locations are downgradient, there are no upgradient locations.
Where results are below detection, half of the detection limit has been used in the charts.
Lead chart with y-axis modified to show trend without displaying the 2014 value of 260 ppm at FM-16. The value is included in the trend analysis.

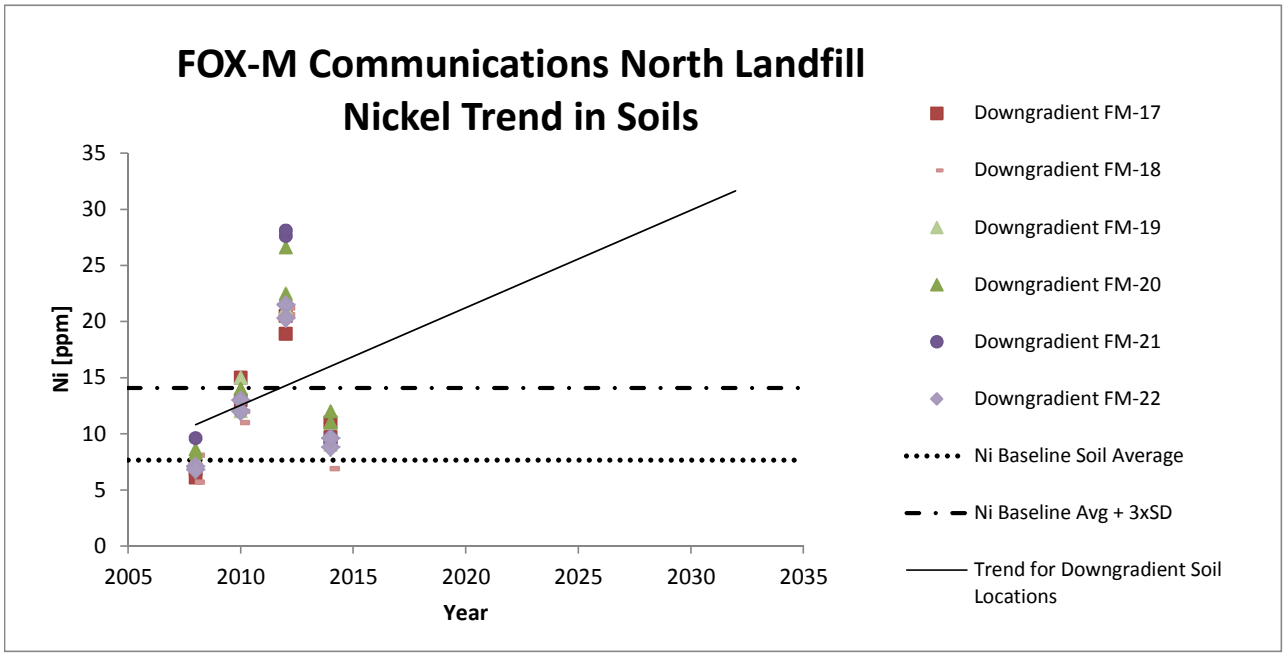


FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

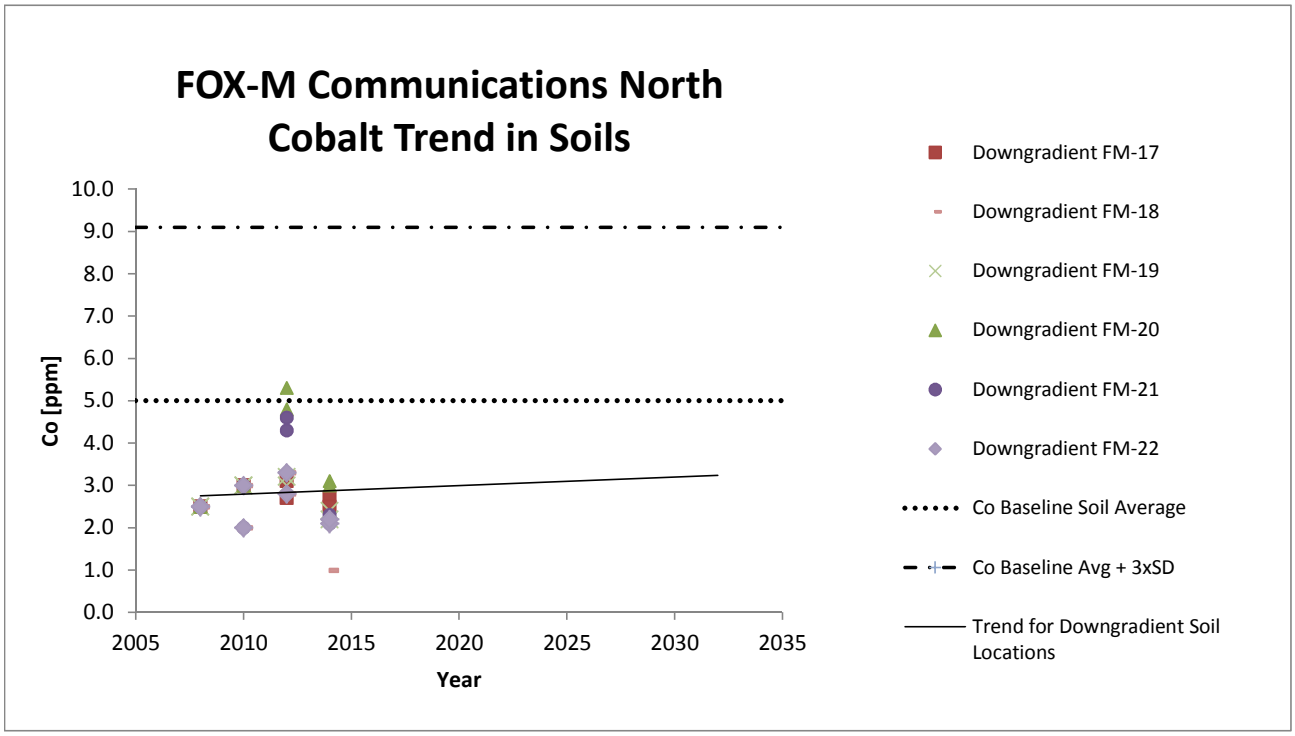
Note: All locations are downgradient, there are no upgradient locations.

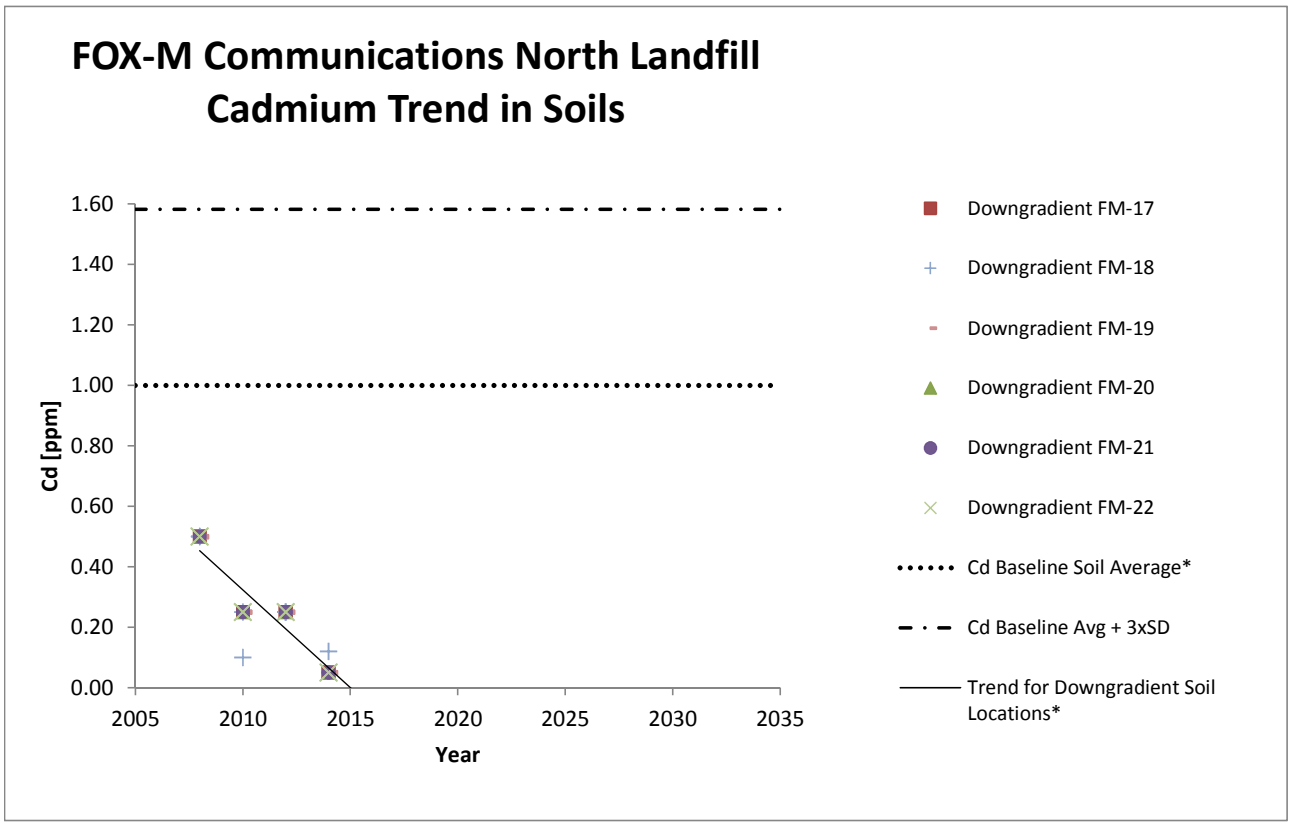
Where results are below detection, half of the detection limit has been used in the charts.





FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

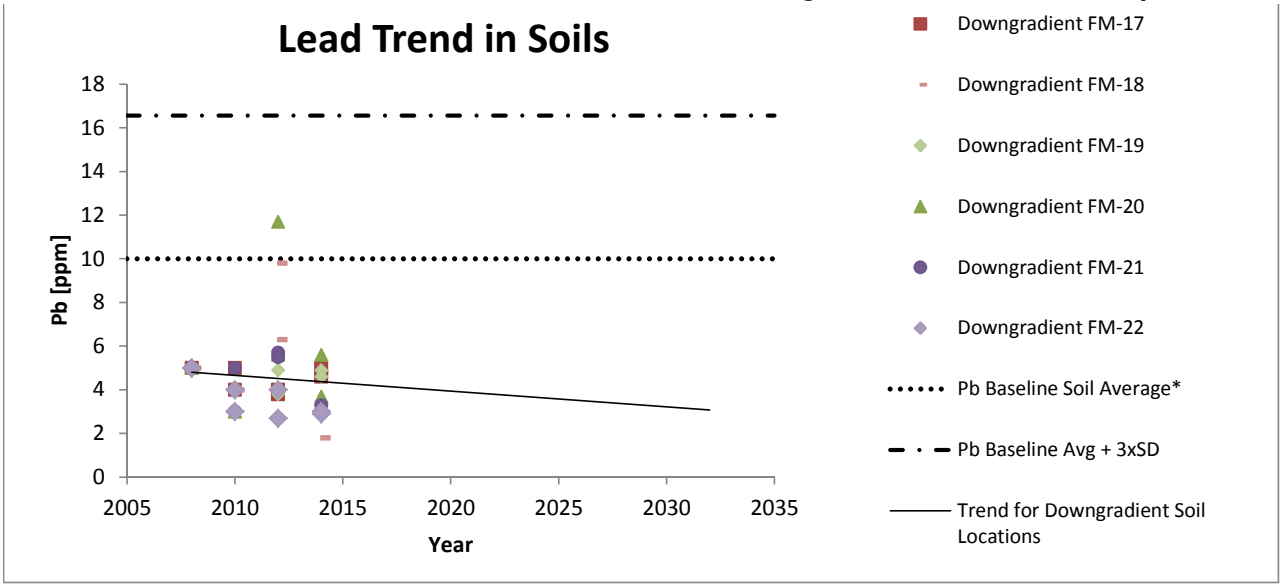




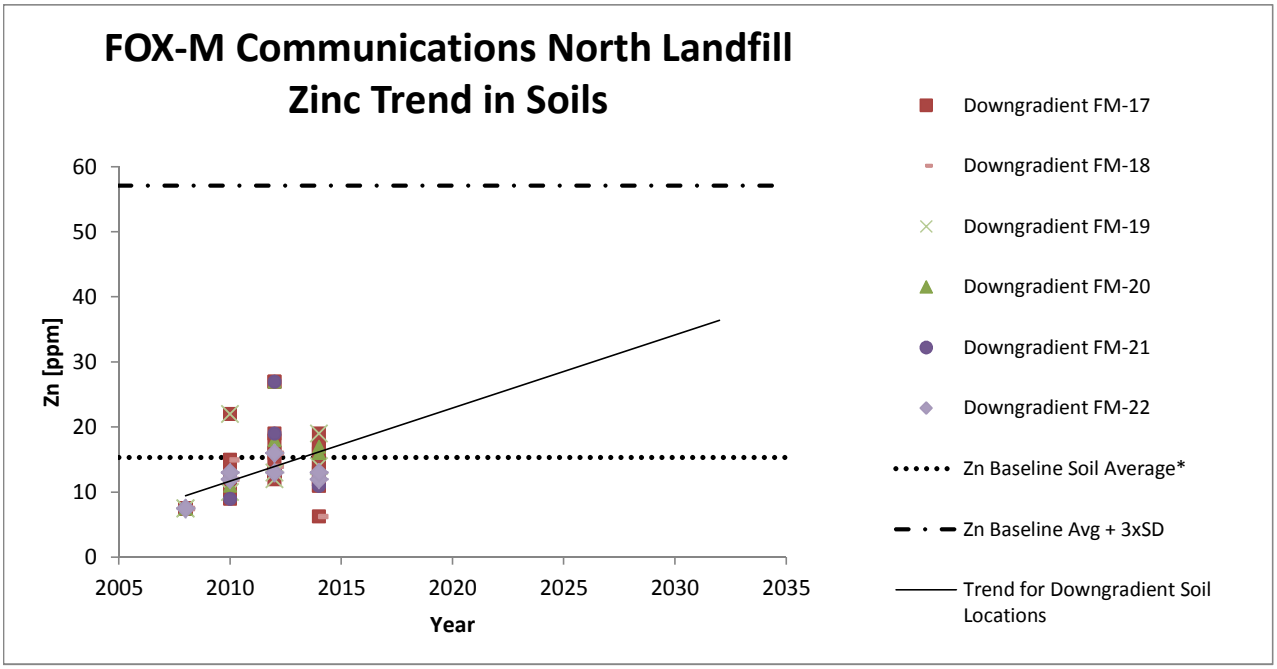
*Cd Baseline Average is equal to the baseline detection limit.
* Cd results for monitoring samples below detection. Trend line reflects changes in detection limits.

FOX-M Communications North Landfill

FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

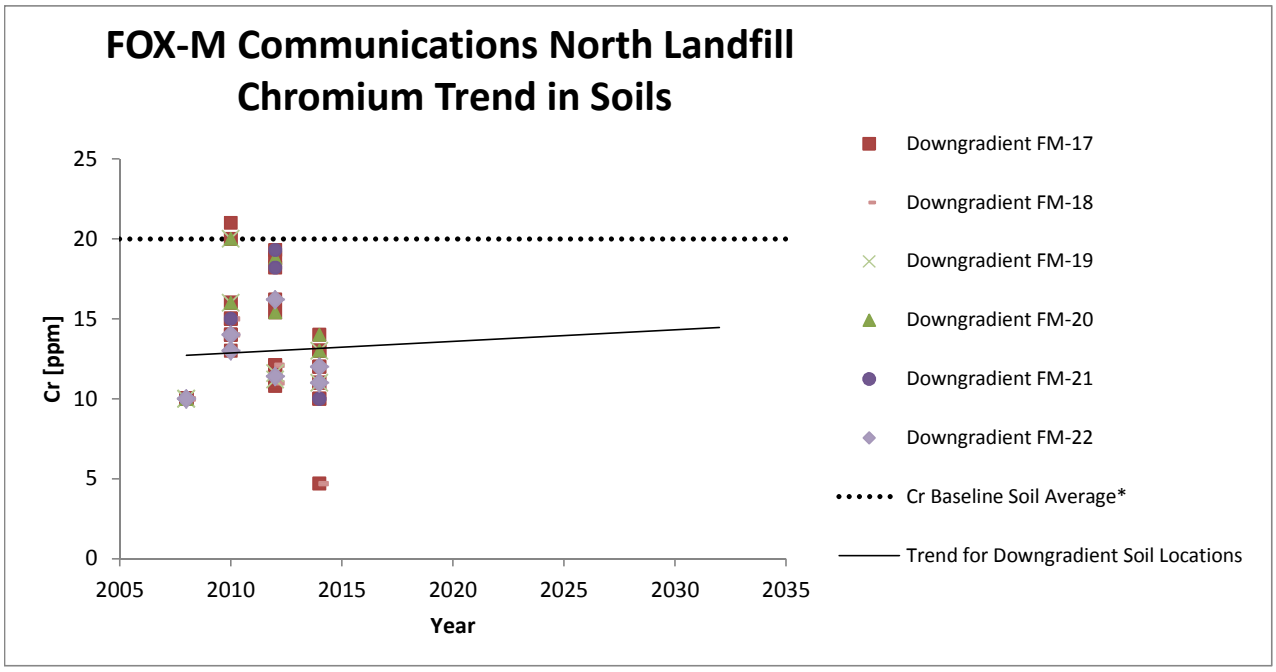


*Pb Baseline Average is equal to the baseline detection limit.

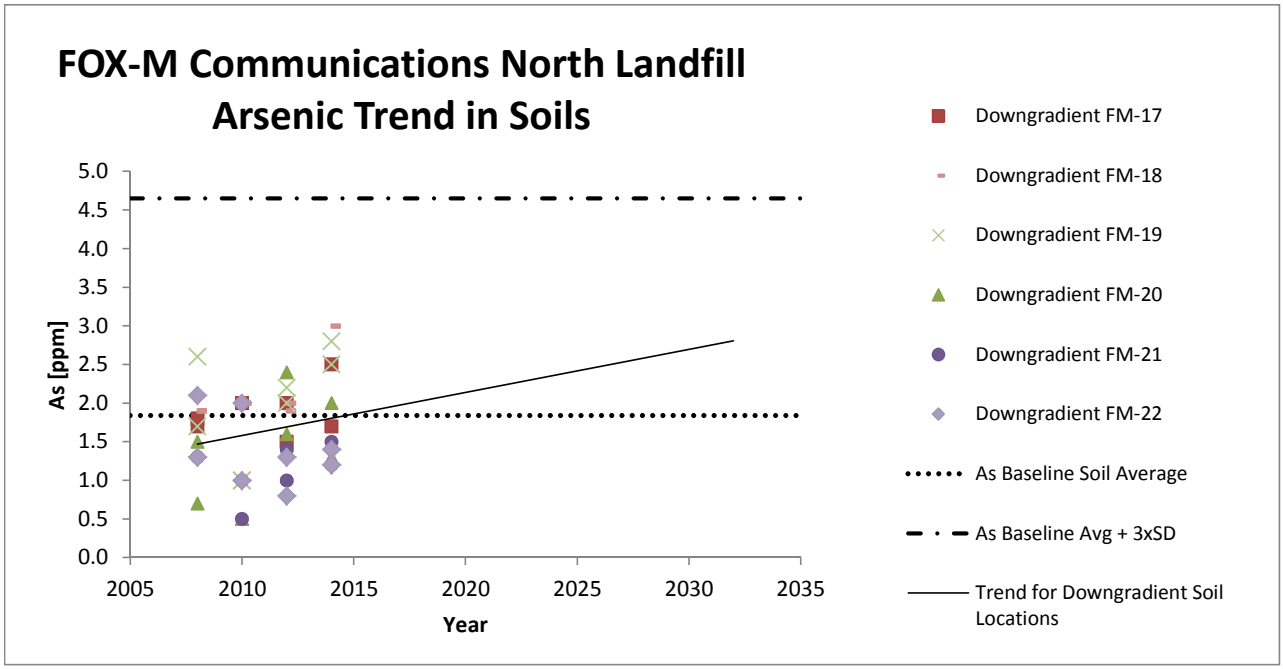


*Zn Baseline Average is equal to the baseline detection limit.

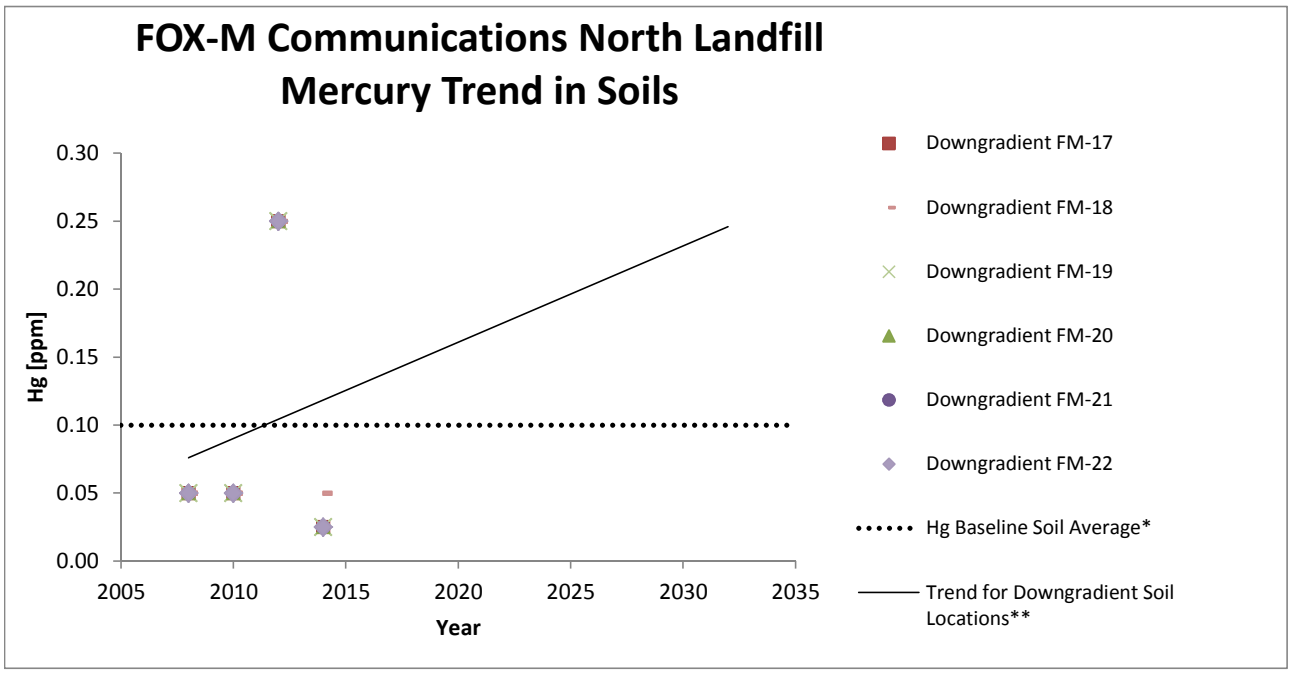
FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



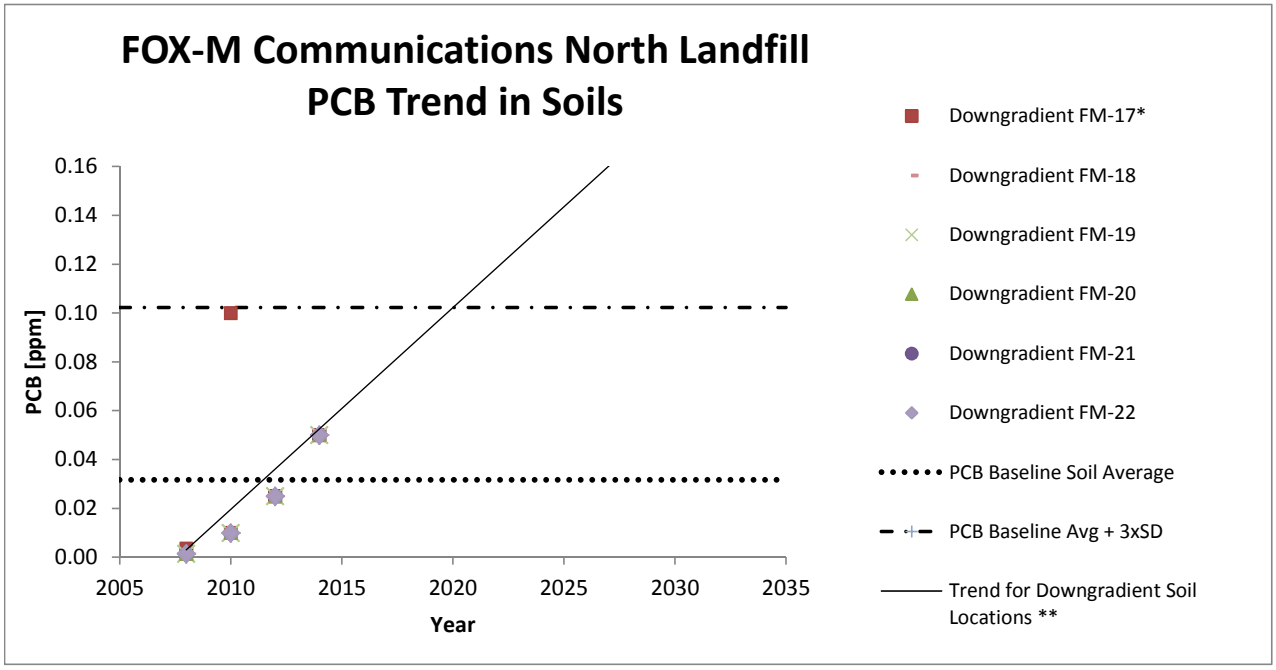
*Cr Baseline Average is equal to the baseline detection limit.
*Cr Baseline SD = 0



FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)

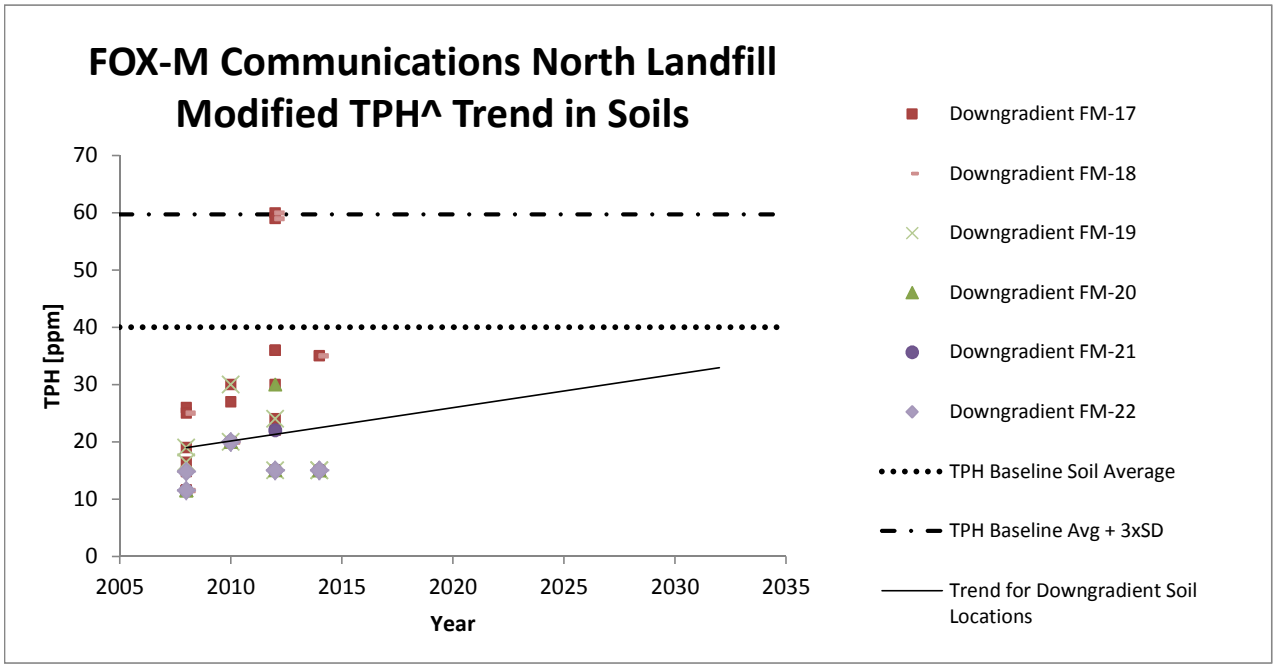


*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline Avg SD = 0
** All Monitoring Hg results below detection. Trend line reflects changes in detection limits.



* 2008 detection limits elevated due to matrix interferences
** most PCB results below detection. Trend line reflects changes in detection limits.

FOX-M Communications North Landfill Trends in Soil Inorganics, PCBs and PHCs (modified TPH)



^ modified TPH is a sum of C_6-C_{34} PHC fractions

APPENDIX G

HISTORICAL CHEMISTRY SUMMARY TABLES (GROUNDWATER)

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Groundwater Analytical Data

Sample ID	Location	Date	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Baseline Data																		
Upgradient:																		
04-12743	MW # 1	2004			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	0.018	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
05-24355	MW # 1	2005			<0.0050	0.0070	<0.0030	<0.0010	<0.010	<0.010	<0.010	<0.0030	<0.00040	<0.000020				<1.0
06-05831	MW # 1	2006			0.020	0.032	<0.0030	<0.0010	<0.010	0.030	0.040	0.0056	<0.00040	<0.000020				
07-29513	MW # 1	2007			0.0050	0.031	<0.0030	<0.0010	<0.010	0.024	0.053	<0.0030	<0.00040	<0.000020				<1.0
Downgradient:																		
04-12748	MW # 2	2004			0.008	<0.0050	<0.0030	<0.0010	<0.010	1.2	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
04-12747	MW # 3	2004			0.008	<0.0050	<0.0030	<0.0010	<0.010	0.02	0.01	<0.0030	<0.00040	<0.000020				<1.0
04-12746	MW # 4	2004			0.009	0.007	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
04-12744	MW # 5	2004			0.005	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
05-24356	MW # 2	2005			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	0.69	<0.0010	<0.0030	<0.00040	<0.000020				<1.0
05-24358	MW # 4	2005			0.005	0.013	<0.0030	<0.0010	<0.010	<0.010	0.019	<0.0030	<0.00040	<0.000020				<1.0
05-24359	MW # 5	2005			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
06-05851/52	MW # 2	2006			0.012	0.015	<0.0030	<0.0010	<0.010	0.21	0.031	<0.0030	<0.00040	<0.000020				
06-05846	MW # 3	2006			0.026	0.0320	<0.0030	<0.0010	<0.010	<0.010	0.070	0.0054	<0.00040	<0.000020				
06-05841	MW # 4	2006			0.033	0.059	<0.0030	<0.0010	<0.010	0.02	0.18	0.0050	<0.00040	<0.000020				
06-05836	MW # 5	2006			0.032	0.020	<0.0030	<0.0010	<0.010	0.02	0.025	0.0033	<0.00040	<0.000020				
07-29514	MW # 2	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	1.4	0.013	<0.0030	<0.00040	<0.000020				<1.0
07-29515	MW # 3	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	0.012	<0.0030	<0.00040	<0.000020				<1.0
07-29517	MW # 4	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	0.01	<0.0030	<0.00040	<0.000020				<1.0
07-29518	MW # 5	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	0.02	<0.0030	<0.00040	<0.000020				<1.0
		N value			19	19	19	19	19	19	19	19	19	19				14
		Average			**0.010**	**0.013**	**0.0030**	**0.0010**	**0.010**	**0.19**	**0.026**	**0.0030**	**0.00040**	**0.000020**				**1.00**
	Standard Deviation				0.010	0.016	0.0	0.0	0.0	0.42	0.042	0.0015	0.0	0.0				0.0
	Average + 3xStandard Deviation				0.040	0.060	0.0030	0.0010	0.010	1.5	0.15	0.0074	0.00040	0.000020				1.00
	Detection Limit				<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
Monitoring Data																		
Upgradient - MW-1																		
08-10704	MW-1	2008	1	Phase I	<0.0050	<0.0050	<0.0030	<0.0010	<0.0010	0.043	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
FM09-1W	MW-1	2009	2	Phase I	<0.0010	<0.0050	<0.00020	<0.00010	<0.0010	<0.010	0.0030	0.0010	<0.00020	<0.00010				<0.20
FM10-1W	MW-1	2010	3	Phase I	0.0020	0.0060	0.0014	<0.00010	<0.0010	<0.010	0.0090	<0.0050	<0.00010	<0.00010				<0.20
11-14345/46	MW-1	2011	4	Phase I	<0.0050	**0.015**	<0.0030	<0.0010	<0.010	<0.010	**0.058**	<0.0030	<0.00040	<0.0030				<1.0
FM12-1	MW-1	2012	5	Phase I	0.010	**0.017**	0.0020	<0.000050	0.0030	0.052	0.018	**0.0030**	<0.000025	<0.000010				<0.10
FM-T2-MW-1	MW-1	2014	7	Phase II	0.00065	0.003	<0.001	<0.002	<0.002	<0.005	0.0025	0.00062	<0.0001	<0.0001	<0.025	<0.100	<0.100	0.1
	MW-1	2017	10	Phase II														#N/A
	MW-1	2022	15	Phase II														#N/A
	MW-1	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

Modified TPH TOTAL will appear when F1, F2, F3 fraction results are entered.

FOX-M Hall Beach - Tier II Disposal Facility - Summary of Monitoring Groundwater Analytical Data

Sample ID	Location	Date	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-2																		
08-10705	MW-2	2008	1	Phase I	<0.0050	<0.0050	<0.0030	<0.0010	<0.0010	0.14	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
FM09-2W	MW-2	2009	2	Phase I	0.0010	<0.0050	0.00030	0.00010	<0.0010	0.090	0.0020	<0.0010	<0.00020	<0.00010				<0.20
FM10-2W	MW-2	2010	3	Phase I	0.0010	<0.0050	<0.00020	0.00010	<0.0010	0.040	0.0030	<0.0010	<0.00010	<0.00010				<0.20
11-14347	MW-2	2011	4	Phase I	<0.0050	**0.018**	<0.0030	<0.0010	<0.010	**0.24**	**0.056**	<0.0030	<0.00040	<0.0030				<1.0
FM12-2	MW-2	2012	5	Phase I	0.0040	**0.015**	<0.0010	<0.000050	<0.0010	**0.75**	0.012	<0.0010	<0.000025	<0.000010				<0.10
FM-T2-MW-2	MW-2	2014	7	Phase II	0.0025	0.0046	0.00054	<0.000020	0.0011	**0.73**	0.0065	0.00072	<0.00001	<0.00005	<0.025	<0.100	<0.100	0.1
	MW-2	2017	10	Phase II														#N/A
	MW-2	2022	15	Phase II														#N/A
	MW-2	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
																		#N/A
Downgradient - MW-3																		
08-10706	MW-3	2008	1	Phase I	0.0197	**0.018**	<0.0030	<0.0010	<0.0010	0.010	**0.049**	**0.0046**	<0.00040	<0.000020				<1.0
FM09-3W	MW-3	2009	2	Phase I	0.0010	<0.0050	<0.00020	<0.00010	<0.0010	<0.010	0.0050	0.0010	<0.00020	<0.00010				<0.20
FM10-3W	MW-3	2010	3	Phase I	0.0020	<0.0050	<0.00020	<0.00010	<0.0010	<0.010	0.0080	<0.0050	<0.00010	<0.00010				<0.20
11-14348	MW-3	2011	4	Phase I	0.0072	**0.10**	<0.0030	<0.0010	<0.010	<0.010	**0.26**	<0.0030	<0.00040	<0.0030				<1.0
FM12-3 (no PCB or TPH sample)	MW-3	2012	5	Phase I	0.0070	0.011	0.00038	<0.000050	0.0040	0.047	0.021	<0.0010	<0.000025					#N/A
FM-T2-MW-3 (only PHC F1 collected du	MW-3	2014	7	Phase II											<0.025			#N/A
	MW-3	2017	10	Phase II														#N/A
	MW-3	2022	15	Phase II														#N/A
	MW-3	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-4																		
08-10708	MW-4	2008	1	Phase I	<0.0050	<0.0050	<0.0030	<0.0010	<0.0010	<0.0050	0.0063	<0.0030	<0.00040	<0.000020				<1.0
FM09-4W	MW-4	2009	2	Phase I	0.0020	<0.0050	<0.00020	<0.00010	<0.0010	<0.010	0.0060	<0.0010	<0.00020	<0.00010				<0.20
FM10-4W	MW-4	2010	3	Phase I	0.0020	0.0070	<0.00020	<0.00010	<0.0010	<0.010	0.0060	<0.0010	<0.00010	<0.00010				<0.20
11-14349	MW-4	2011	4	Phase I	0.0059	0.0073	<0.0030	<0.0010	<0.010	<0.010	**0.058**	<0.0030	<0.00040	<0.0030				<1.0
FM12-4	MW-4	2012	5	Phase I	0.0060	**0.017**	**0.012**	<0.000050	0.0030	0.053	**0.030**	0.0020	<0.000025	<0.000010				<0.10
FM-T2-MW-4	MW-4	2014	7	Phase II	0.0059	**0.017**	**0.007**	<0.000020	0.0023	0.039	**0.029**	0.0014	0.00003	<0.00005	<0.025	<0.100	<0.100	0.1
	MW-4	2017	10	Phase II														#N/A
	MW-4	2022	15	Phase II														#N/A
	MW-4	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

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Sample ID	Location	Date	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-5																		
08-10707	MW-5	2008	1	Phase I	0.0052	0.0082	<0.0030	<0.0010	<0.0010	<0.0050	**0.097**	<0.0030	<0.00040	<0.000020				<1.0
FM09-5W	MW-5	2009	2	Phase I	0.0030	**0.021**	0.00040	<0.00010	<0.0010	<0.010	<0.0050	0.0020	0.00020	<0.00010				<0.20
FM10-5W	MW-5	2010	3	Phase I	0.0030	**0.026**	0.00060	<0.00010	<0.0010	<0.010	0.026	<0.0050	<0.00010	<0.00010				<0.20
11-14350	MW-5	2011	4	Phase I	0.0056	**0.017**	<0.0030	<0.0010	<0.010	<0.010	**0.22**	<0.0030	<0.00040	<0.0030				<1.0
FM12-5	MW-5	2012	5	Phase I	0.0050	0.0090	<0.0010	<0.000050	<0.0010	0.010	**0.035**	<0.0010	<0.000025	<0.000010				<0.10
FM-T2-MW-5	MW-5	2014	7	Phase II	0.0011	0.0041	<0.00030	<0.000020	<0.00020	0.0086	0.0056	0.00081	<0.00001	<0.00005	<0.025	<0.100	<0.100	0.1
	MW-5	2017	10	Phase II														#N/A
	MW-5	2022	15	Phase II														#N/A
	MW-5	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Baseline Data																		
Downgradient																		
07-29526	MW #20	2007			0.0080	<0.0050	<0.0030	<0.0010	<0.0100	0.030	0.029	<0.0030	<0.00040	<0.000020				<1.0
07-29527	MW #21	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	<0.0010	0.031	0.0071	<0.00040	<0.000020				<1.0
07-29528	MW #22	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	<0.0010	0.023	0.0040	<0.00040	<0.000020				<1.0
07-29529	MW #23	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.014	0.0055	<0.0030	<0.00040	<0.000020				<1.0
07-29530/31	MW #24	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.040	0.10	0.010	<0.00040	<0.000020				<1.0
07-29548	MW #25	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.014	0.0077	<0.0030	<0.00040	<0.000020				<1.0
07-29549	MW #26	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.028	0.18	0.0036	<0.00040	<0.000020				<1.0
07-29550/51	MW #27	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.037	0.045	0.0084	<0.00040	<0.000020				<1.0
07-29552	MW #28	2007			0.0062	0.0054	<0.0030	<0.0010	<0.0100	0.034	0.014	0.0042	<0.00040	<0.000020				<1.0
07-29565	MW #29	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.012	0.019	0.0048	<0.00040	<0.000020				<1.0
07-29570	MW #30	2007			<0.0050	0.0078	<0.0030	<0.0010	<0.0100	<0.0010	0.014	0.0056	<0.00040	<0.000020				<1.0
07-29575	MW #31	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.0100	0.023	0.023	0.0034	<0.00040	<0.000020				<1.0
		N value			12	12	12	12	12	12	12	12	12	12				12
		Average*			**0.0050**	**0.0050**	**0.0030**	**0.0010**	**0.010**	**0.019**	**0.041**	**0.0046**	**0.00040**	**0.000020**				**1.0**
	Standard Deviation				0.0018	0.0017	0.0	0.0	0.0	0.015	0.050	0.0027	0.0	0.0				0.0
	Average + 3xStandard Deviation				0.010	0.010	0.0030	0.0010	0.010	0.063	0.19	0.013	0.00040	0.000020				1.0
	Baseline Detection Limit				<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.0010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
**** Baseline averages are listed as the detection limit when the average is below the detection limit.***																		
Monitoring Data															**Modified TPH TOTAL will appear when F1, F2, F3 fraction results are entered.**			
Upgradient - No identified upgradient locations																		
Downgradient - MW-29																		
08-10715	MW-29	2008	1	Phase I	<0.0050	**0.0093**	<0.0030	<0.0010	0.0014	**0.081**	0.014	0.0035	<0.00040	<0.000020				<1.0
FM09-29W	MW-29	2009	2	Phase I	0.0030	**0.0080**	0.00050	<0.00010	<0.0010	**0.020**	<0.0050	0.0030	<0.00020	<0.00010				<0.20
FM10-29W	MW-29	2010	3	Phase I	0.0020	**0.0060**	0.00030	<0.00010	<0.0010	<0.010	0.013	<0.0050	<0.00010	<0.00010				<0.20
11-14351	MW-29	2011	4	Phase I	**0.0060**	<0.0050	<0.0030	<0.0010	<0.010	**0.065**	0.031	<0.0030	<0.00040	<0.0030				<1.0
FM12-29	MW-29	2012	5	Phase I	**0.027**	**0.044**	**0.0030**	0.00031	0.0050	**0.16**	**0.050**	**0.0050**	<0.000025	<0.000010				<0.10
FM-EB-MW-29	MW-29	2014	7	Phase II	**0.008**	**0.011**	0.0016	0.0002	0.0038	**0.11**	0.015	0.0028	0.00002	<0.00005	<0.025	<0.100	<0.100	0.1
	MW-29	2017	10	Phase II														#N/A
	MW-29	2022	15	Phase II														#N/A
	MW-29	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
Downgradient - MW-30																		
08-10713/14	MW-30	2008	1	Phase I	<0.0050	<0.0050	<0.0030	<0.0010	<0.0010	0.013	0.0073	0.0045	<0.00040	<0.000020				<1.0
FM09-30W	MW-30	2009	2	Phase I	0.0020	**0.037**	<0.00020	<0.00010	<0.0010	<0.010	0.0020	**0.0080**	<0.00020	<0.00010				<0.20
FM10-30W	MW-30	2010	3	Phase I	0.0010	**0.014**	0.00020	<0.00010	<0.0010	<0.010	0.0020	<0.010	<0.00010	<0.00010				<0.20
11-14352	MW-30	2011	4	Phase I	**0.016**	**0.079**	**0.010**	**0.0010**	**0.013**	**0.19**	**0.22**	**0.014**	<0.00040	<0.0030				<1.0
FM12-30D	MW-30	2012	5	Phase I	**0.011**	**0.031**	0.0020	0.00012	0.0030	**0.19**	**0.052**	**0.0060**	<0.000025	<0.000010				0.20
FM-EB-MW-30	MW-30	2014	7	Phase II	0.00435	0.01205	0.0008	<0.002	0.00205	0.307	0.0405	0.0063	<0.0001	<0.0001	<0.025	<0.100	<0.100	0.11
	MW-30	2017	10	Phase II														#N/A
	MW-30	2022	15	Phase II														#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
	MW-30	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
																		#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-31																		
08-10711/12	MW-31	2008	1	Phase I	**0.0060**	<0.0050	<0.0030	<0.0010	<0.0010	0.011	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
FM09-31W	MW-31	2009	2	Phase I	**0.0080**	<0.0050	0.00020	0.00020	<0.0010	<0.010	0.0080	<0.0010	<0.00020	<0.00010				<0.20
No sample collected	MW-31	2010	3	Phase I														
No sample collected	MW-31	2011	4	Phase I														
FM12-31	MW-31	2012	5	Phase I	**0.026**	**0.030**	0.0010	0.00049	0.0020	**0.095**	0.021	0.0010	<0.000025	<0.000010				<0.10
No sample collected - well was dry	MW-31	2014	7	Phase II														#N/A
	MW-31	2017	10	Phase II														#N/A
	MW-31	2022	15	Phase II														#N/A
	MW-31	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
																		#N/A
Downgradient - MW-21																		
No sample collected	MW-21	2008	1	Phase I														
No sample collected	MW-21	2009	2	Phase I														
No sample collected	MW-21	2010	3	Phase I														
No sample collected	MW-21	2011	4	Phase I														
FM12-31	MW-21	2012	5	Phase I	**0.031**	**0.027**	**0.0030**	0.00026	**0.0160**	**0.24**	0.035	0.0030	<0.000025	<0.000010				0.2
No sample collected - well was dry	MW-21	2014	7	Phase II														#N/A
	MW-21	2017	10	Phase II														#N/A
	MW-21	2022	15	Phase II														#N/A
	MW-21	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
																		#N/A
Downgradient - MW-20																		
No sample collected	MW-20	2008	1	Phase I														
No sample collected	MW-20	2009	2	Phase I														
No sample collected	MW-20	2010	3	Phase I														
No sample collected	MW-20	2011	4	Phase I														
No sample collected	MW-20	2012	5	Phase I														
No sample collected - well was dry	MW-20	2014	7	Phase II														#N/A
	MW-20	2017	10	Phase II														#N/A
	MW-20	2022	15	Phase II														#N/A
	MW-20	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-22																		
No sample collected	MW-22	2008	1	Phase I														
No sample collected	MW-22	2009	2	Phase I														
No sample collected	MW-22	2010	3	Phase I														
No sample collected	MW-22	2011	4	Phase I														
No sample collected	MW-22	2012	5	Phase I														
No sample collected - well was dry	MW-22	2014	7	Phase II														#N/A
	MW-22	2017	10	Phase II														#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
	MW-22	2022	15	Phase II														#N/A
	MW-22	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-23																		
No sample collected	MW-23	2008	1	Phase I														
No sample collected	MW-23	2009	2	Phase I														
No sample collected	MW-23	2010	3	Phase I														
No sample collected	MW-23	2011	4	Phase I														
No sample collected	MW-23	2012	5	Phase I														
No sample collected - well was dry	MW-23	2014	7	Phase II														#N/A
	MW-23	2017	10	Phase II														#N/A
	MW-23	2022	15	Phase II														#N/A
	MW-23	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-24																		
No sample collected	MW-24	2008	1	Phase I														
No sample collected	MW-24	2009	2	Phase I														
No sample collected	MW-24	2010	3	Phase I														
No sample collected	MW-24	2011	4	Phase I														
No sample collected	MW-24	2012	5	Phase I														
No sample collected - well was dry	MW-24	2014	7	Phase II														#N/A
	MW-24	2017	10	Phase II														#N/A
	MW-24	2022	15	Phase II														#N/A
	MW-24	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-25																		
No sample collected	MW-25	2008	1	Phase I														
No sample collected	MW-25	2009	2	Phase I														
No sample collected	MW-25	2010	3	Phase I														
No sample collected	MW-25	2011	4	Phase I														
No sample collected	MW-25	2012	5	Phase I														
No sample collected - well was dry	MW-25	2014	7	Phase II														#N/A
	MW-25	2017	10	Phase II														#N/A
	MW-25	2022	15	Phase II														#N/A
	MW-25	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-26																		
No sample collected	MW-26	2008	1	Phase I														
No sample collected	MW-26	2009	2	Phase I														
No sample collected	MW-26	2010	3	Phase I														
No sample collected	MW-26	2011	4	Phase I														
No sample collected	MW-26	2012	5	Phase I														
No sample collected - well was dry	MW-26	2014	7	Phase II														#N/A
	MW-26	2017	10	Phase II														#N/A
	MW-26	2022	15	Phase II														#N/A
	MW-26	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

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Sample ID	Location	Year	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-27																		
No sample collected	MW-27	2008	1	Phase I														
No sample collected	MW-27	2009	2	Phase I														
No sample collected	MW-27	2010	3	Phase I														
No sample collected	MW-27	2011	4	Phase I														
No sample collected	MW-27	2012	5	Phase I														
No sample collected - well was dry	MW-27	2014	7	Phase II														#N/A
	MW-27	2017	10	Phase II														#N/A
	MW-27	2022	15	Phase II														#N/A
	MW-27	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
Downgradient - MW-28																		
No sample collected	MW-28	2008	1	Phase I														
No sample collected	MW-28	2009	2	Phase I														
No sample collected	MW-28	2010	3	Phase I														
No sample collected	MW-28	2011	4	Phase I														
No sample collected	MW-28	2012	5	Phase I														
No sample collected - well was dry	MW-28	2014	7	Phase II														#N/A
	MW-28	2017	10	Phase II														#N/A
	MW-28	2022	15	Phase II														#N/A
	MW-28	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A

Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Groundwater Analytical Data

Sample ID	Location	Date	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Baseline Data																		
Downgradient																		
04-12740/41	MW #13	2004			0.0059	0.017	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				1.5
04-12742	MW #15	2004			0.010	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
05-24350/51	MW #13	2005			<0.0050	<0.020	<0.0030	<0.0010	<0.010	<0.010	0.023	<0.0030	<0.00040	<0.000020				3.6
05-24352	MW #14	2005			<0.0050	<0.020	<0.0030	<0.0010	<0.010	<0.010	0.011	<0.0030	<0.00040	<0.000020				<1.0
05-24357	MW #15	2005			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.010	<0.0030	<0.00040	<0.000020				<1.0
06-05780	MW #13	2006			0.010	0.0090	<0.0030	<0.0010	<0.010	0.013	0.014	0.0031	<0.00040	<0.000020				
06-05765	MW #14	2006			0.0090	0.010	<0.0030	<0.0010	<0.010	<0.010	0.0087	0.0047	<0.00040	<0.000020				
06-05770	MW #15	2006			0.021	0.014	<0.0030	<0.0010	<0.010	0.010	0.019	0.0031	<0.00040	<0.000020				
07-29519	MW #13	2007			<0.0050	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				0.62
07-29520/21	MW #14	2007			<0.0050	0.0052	<0.0030	<0.0010	<0.010	0.44	0.017	<0.0030	<0.00040	<0.000020				<1.0
07-29522	MW #15	2007			<0.0050	0.0063	<0.0030	<0.0010	<0.010	0.027	0.018	<0.0030	<0.00040	<0.000020				<1.0
		N value			11	11	11	11	11	11	11	11	11	11				8
		Average			**0.0064**	**0.0081**	**0.0030**	**0.0010**	**0.010**	**0.048**	**0.011**	**0.0030**	**0.00040**	**0.000020**				**1.0**
	Standard Deviation				0.0058	0.0048	0.0	0.0	0.0	0.13	0.0075	0.0011	0.0	0.0				1.1
	Average + 3xStandard Deviation				0.024	0.023	0.003	0.001	0.010	0.44	0.034	0.0062	0.00040	0.000020				4.3
	Baseline Detection Limit				<0.005	<0.0050	<0.0030	<0.0010	<0.010	<0.010	<0.0050	<0.0030	<0.00040	<0.000020				1.0
Monitoring Data																		**Modified TPH TOTAL will appear when F1, F2, F3 fraction results are entered.**
Upgradient - MW-16																		
No sample collected	MW-16	2008	1	Phase I														
No sample collected	MW-16	2010	3	Phase I														
No sample collected	MW-16	2012	5	Phase I														
No sample collected - well was dry	MW-16	2014	7	Phase II														#N/A
	MW-16	2017	10	Phase II														#N/A
	MW-16	2022	15	Phase II														#N/A
	MW-16	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
Downgradient - MW-13																		
08-10709	MW-13	2008	1	Phase I	<0.0050	<0.0050	<0.0030	<0.0010	0.0017	0.039	<0.0050	<0.0030	<0.00040	<0.000020				**1.4**
FM10-13W	MW-13	2010	3	Phase I	0.0030	**0.010**	0.00050	0.00010	<0.0010	<0.010	0.0040	<0.0010	<0.00010	<0.00010				<0.20
FM12-13	MW-13	2012	5	Phase I	0.0050	**0.024**	0.0020	0.000050	0.0020	0.015	0.0050	<0.0010	<0.000025	<0.000010				**3.0**
No sample collected due to presence of f	MW-13	2014	7	Phase II														#N/A
	MW-13	2017	10	Phase II														#N/A
	MW-13	2022	15	Phase II														#N/A
	MW-13	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A

FOX-M Hall Beach - Non Hazardous Waste Landfill - Summary of Monitoring Groundwater Analytical Data

Sample ID	Location	Date	Monitoring Year	Monitoring Phase	Cu (mg/L)	Ni (mg/L)	Co (mg/L)	Cd (mg/L)	Pb (mg/L)	Zn (mg/L)	Cr (mg/L)	As (mg/L)	Hg (mg/L)	Total PCB (mg/L)	F1 C_6-C_{10} (mg/L)	F2 C_{10}-C_{16} (mg/L)	F3 C_{16}-C_{34} (mg/L)	Modified TPH^ - Total C6-C34 (mg/L)
Downgradient - MW-14																		
No sample collected	MW-14	2008	1	Phase I														#N/A
No sample collected	MW-14	2010	3	Phase I														#N/A
No sample collected	MW-14	2012	5	Phase I														#N/A
No sample collected - well was dry	MW-14	2014	7	Phase II														#N/A
	MW-14	2017	10	Phase II														#N/A
	MW-14	2022	15	Phase II														#N/A
	MW-14	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A
Downgradient - MW-15																		
08-10710	MW-15	2008	1	Phase I	0.0057	<0.0050	<0.0030	<0.0010	0.0012	<0.0050	<0.0050	<0.0030	<0.00040	<0.000020				<1.0
FM10-15W	MW-15	2010	3	Phase I	0.0020	**0.010**	0.00040	<0.00010	<0.0010	<0.010	0.0040	<0.0010	<0.00010	<0.00010				<0.20
FM12-15	MW-15	2012	5	Phase I	0.0050	**0.024**	**0.0030**	<0.000050	0.0010	0.047	0.011	<0.0010	<0.000025	<0.000010				<0.10
FM-NH-MW-15	MW-15	2014	7	Phase II	0.0012	0.008	0.001	<0.000020	0.00021	0.004	**0.013**	0.00028	<0.00001	<0.00005	<0.025	<0.100	<0.100	0.113
	MW-15	2017	10	Phase II														#N/A
	MW-15	2022	15	Phase II														#N/A
	MW-15	2032	25	Phase II														#N/A
				Phase III														#N/A
																		#N/A
																		#N/A

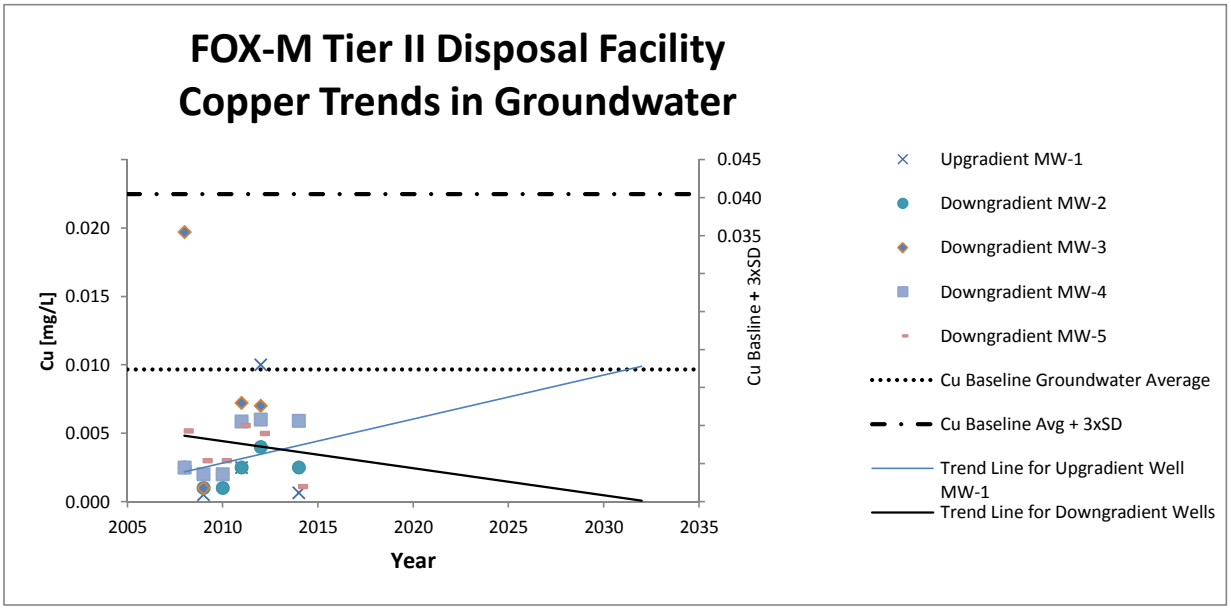
Note: Modified TPH Total (C_6-C_{34}) has been calculated by adding results for F1, F2 and F3.

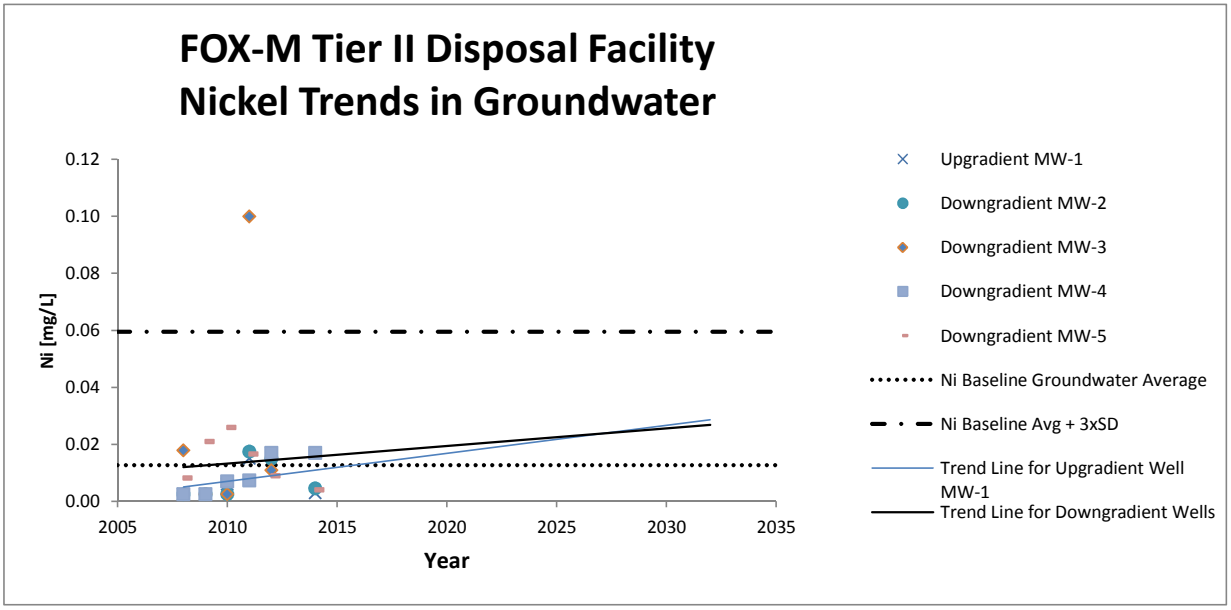
APPENDIX H

CHEMICAL CONCENTRATION TREND GRAPHS (GROUNDWATER)

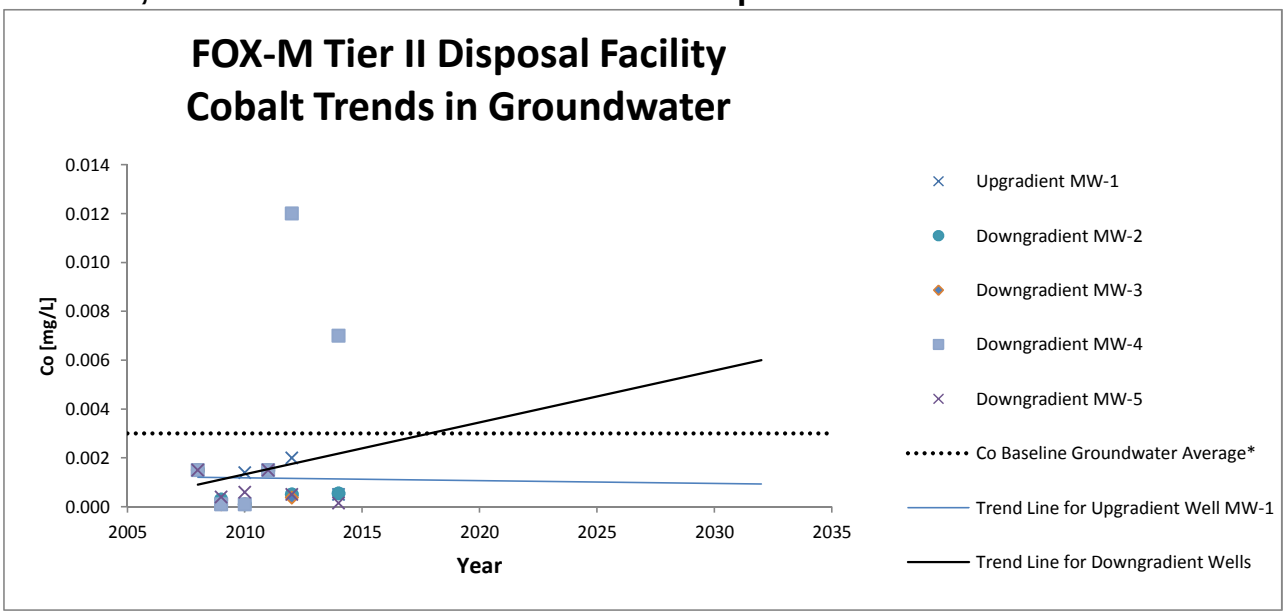
FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

Where results are below detection, half of the detection limit has been used in the charts.

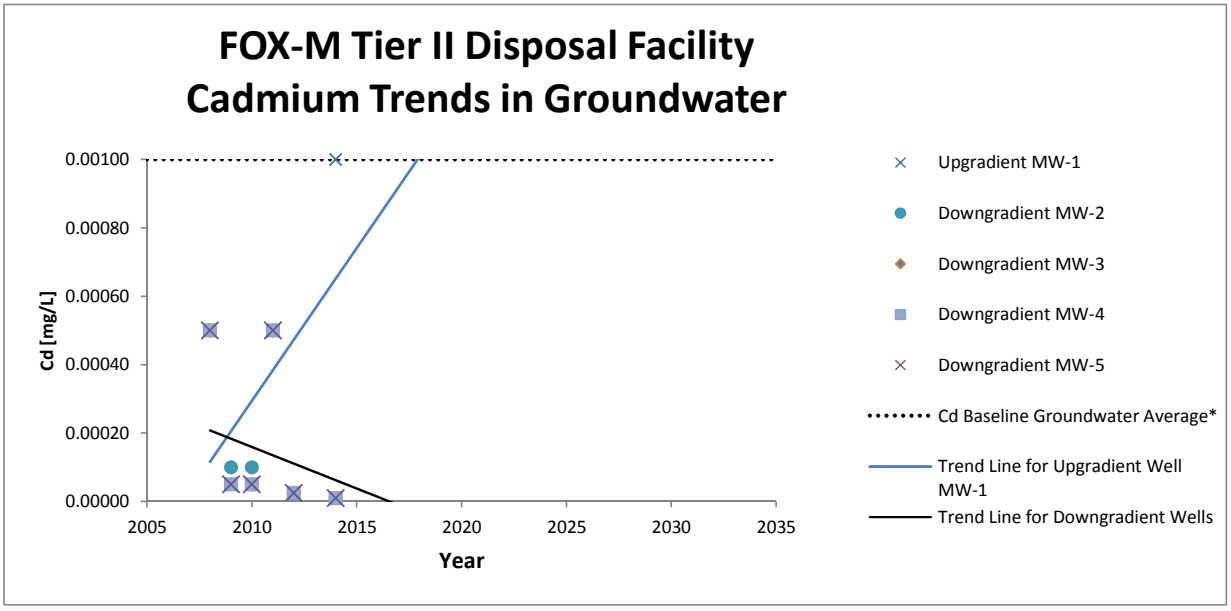




FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

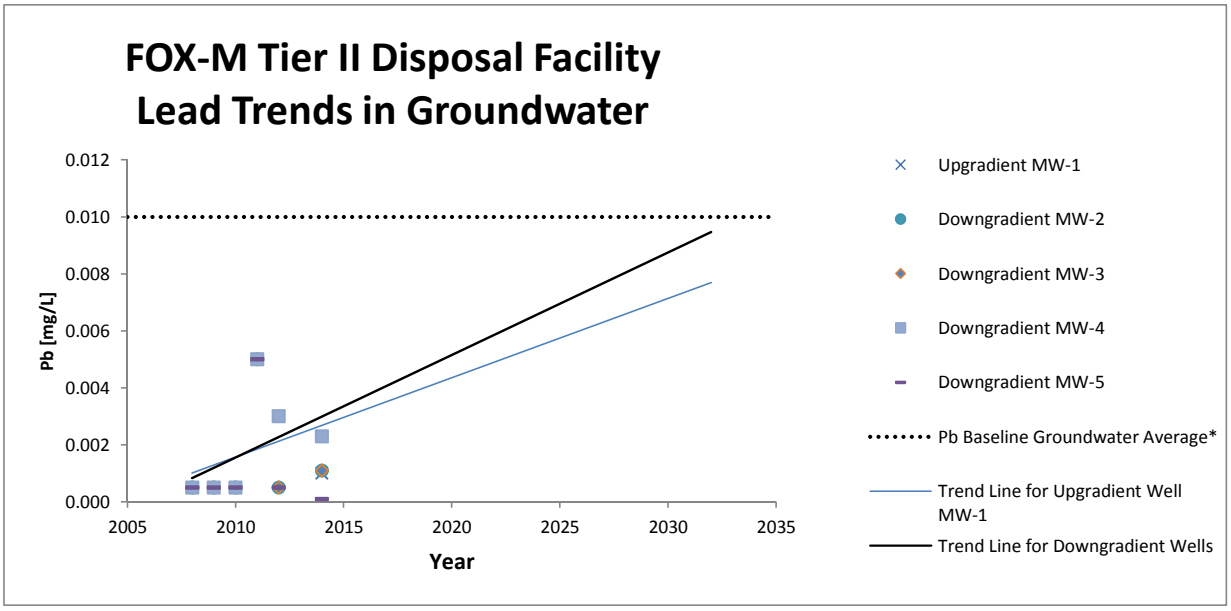


*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline Avg + 3xSD = 0

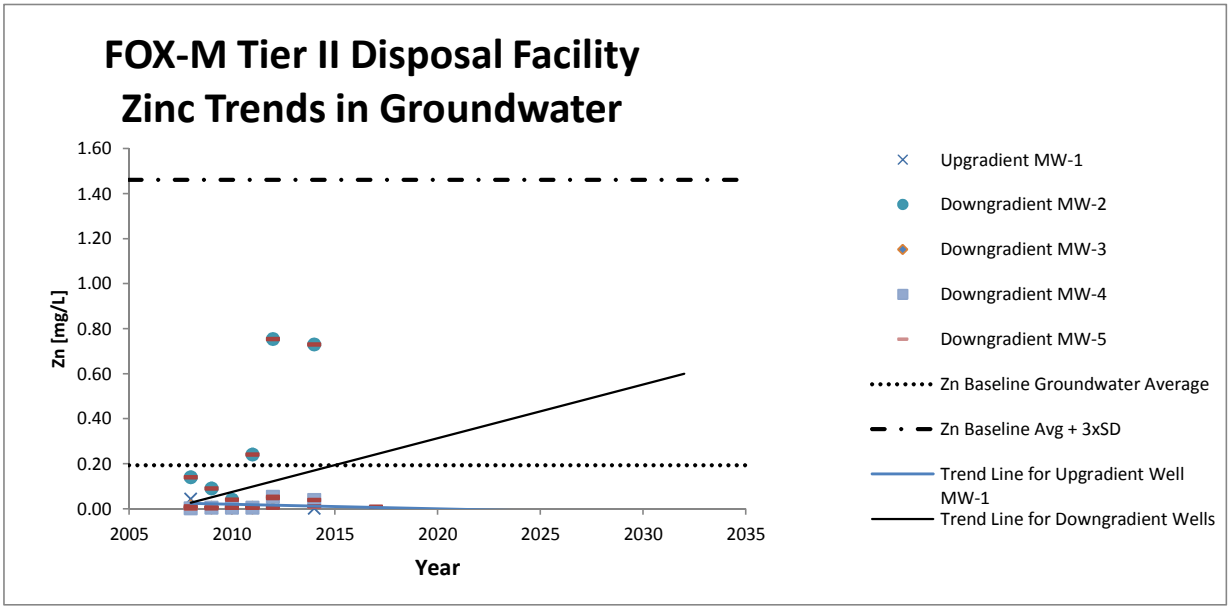


*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline Avg SD = 0
Results below detection. Trendline reflects changes in detection limits.

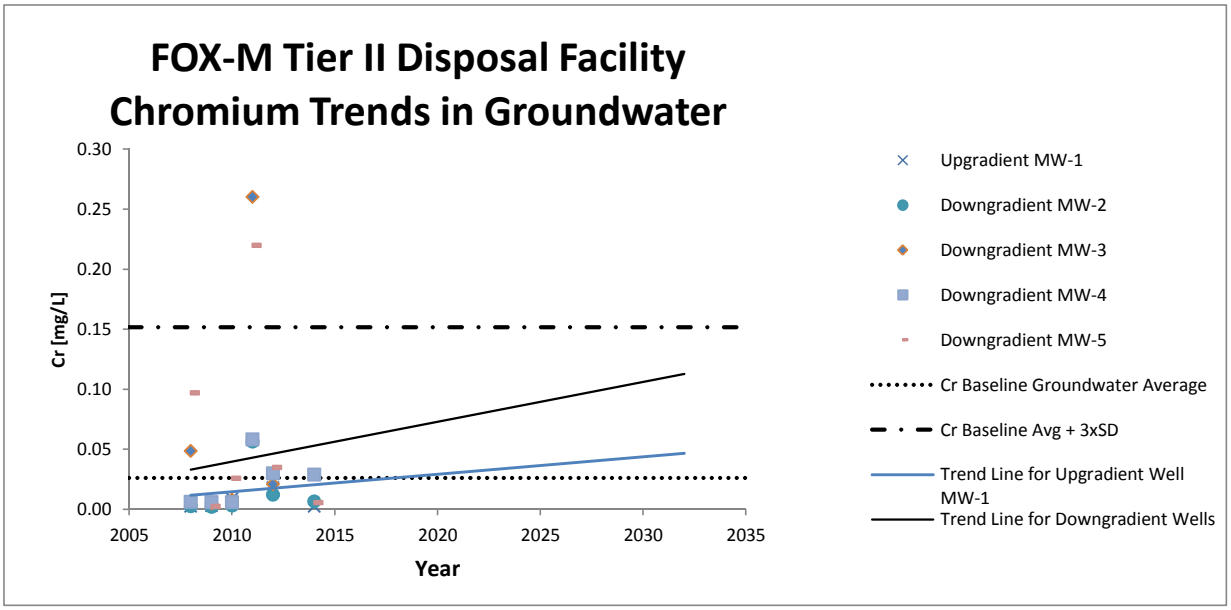
FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

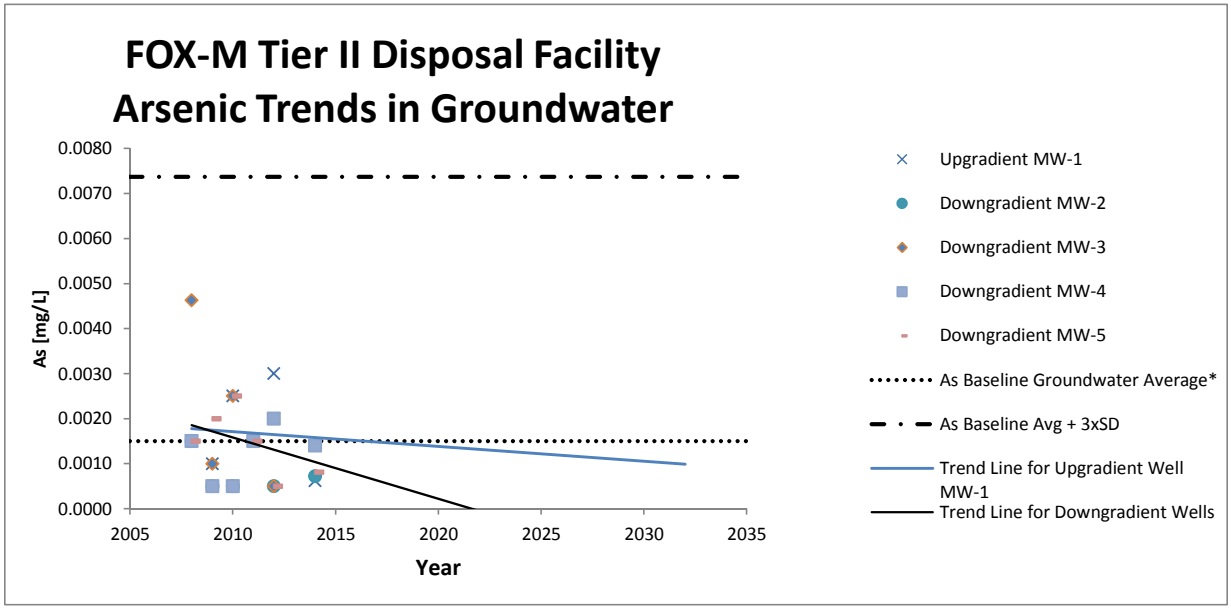


*Pb Baseline Average is equal to the baseline detection limit.
*Pb Baseline SD=0



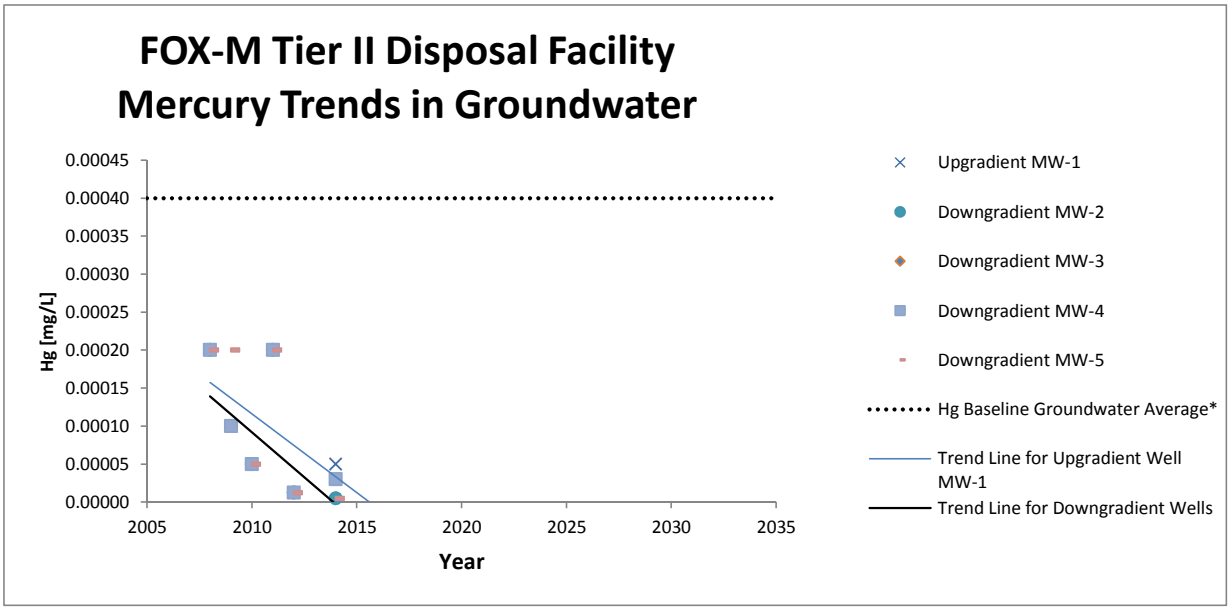
FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples



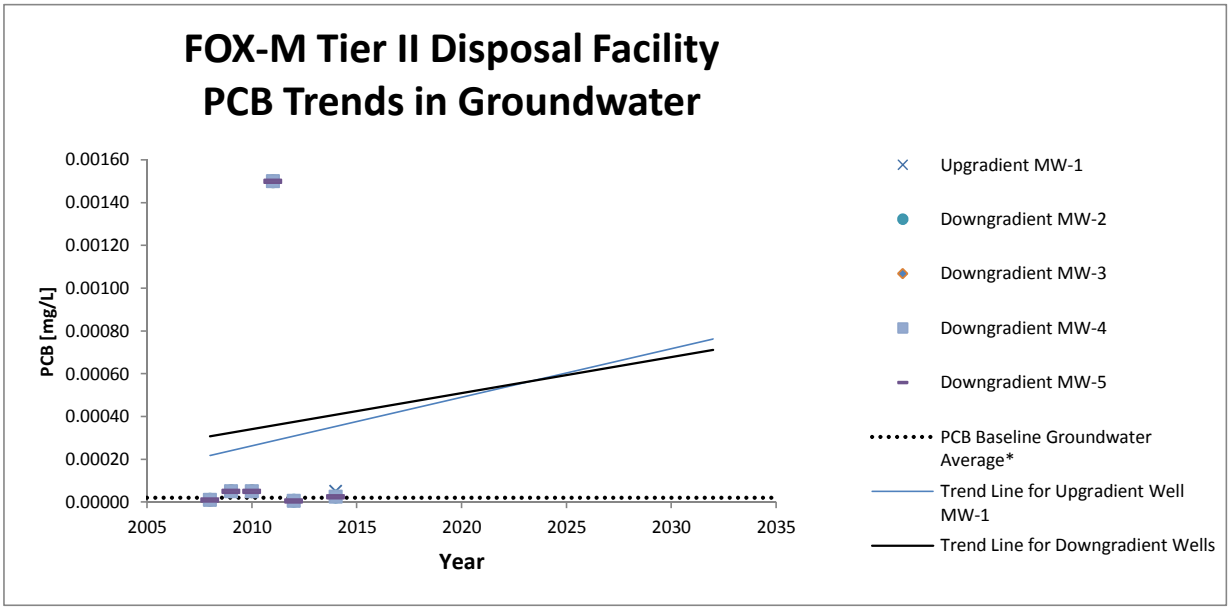


*As Baseline Average is equal to the baseline detection limit.

FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

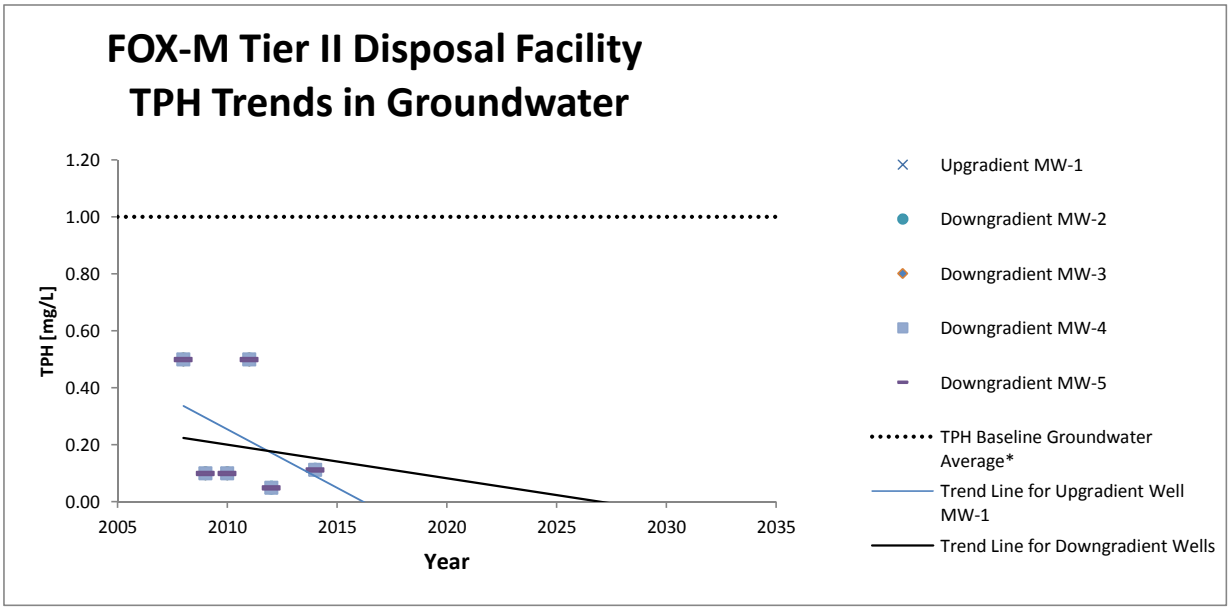


*Hg Baseline Average is equal to the baseline detection limit.
*Hg Basline SD = 0



*PCB Baseline Average is equal to the baseline detection limit.
*PCB Baseline SD = 0
Results below detection. Trendline reflects changes in detection limit.

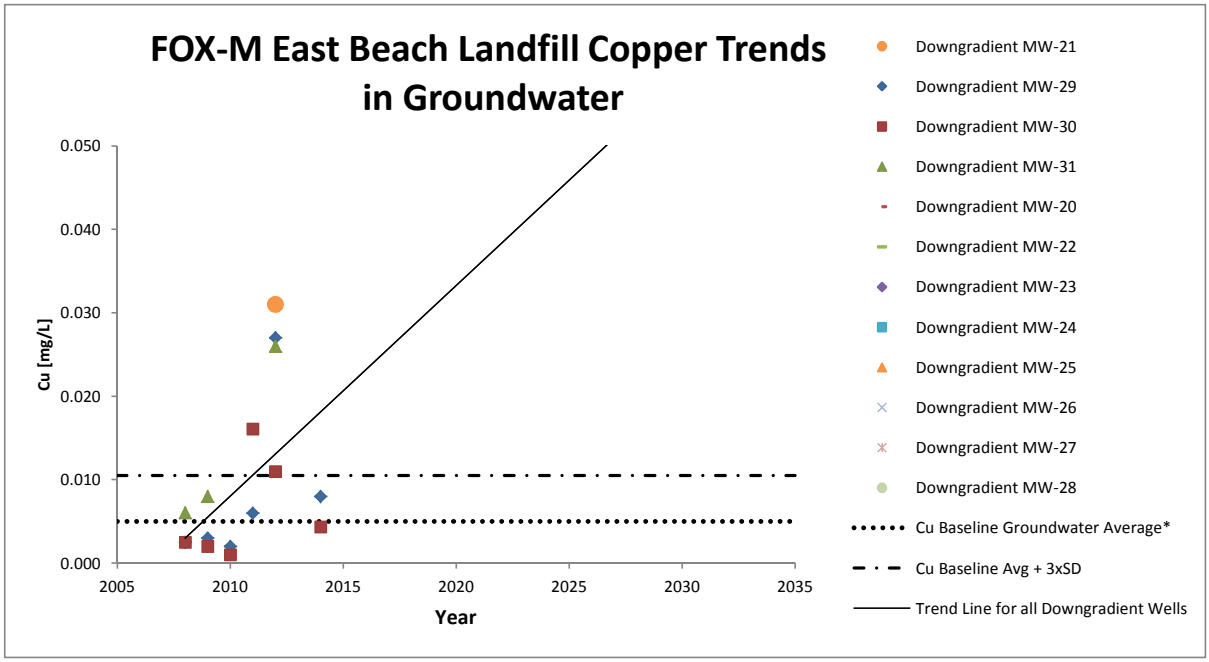
FOX-M Tier II Disposal Facility Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples



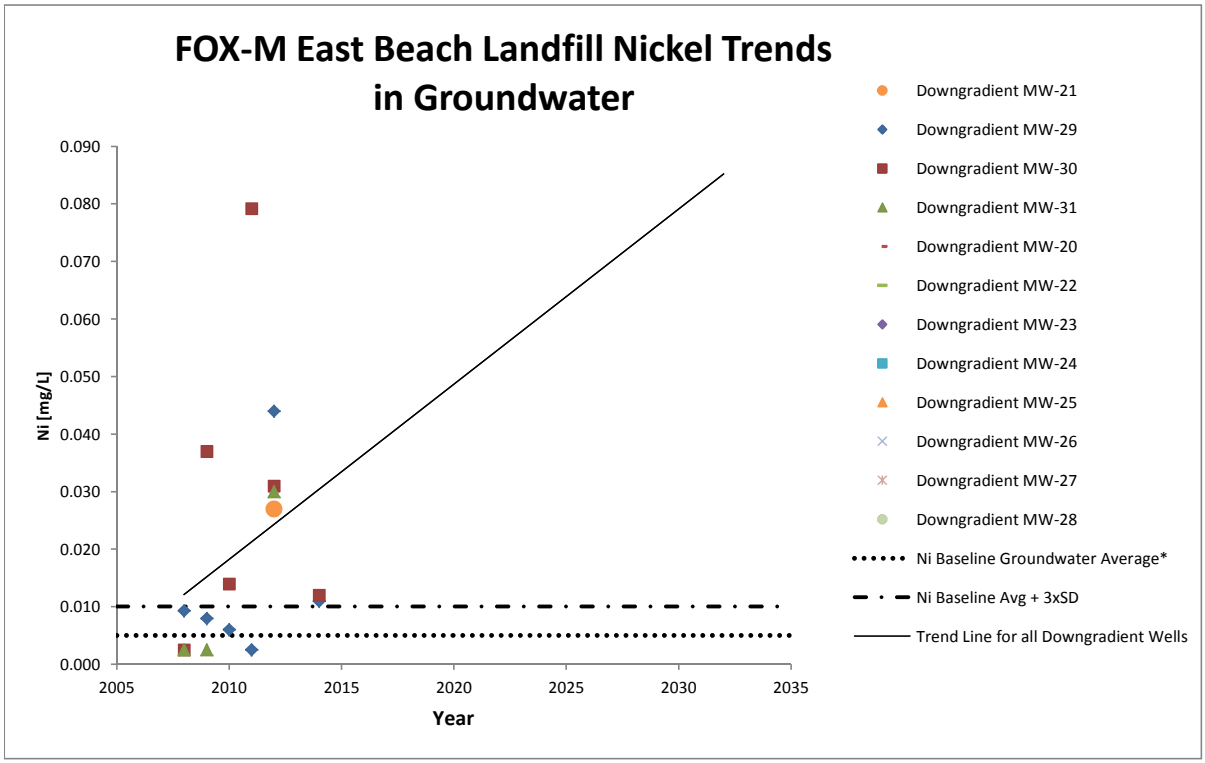
*TPH Baseline Average is equal to the baseline detection limit.
*TPH Baseline Avg SD = 0
Results below detection. Trendline reflects changes in detection limit.

FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

Note: All wells are downgradient wells, there are no upgradient wells.
Where results are below detection, half of the detection limit has been used in the charts.

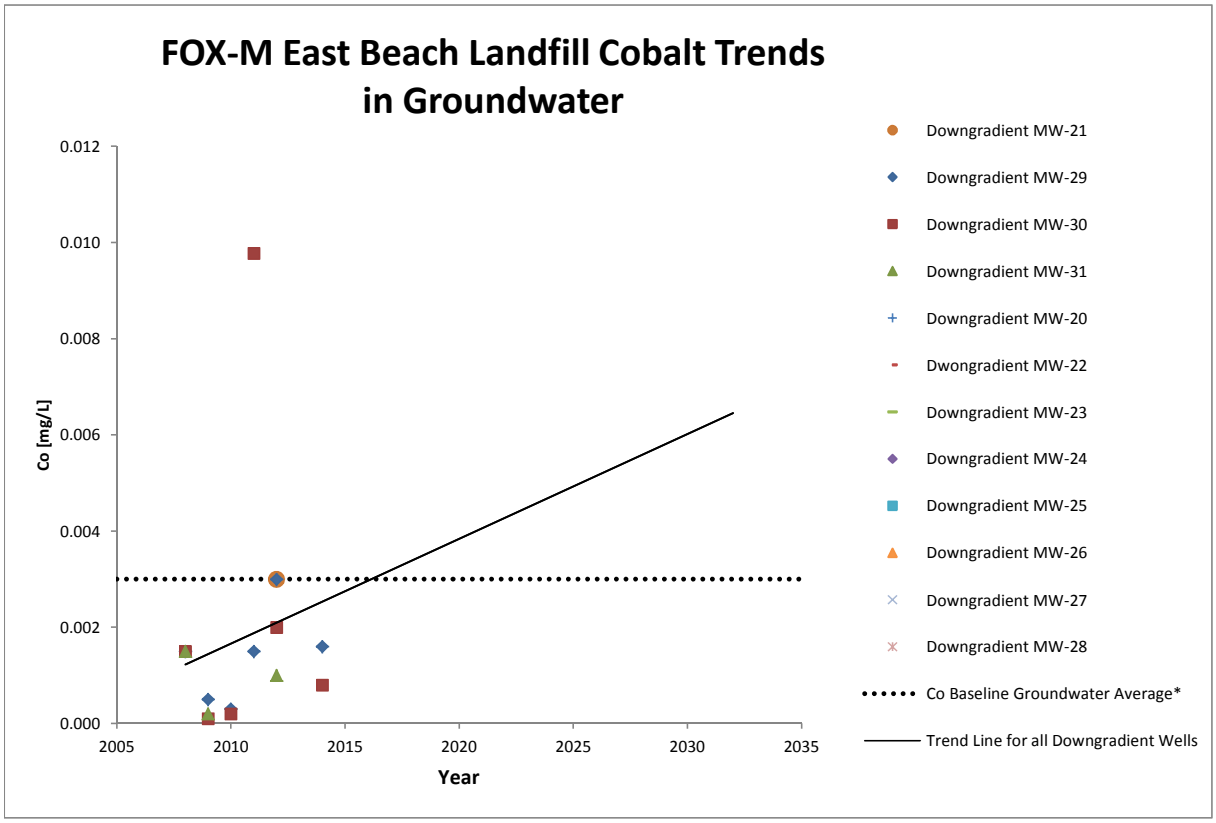


*Cu Baseline Average is equal to the baseline detection limit.

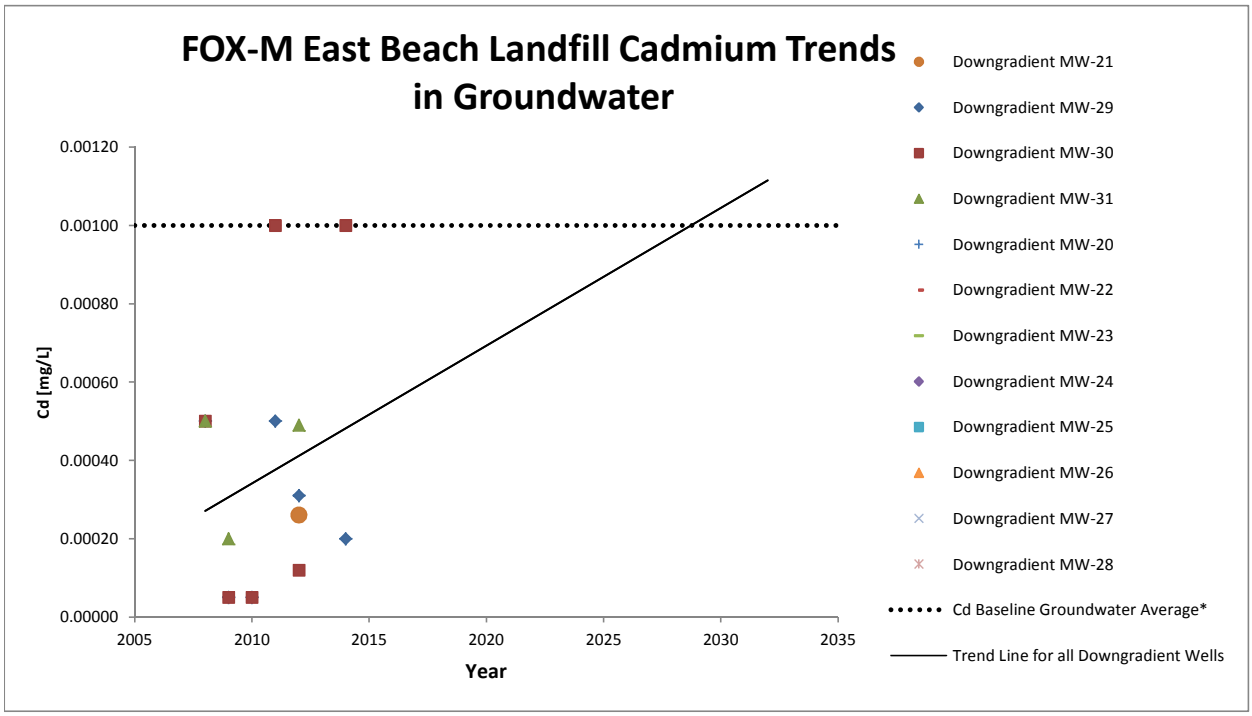


FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

*Ni Baseline Average is equal to the baseline detection limit.

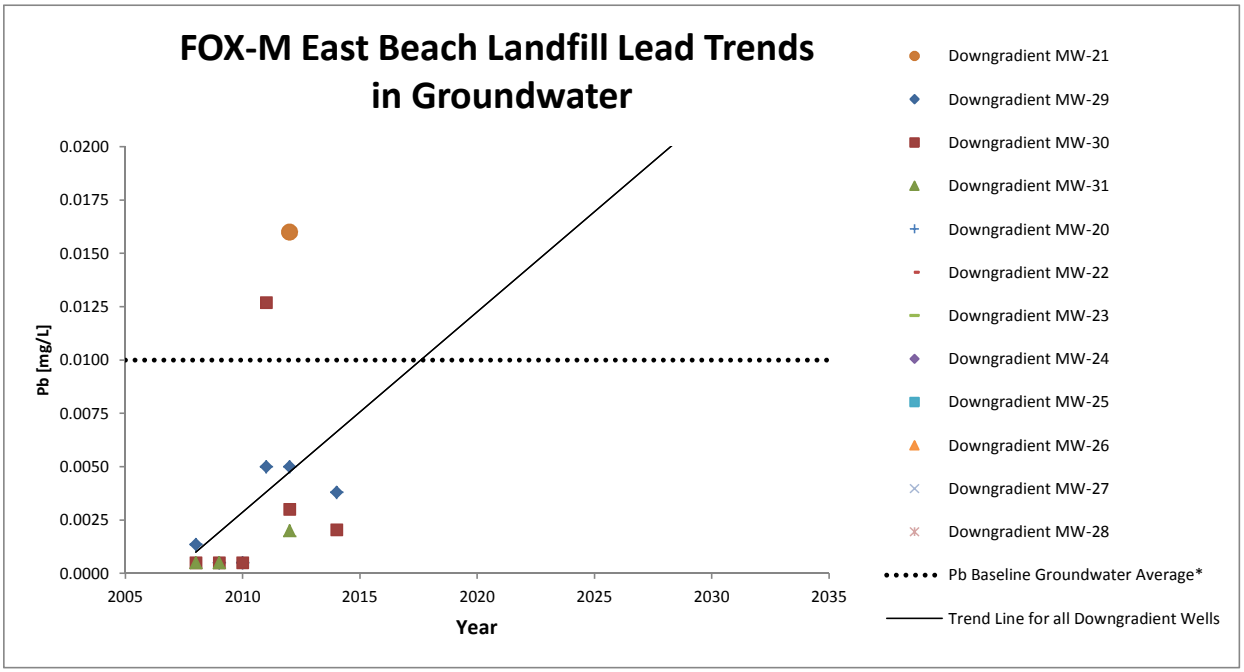


*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD = 0

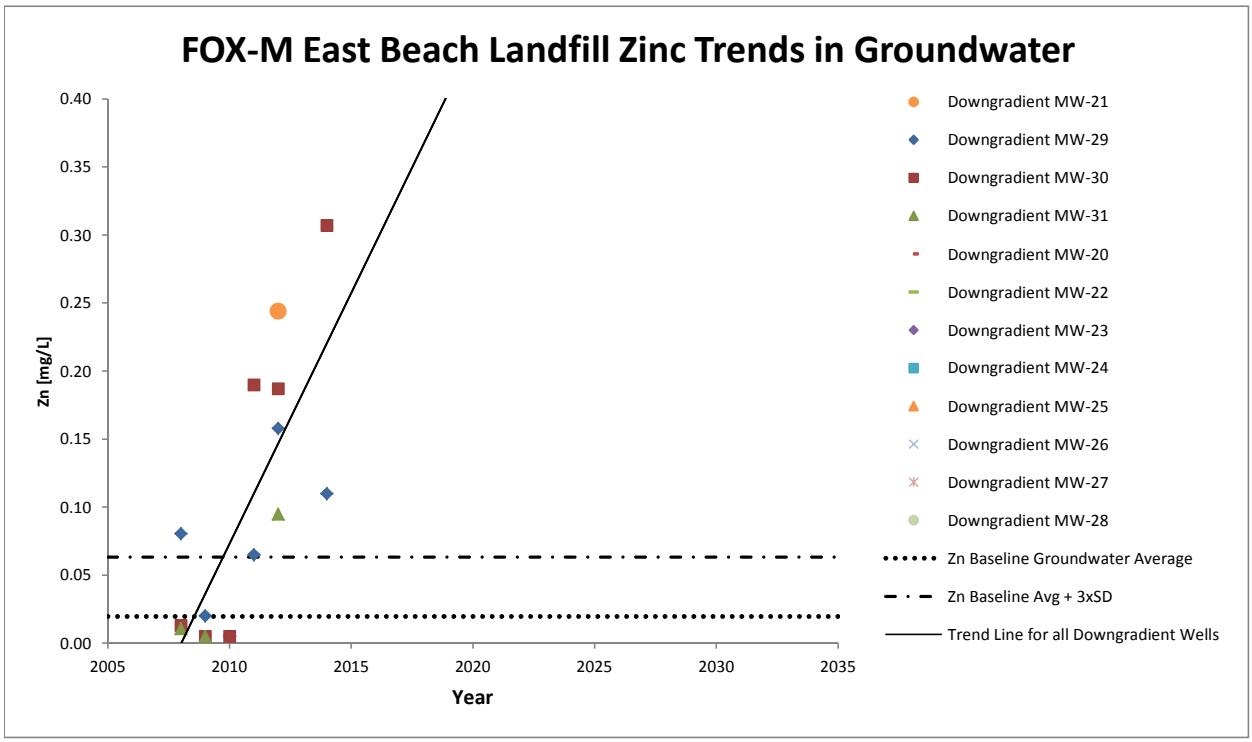


*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline SD = 0

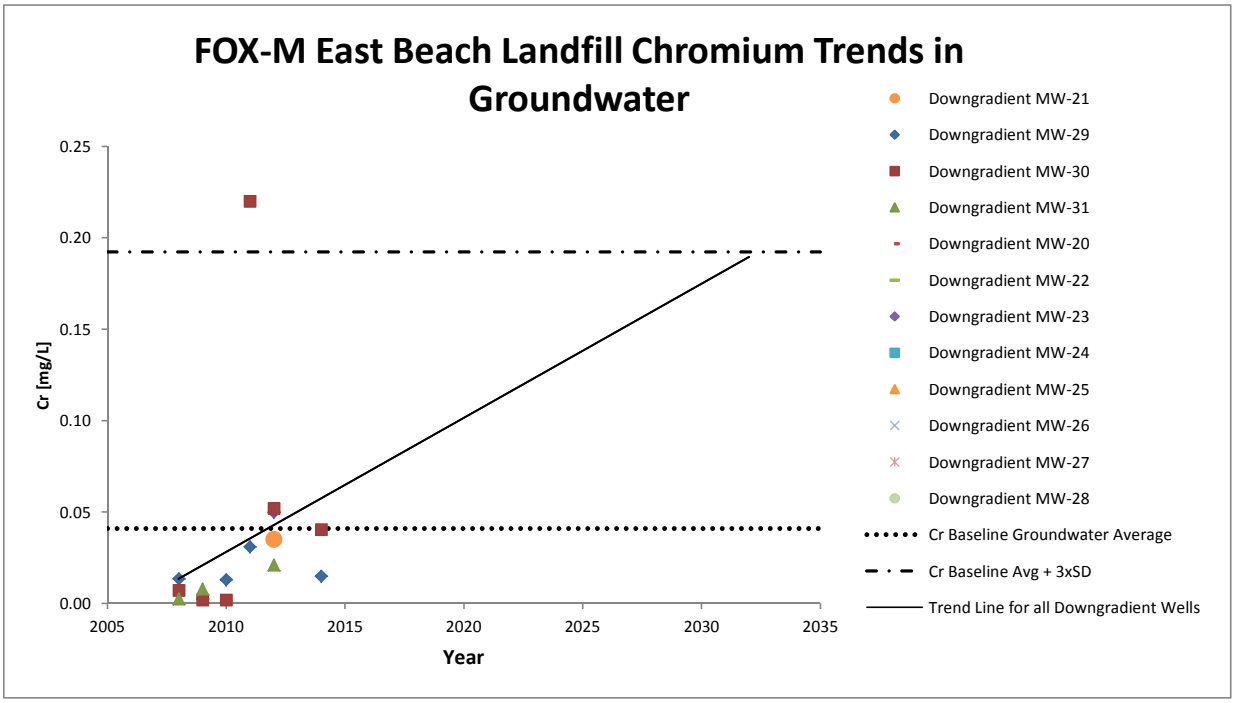
FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

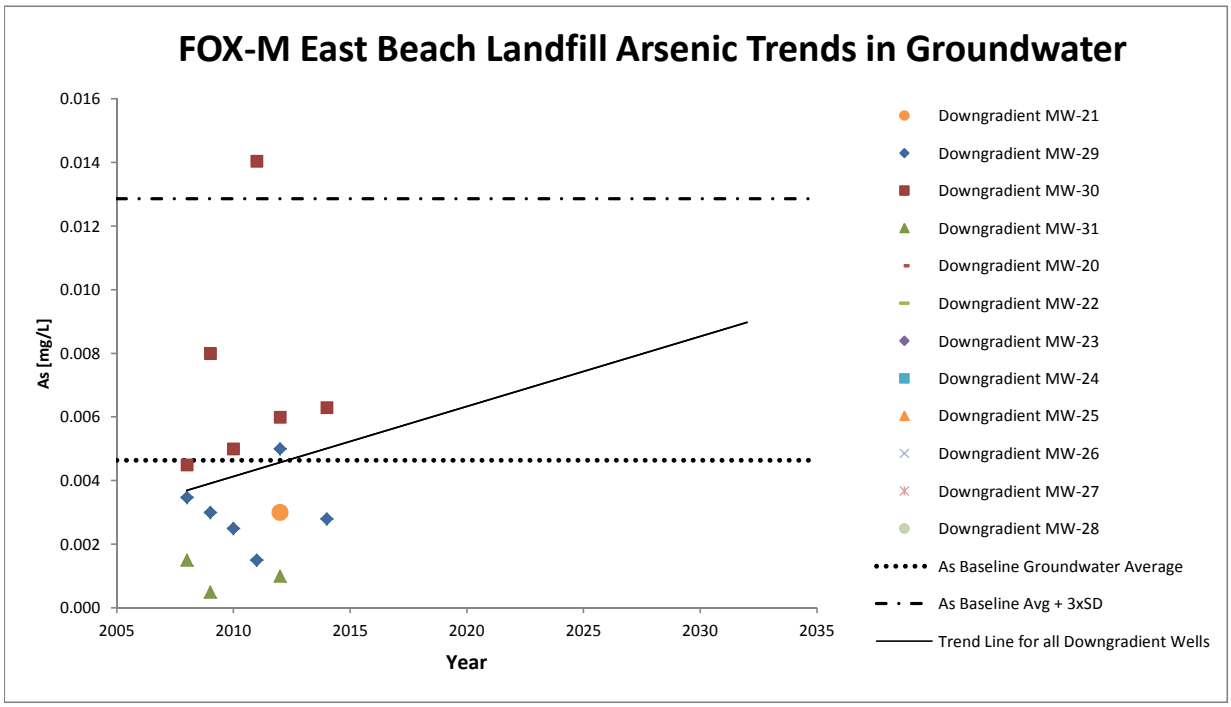


*Pb Baseline Average is equal to the detection limit.
*Pb Baseline SD = 0

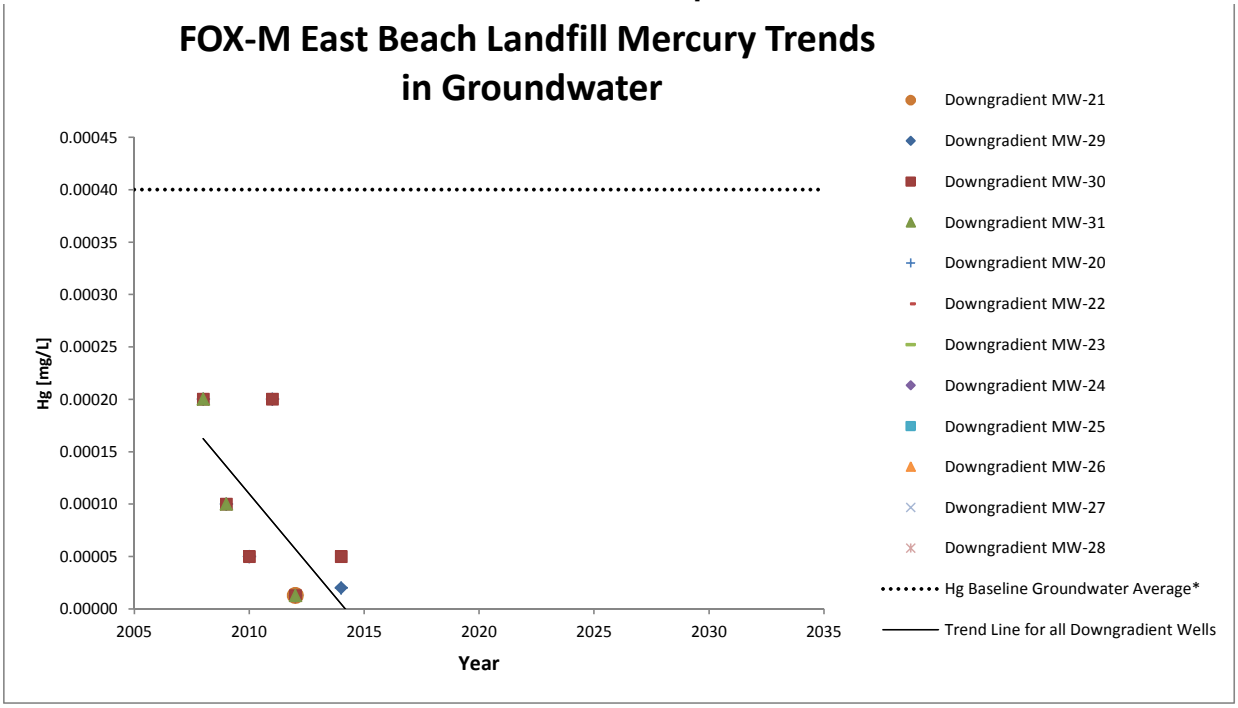


FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

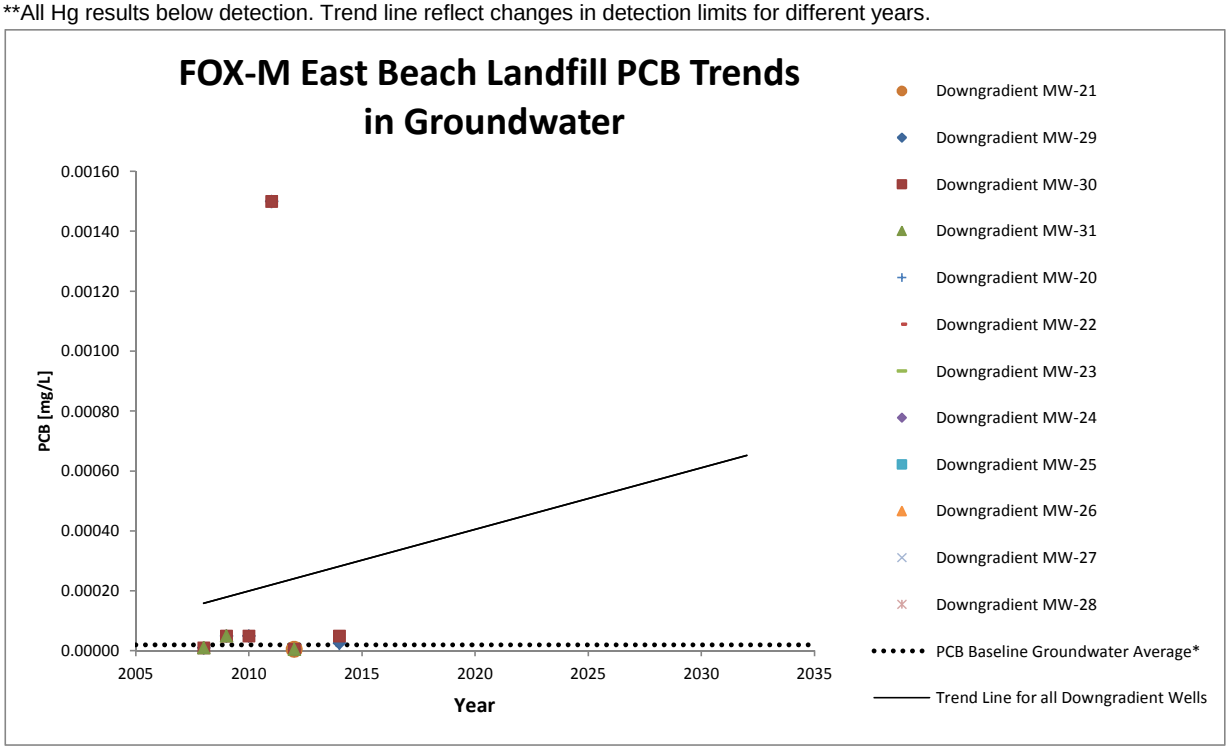




FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

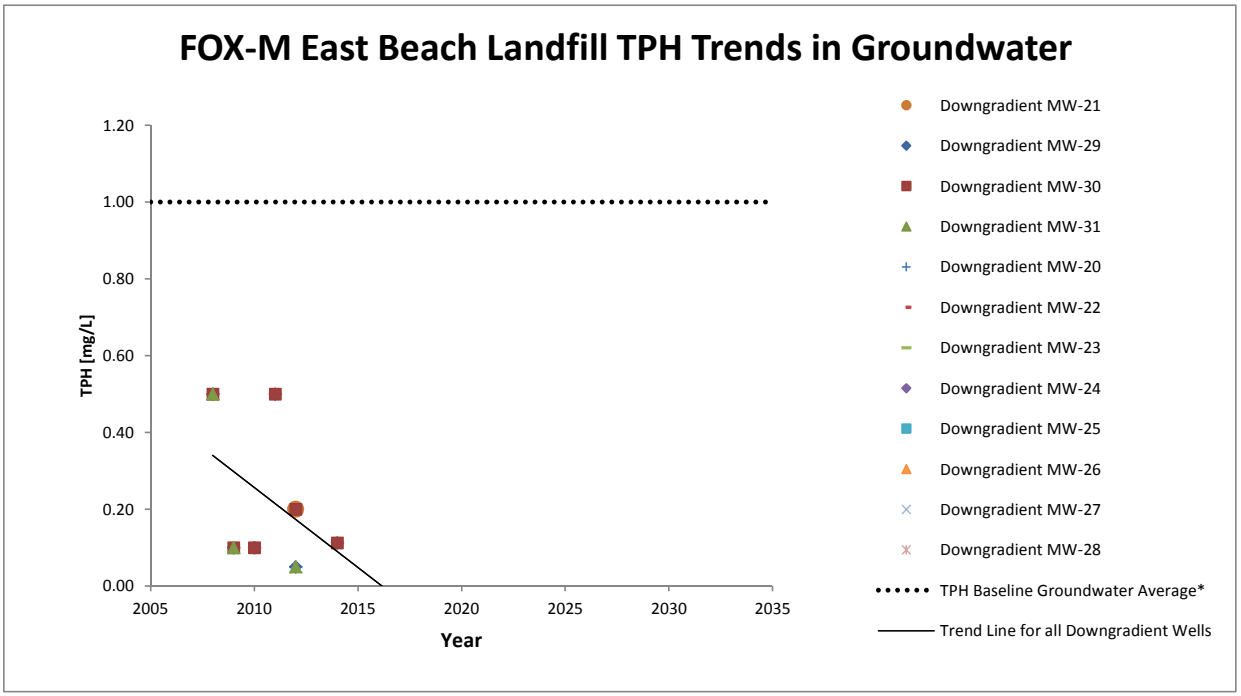


*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline SD = 0
**All Hg results below detection. Trend line reflect changes in detection limits for different years.



*PCB Baseline Average is equal to the baseline detection limit.
*PCB Baseline SD = 0
All PCB results below detection (up to 2014). Trend and scale of chart reflect changes in detection limits for different years.

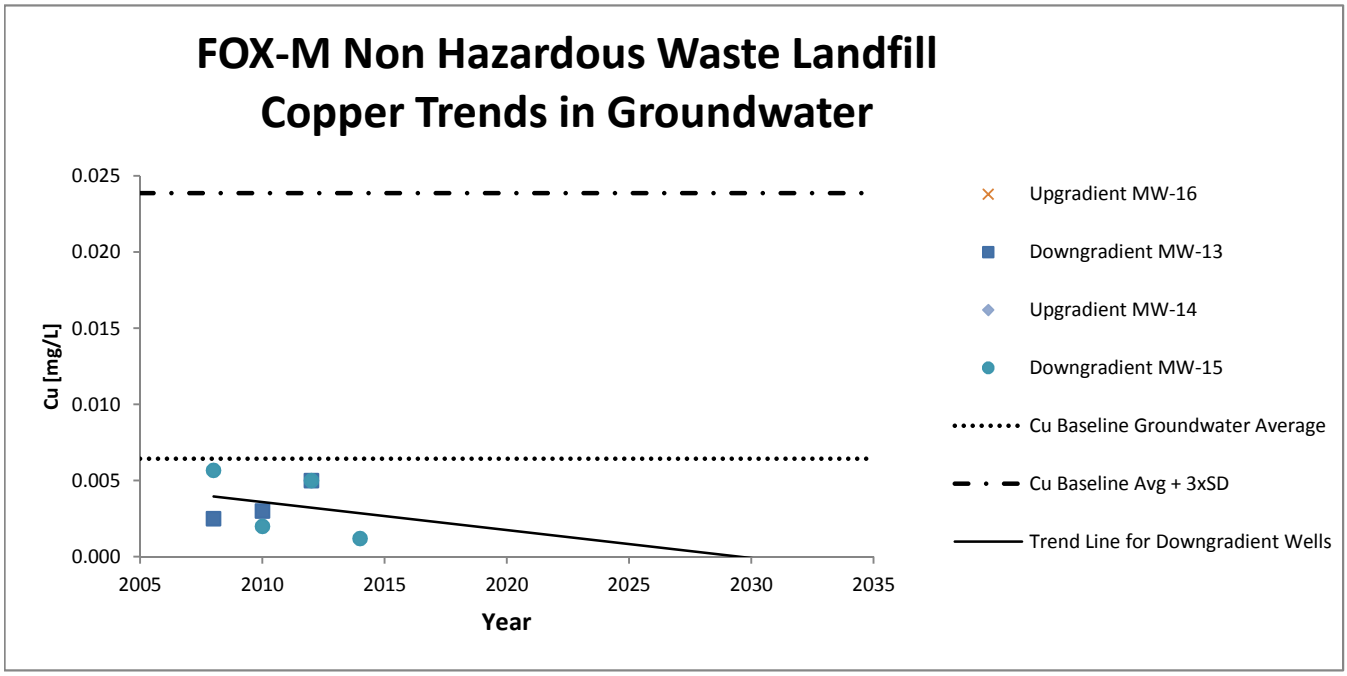
FOX-M East Beach Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

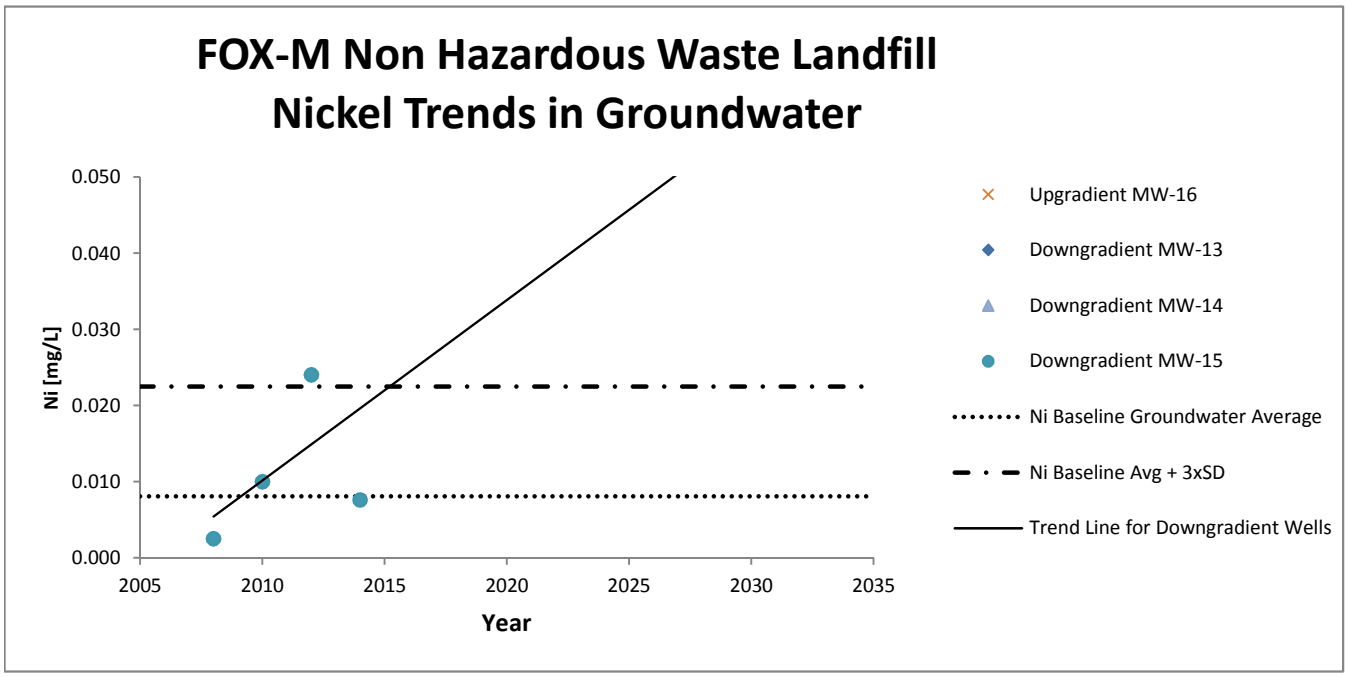


*TPH Baseline Average is equal to the baseline detection limit.
*TPH Baseline SD = 0

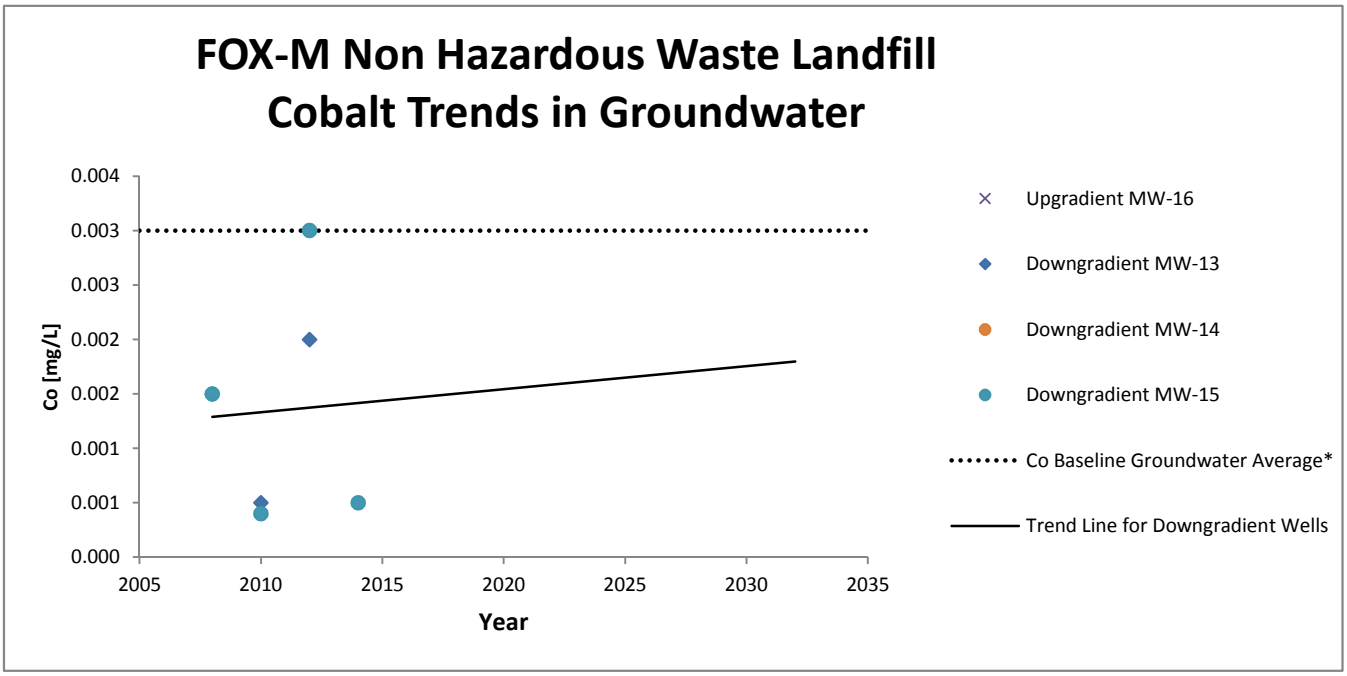
FOX-M Non Hazardous Waste Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

Where results are below detection, half of the detection limit has been used in the charts.

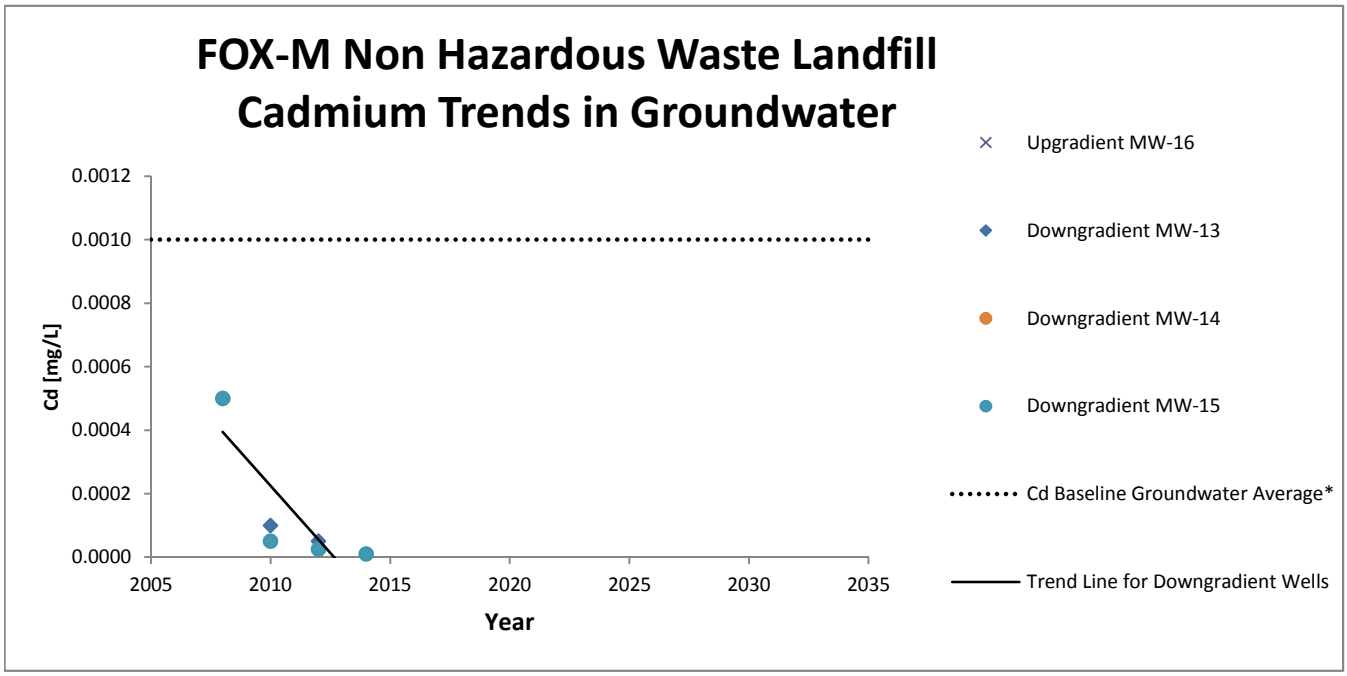




FOX-M Non Hazardous Waste Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

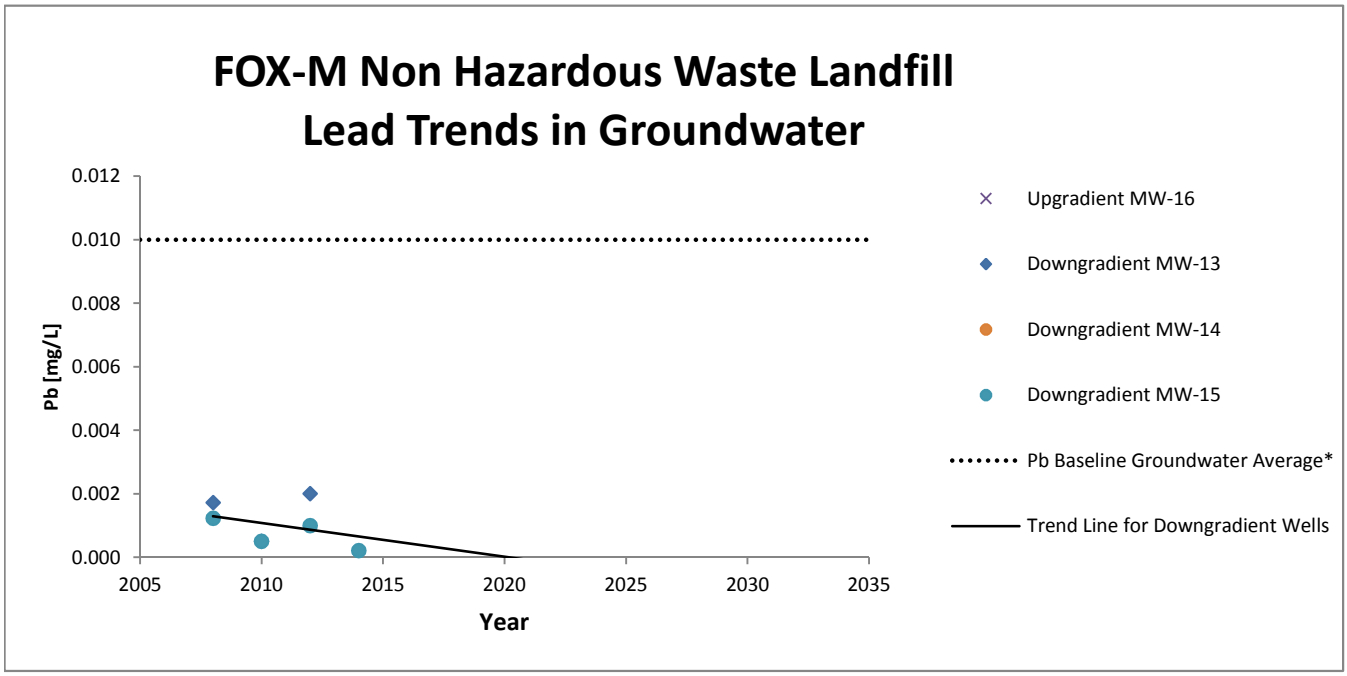


*Co Baseline Average is equal to the baseline detection limit.
*Co Baseline SD=0

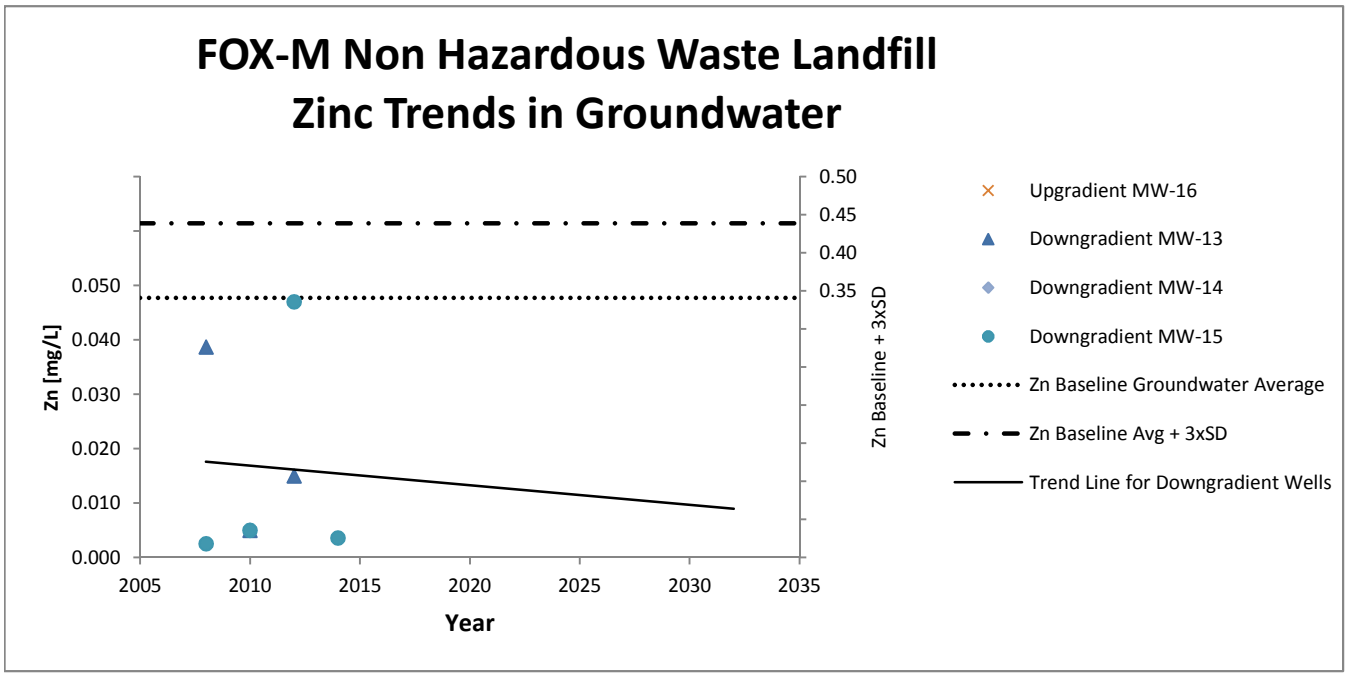


*Cd Baseline Average is equal to the baseline detection limit.
*Cd Baseline SD=0

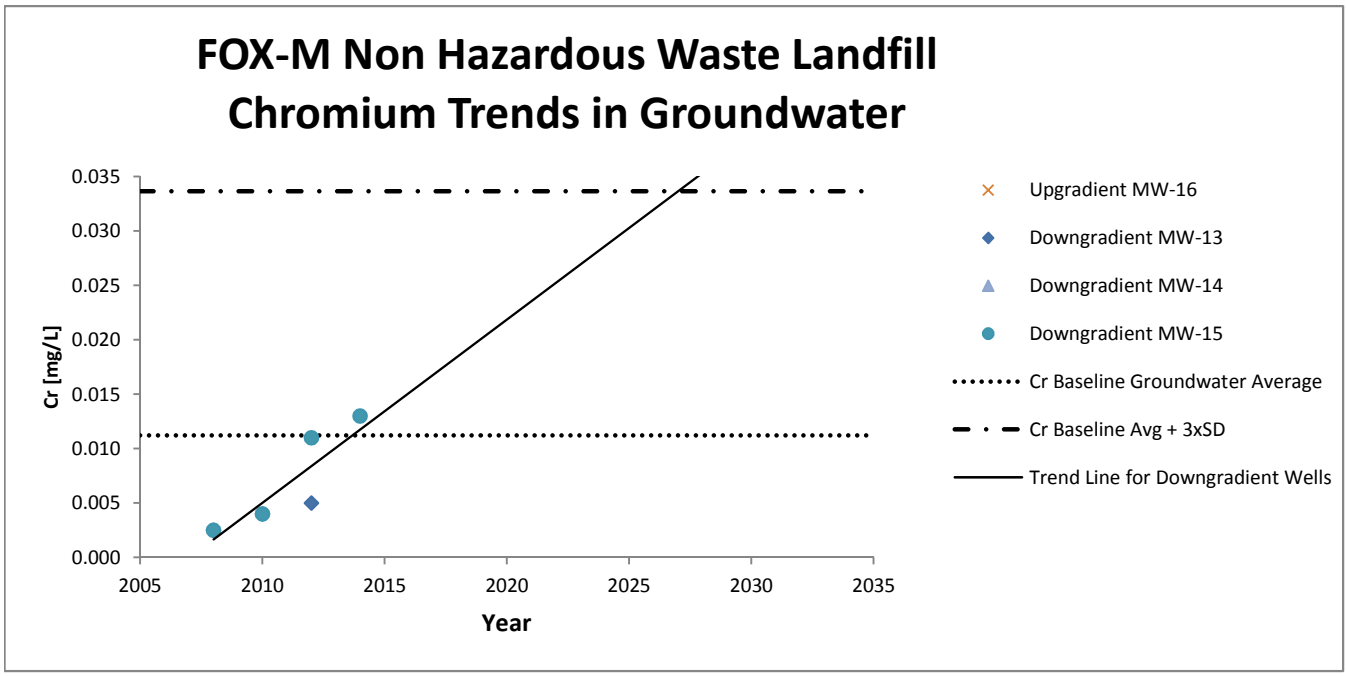
FOX-M Non Hazardous Waste Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples

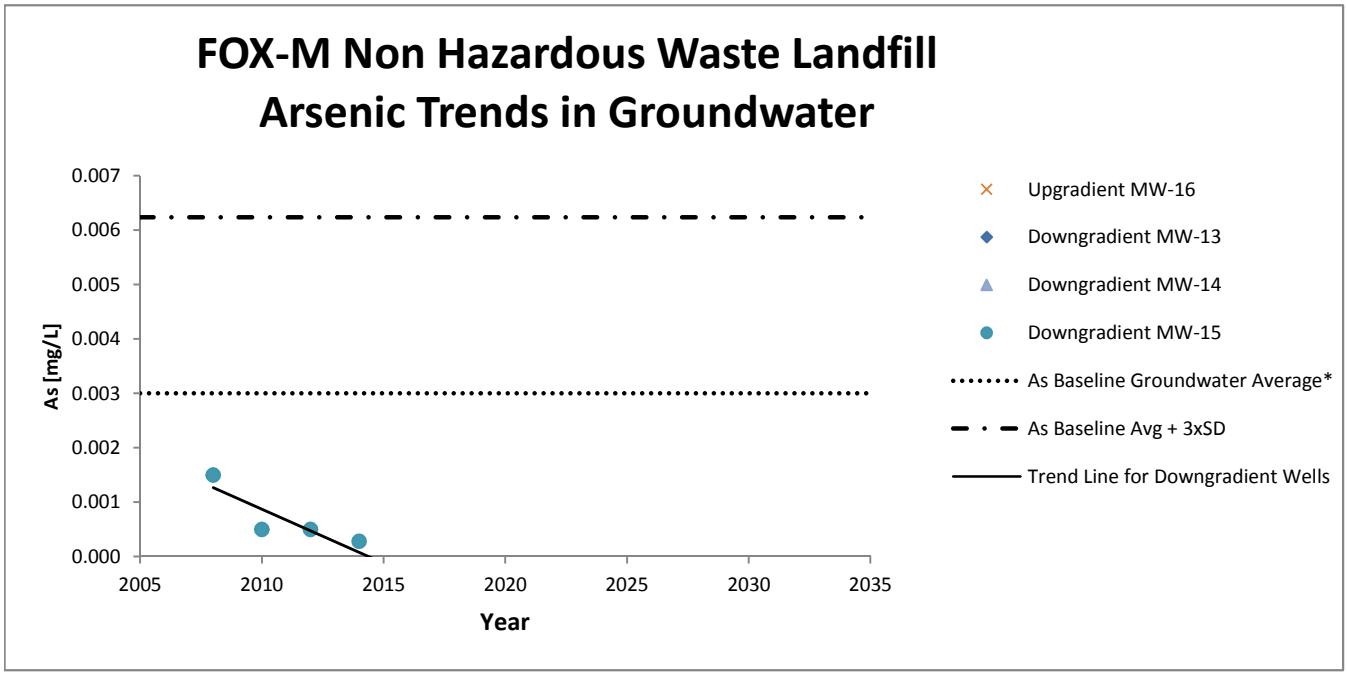


*Pb Baseline Average is equal to the baseline detection limit.
*Pb Baseline SD=0



FOX-M Non Hazardous Waste Landfill Graphs of Trends for Inorganic Elements, PCBs and TPH in Groundwater Samples





*As Baseline Average is equal to the baseline detection limit.

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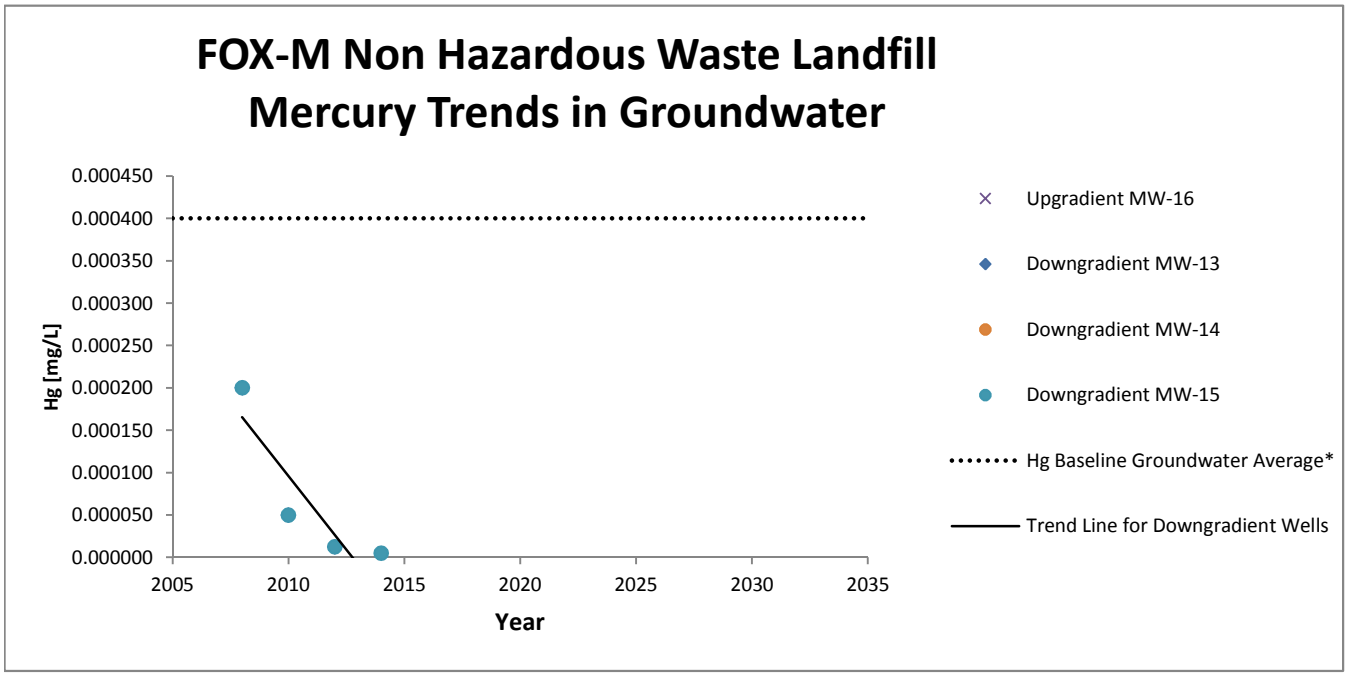
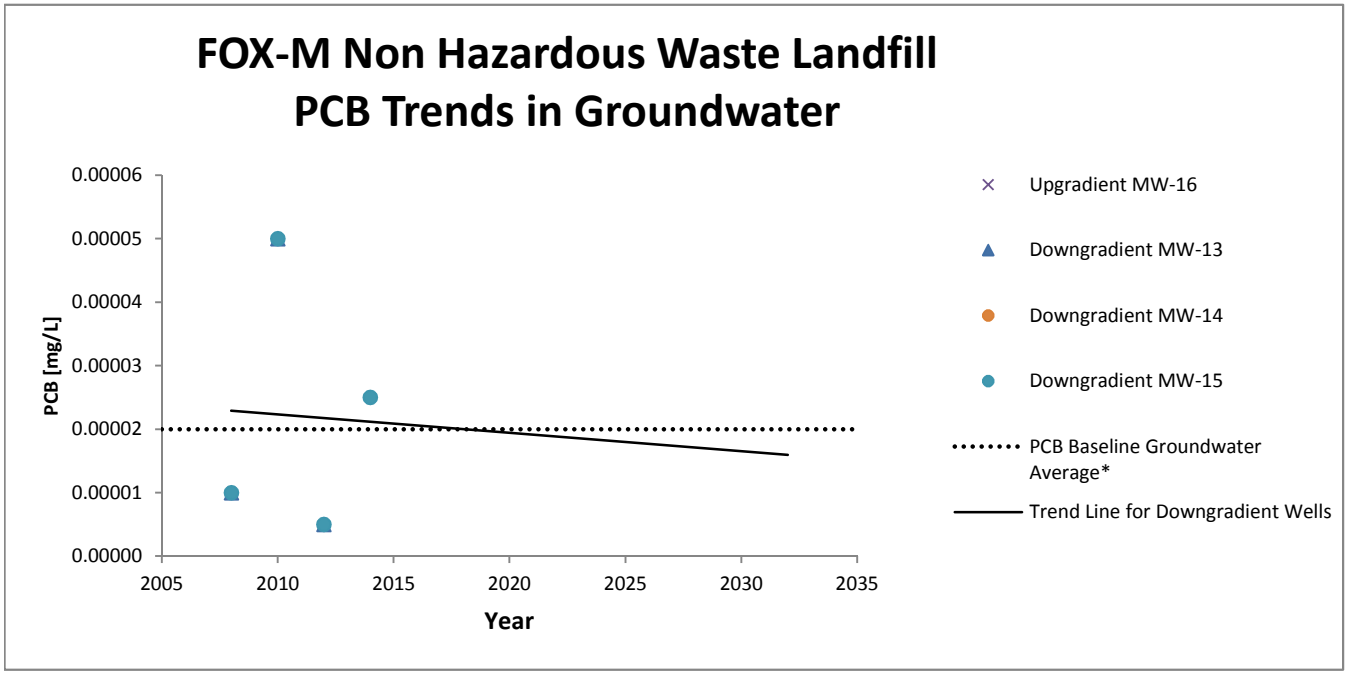


*Hg Baseline Average is equal to the baseline detection limit.
*Hg Baseline SD=0
**All Hg results below detection. Trend line reflect changes in detection limits for different years.



*PCB Baseline Average is equal to the baseline detection limit.
*PCB Baseline SD=0
**All PCB results below detection. Trend line reflect changes in detection limits for different years.

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