PINE TREE LANDFILL

April 26, 2019

Linda Butler
Department of Environmental Protection
Bureau of Remediation and Waste Management
17 State House Station
Augusta, ME 04333-0017

Re: Pine Tree Landfill 2018 Annual Report

Dear Ms. Butler:

Enclosed for your review is the Pine Tree Landfill 2018 Annual Report and supporting documentation as required.

Should you require additional information or clarification, please do not hesitate to contact me at 207-249-8025 or Wayne Boyd at 207-862-4200 ext. 224.

Respectfully submitted,

New England Waste Services of ME, Inc.

Jeffrey Pelletier
Environmental Manager

Enclosure

Cc: Steve Farrar, MEDEP
Jim Chandler, Town of Hampden

358 EMERSON MILL ROAD • HAMPDEN, MAINE 04444 • TEL.: 207-862-4200 • FAX: 207-862-4207

2018 ANNUAL REPORT

PINE TREE LANDFILL
HAMPDEN, MAINE

MEDEP LIC. #S-001987-WN-HC-N

April 2019

PINE TREE LANDFILL
A Casella Waste Systems Company

Owned by New England Waste Services of ME, Inc.
358 Emerson Mill Road, Hampden, Maine • (207) 862-4200

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION	1
1.1	Annual Report Format	1
1.2	Permit & License Applications Submitted & Approved for PTL during 2018	1
1.3	Site Overview	1
2.0	SUMMARY OF SITE ACTIVITIES	5
2.1	Landfill Activities	5
2.2	Other Onsite Activities	5
2.3	Spills and Incidents during 2018	5
2.4	System Failures and/or Repairs	6
3.0	FACILITY SITE CHANGES	6
3.1	Changes to the Facility's Post-Closure Monitoring & Maintenance Plan	6
3.2	Proposed Changes	6
4.0	MONITORING	7
4.1	Groundwater, Surface Water, and Leachate Monitoring	7
4.2	Gas & Air Monitoring	8
4.3	Stability, Settlement, and Cover Monitoring	9
4.4	Rapid Waste Mass Stabilization (Leachate Recirculation) Monitoring	10
4.5	Tri-Annual Inspections	10
4.6	Annual Compliance Self Audit and Report	10
5.0	FINANCIAL ASSURANCE	10

LIST OF FIGURES

Figure No. Title Page No.

1-1 Site Location Map 4

LIST OF ATTACHMENTS

ATTACHMENT A POST-CLOSURE LEACHATE RECIRCULATION ANNUAL REPORT

ATTACHMENT B LEACHATE COLLECTION MAINTENANCE ACTIVITIES

ATTACHMENT C ANNUAL WATER QUALITY MONITORING REPORT

ATTACHMENT D LANDFILL GAS MONITORING EVALUATION

ATTACHMENT E LANDFILL AIR MONITORING EVALUATION

ATTACHMENT F GEOTECHNICAL MONITORING REPORT

ATTACHMENT G FACILITY INSPECTION REPORTS/OTHER MAINTENANCE ACTIVITIES

ATTACHMENT H COMPLIANCE SELF-AUDIT

ATTACHMENT I ANNUAL SOLID WASTE MANAGEMENT REPORT

ATTACHMENT J UPDATED POST-CLOSURE COST ESTIMATES

ATTACHMENT K UPDATED OPERATIONS MANUAL SECTIONS

1.0 INTRODUCTION

This document and associated attachments are Pine Tree Landfill's (PTL) 2018 Annual Report. The information provided in this report also addresses the requirements of Section 401.6.C of Maine Solid Waste Management Rules, and Condition 22 of Department Order #S-001987-WN-HC-N. 2018 was the eighth year of the 30 year post-closure monitoring period for PTL. The 2018 Annual Report fee hasn't yet been invoiced by the Maine Department of Environmental Protection (MEDEP), and will be scheduled for payment once received. The MEDEP has been made aware of the situation.

1.1 *Annual Report Format*

The following sections are addressed within this report. A further breakdown of the sections are listed in the Table of Contents.

1) Introduction
2) Summary of Site Activities
3) Facility Site Changes
4) Post-Closure Monitoring and Maintenance
5) Financial Assurance

1.2 Permit & License Applications Submitted & Approved for PTL during 2018

The following permits and licenses were submitted and approved during 2018.

- US Fish & Wildlife Bird Depredation Permit Renewal (Permit #MB670894-0)

1.3 Site Overview

PTL is a 160-acre site located off Emerson Mill Road in Hampden, Maine. Figure 1-1 is a location map of the Pine Tree Landfill site and the surrounding facilities. Prior to closure, beginning in 1975, Pine Tree Landfill facility, formerly Sawyer Environmental Recovery Facilities, Inc. (SERF), had been used for disposal of municipal solid waste (MSW) and special solid waste at four licensed disposal facilities. Of the four, three facilities are secure landfills with liners and leachate collection systems. Listed below are further descriptions of the four licensed facilities.

Conventional Landfill

The largest facility, a 19.8-acre landfill, is the Conventional Landfill, an attenuation landfill that was used between 1975 and 1992 for disposal of MSW, clean oil spill debris, construction and demolition debris, and asbestos.

Secure I Landfill

Secure I is a 1.6-acre clay-lined secure facility used between 1981 and 1985 for the disposal of special waste, including ash from municipal solid waste incinerators and fossil fuel boilers, sludges, sandblast grits, oily waste, and oil spill debris.

Secure II Landfill

Secure II is an 8.7-acre clay-lined secure landfill used between 1985 and 1993 for disposal of special wastes similar to those placed in Secure I. The Secure I and II Landfills were closed and the final covers applied shortly after they were filled.

Secure III Landfill

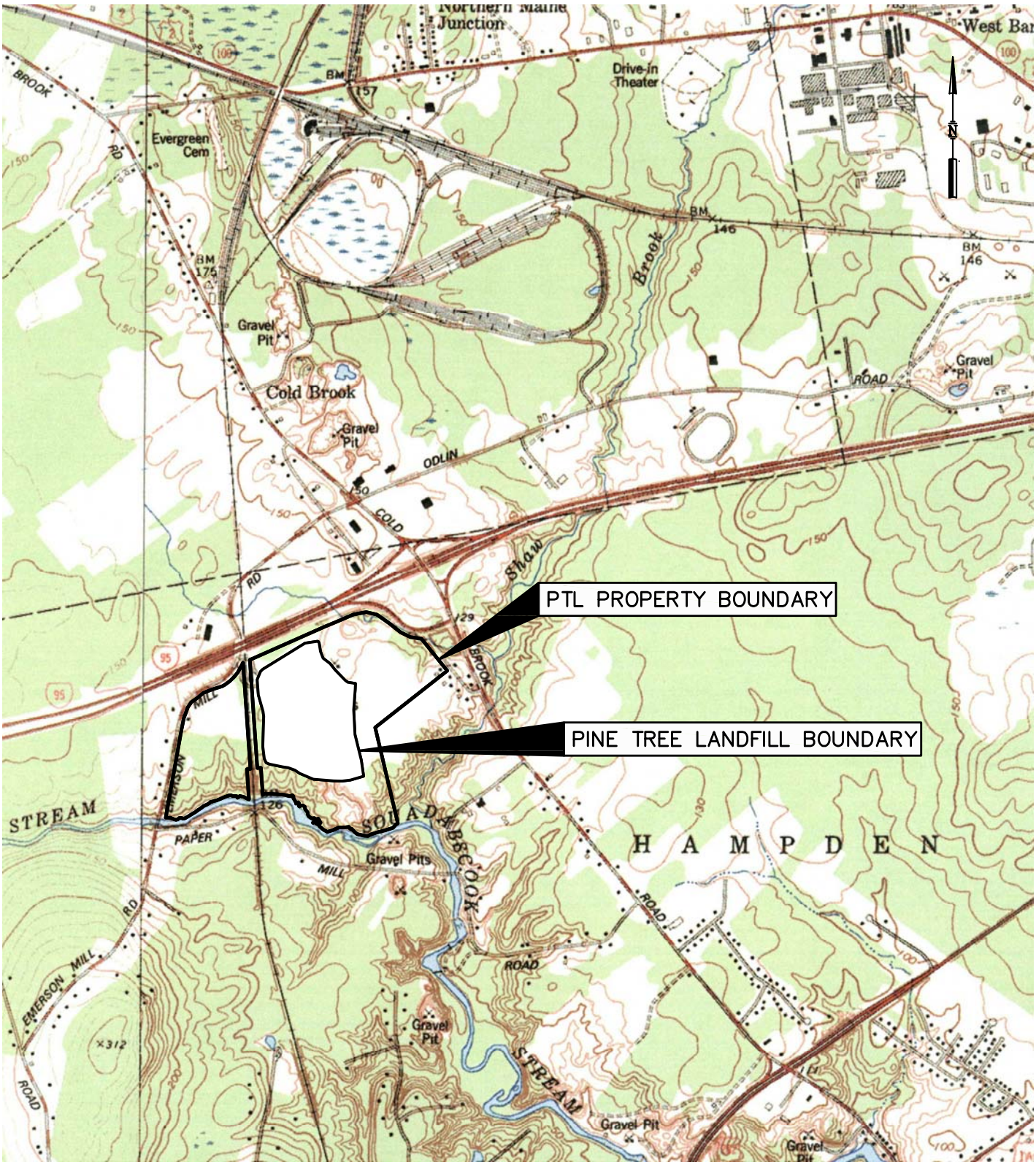
Phase's I-V of the Secure III Landfill were permitted by the MEDEP in 1991. These phases include double liner systems with leak detection and leachate collection. Phase's I-V received waste from 1993 through 2001. These Phases were formally closed with final cover being applied in 2002.

On October 28, 1998, PTL received a license from the MEDEP to expand the Secure III Landfill. The expansion included the addition of three phases (VI, VII, & VIII), which provided additional capacity of 3.3 million cubic yards to Secure III. PTL began constructing Phase VIII-A during late 1999 and completed building the new cell by July 2000. Phase VIII-A received waste from July 2000 through October 2001. PTL began construction of Phase VI in May of 2001 and began utilizing the cell in October of the same year. Phase VI was utilized throughout 2002 into January 2003, with intermediate cover being placed on the phase in February 2003. Construction of Phase VIII-C, Stage-1 began in August 2002 with the MEDEP approving the use of the cell in January 2003. Stage-1 was substantially filled by the end of 2003, and the intermediate cover placed in November and December of 2003. The MEDEP approved construction of Phase VIII-C, Stage-2 on April 17, 2003 with construction beginning immediately thereafter. Stage-2 was approved to begin receiving wastes on August 15, 2003. Stage-2 was utilized from

September 2003 through August 2004 with intermediate cover being placed on the cell in October 2004. The construction of Phase VIII-C, Stage 3 was approved by the MEDEP on May 16, 2004 with construction completed by mid-August 2004. The MEDEP approved the use of the cell on August 23, 2004. Stage-3 was utilized from August 23, 2004 through mid-September 2005 with intermediate cover being placed on the cell in late 2005. Phase VII cell was constructed between May 9, 2005 and September 15, 2005 at which time the cell was approved for placement of wastes.

Landfill Phased Closure

On October 26, 2006, PTL received MEDEP and Town of Hampden approval of a proposed Schedule of Compliance laying out the timeline for phased closure of the PTL facility. The Schedule of Compliance committed to the cessation of waste acceptance by December 31, 2009, and the placement of all final cover systems by December 31, 2010. The Closure Plan for PTL included a change in final waste side slope grades from the previously approved 3 horizontal to 1 vertical (3H:1V) to 2.5 horizontal to 1 vertical (2.5H:1V) for the phases of Secure III where final cover had not already been applied. The change in side slope grades included the utilization of soil perimeter berms around the Secure III Phases. Construction of the portion of this berm along Phase VII began in December 2006, and was completed in April 2007. In June 2007, construction of the second phase of the berm along the perimeter of Phase VIII-C Stages 2 and 3 was started. This portion of the berm was completed in August 2007. Construction of the Phase VI perimeter berm began in April of 2008 and was completed and approved for waste placement on June 30, 2008. The final cover systems for Secure III, Phase VII and Phase VIII-C, Stage 3 were completed in late 2008. The final cover placement on Phase VI was completed in 2009, with the final stage of closure (Phase VIII-C, Stages 1 & 2) completed in 2010. On February 18, 2011, New England Waste Services of ME, Inc. (NEWSME) received a MEDEP memo dated January 13, 2011, which affirmed that the final stage of closure had been completed in general accordance with the approved plans and specifications. Therefore, in 2018, the PTL facility was in its eighth year of the 30 year post closure period.



BASE MAP ADAPTED FROM 7.5 MIN
USGS TOPOGRAPHIC QUADRANGLE:
BANGOR, ME – 1991

1000 0 2000 4000 FEET

FIGURE 1–1
SITE LOCATION MAP
PINE TREE LANDFILL
HAMPDEN, MAINE

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

DWG: SITE LMN: CTB: HPSTD REV: 4/30/10

\\Nserver\cfs\Saw\ACAD\SITE.dwg, 2/14/2013 7:42:37 AM, sjm

2.0 SUMMARY OF SITE ACTIVITIES

2.1 Landfill Activities

The following landfill related site activities occurred at PTL during 2018:

- Continued the Post-Closure Leachate Recirculation Program.
- Continued post-closure monitoring and maintenance.
- Continued the Bee-pollinator habitat.
- Completed the surface water repairs on the Secure II/Secure III cover systems.

2.2 Other Onsite Activities

The following non-landfill related site activities occurred at PTL facility during 2018:

- Pine Tree Transfer and Recycling continued to operate as a licensed transfer station by accepting CDD, clean wood, white goods, and universal wastes.
- The landfill gas-to-energy facility continued to operate by treating and combusting landfill gas for electrical energy production.
- The adjacent container storage yard continued to be utilized by Pine Tree Waste for storage of their frontload and roll-off containers as well as container repair in a portion of the former Pine Tree Landfill maintenance garage.
- North Coast Services continued to handle universal waste materials for the Pine Tree Transfer station, and utilize the former Pine Tree universal waste consolidation area located in the former Pine Tree Landfill maintenance garage.

Operations continued at the PTL Gas-to-Energy (GTE) Facility during 2018. During this time, no major changes occurred. Total flow and energy generated by methane (CH_4) combustion are provided and discussed in Section 4.2. No major equipment malfunctions causing long term scrubber bypass occurred during 2018.

2.3 *Spills and Incidents during 2018*

During 2018, no spills and/or incidents occurred associated with the landfill. Pine Tree Transfer and Recycling (PTT) experienced one oil spill and no incidents. Details of the oil spill are listed below and further described in the 2018 (PTT) Annual Report #S-021816-WH-A-N.

- Hydraulic oil spill at PTT of 3 gallons on 12/11/18 (third party line leak)

2.4 System Failures and/or Repairs

Routine and non-routine maintenance activities were performed on the leachate and landfill gas collection infrastructure, access roads, surface water structures, and cover system during 2018. Leachate maintenance activities are listed chronologically in Attachment B. All other identified landfill maintenance activities are listed chronologically in Attachment G.

3.0 FACILITY SITE CHANGES

During 2018, one site change/improvement occurred requiring department approval. This change/improvement is listed below, with further details described in Attachment G.

- Repairs of surface water conveyance structures for the Secure II and Secure III cover systems.

3.1 Changes to the Facility's Post-Closure Monitoring and Maintenance Plan

Listed below are revisions that were made to the facility's Post-Closure Monitoring and Maintenance Plan during 2018. Copies of the revisions are included in Attachment K, allowing for certified copies of the PTL Post-Closure Monitoring and Maintenance Plan to be updated.

- Updated binder cover page/revisions page
- Updated facility Stormwater Pollution Prevention Plan
- Revised Post-Closure Quarterly Inspection Form

3.2 Proposed Changes

Consistent with recommendations made in previous annual water quality reports (2015-2017), SME recommends and PTL staff agree that VOC sampling be removed from the monitoring program for monitoring locations 641, MW-916, and DW04-109. Further details are included in the PTL annual water quality report, Section 7.2, included as Attachment C to this report.

4.0 MONITORING

During the calendar year 2018, PTL staff performed and documented various monitoring and inspections, as outlined in the PTL Post-Closure Monitoring and Maintenance Plan, in accordance with 401.6.b of the Regulations. Reports of monitoring were submitted in accordance with the Plan, and additional inspection documents are available to the MEDEP upon request and are maintained in the environmental manager's office.

4.1 Groundwater, Surface Water, and Leachate Monitoring

In 2018, the required water quality monitoring was performed twice annually, based on the PTL Environmental Monitoring Plan (EMP), which was revised in May 2011 to reflect post-closure conditions. Once complete, the 2018 water quality data of 22 on-site groundwater monitoring wells, on-site and off-site surface water at four monitoring locations, groundwater at two residential area wells, two landfill leachate locations, and the perimeter drain of the Conventional Landfill was compared/evaluated with historical monitoring data and the threshold criteria established for the site groundwater over the post closure period. A more detailed description of the sites monitoring results is included as Attachment C of this report.

In accordance with the EMP and agreed upon with the MEDEP, water quality monitoring frequency was reduced in 2016 from three times annually to twice annually. This sampling frequency will remain in effect through 2020.

The 2018 water quality data for the PTL site is consistent with the historical use and operations of the site. The 2018 water quality at the site generally indicates continued improvement over the past several years at the landfill; these improvements are supported by decreasing trends for multiple water quality parameters at multiple sampling locations and in various directions of groundwater flow away from the landfill. In the seven years of post-closure monitoring at the PTL, many of these improvements are attributed to the continued and enhanced corrective actions at the site (i.e., completion of closure, and the groundwater extraction system and landfill gas extraction system). Because the site is relatively early in its 30-year post-closure monitoring period, it is too soon to evaluate the effectiveness of closure in terms of achieving the post-closure threshold criteria given in the Department Closure Order. However, in the eight years of post-closure monitoring at the PTL, there are overall trends toward improvements in groundwater quality, with several monitoring locations either achieving or very close to achieving the threshold criteria.

As required by PTL's Industrial Wastewater Discharge Permit, leachate pumped from PTL to the Bangor Wastewater Treatment Facility (BWWTP), was sampled quarterly during 2018. Throughout 2018, 8,638,587 gallons of leachate was pumped from PTL to BWWTP. This is compared to 9,134,711 gallons of leachate pumped in 2017.

Additionally, during 2018, a total of 371,428 gallons of leachate and condensate was recirculated into the Secure III facility. This is compared to 1,296,813 gallons of leachate and condensate which was recirculated in 2017.

Sample results for leachate monitoring and flow records of both the leachate collection/leak detection systems are kept on file in the Environmental Manager's office. PTL leachate leak detection systems were monitored as outlined the PTL Post-Closure Monitoring and Maintenance Plan, with a discussion of those results found in the Annual Water Quality Monitoring Report.

4.2 Gas & Air Monitoring

The 2018 PTL Gas Monitoring Report is included as Attachment D to this report. Throughout 2018, routine landfill gas (LFG) monitoring took place at various on-site gas management locations with results being submitted via electronic deliverable document to the MEDEP as required. At the beginning of 2018, the PTL well field consisted of 69 active well heads. On November 27, 2018 the MEDEP granted permission to discontinue 13 of those active well heads due to poor performance. At the end of 2018, 56 well heads remained active.

Collection of migrating landfill gas from the unlined Conventional landfill continued at external soil gas extraction wells during 2018. Five extraction wells were active at the beginning of 2018 and five remained active at the end of 2018. Total flow and energy extracted increased overall throughout 2018.

CH_4 concentrations in 2018 were slightly higher on average to those of 2017. Concentrations ranged from 36-42% methane, with an annual average concentration of 39.5%. This was a 10% improvement of the 2017 CH_4 annual average of 36.0%. O_2 concentrations remained at relatively low levels for all of 2018 with an annual average concentration of 0.9%, consistent with 2017 concentrations.

As expected, the closed landfill saw a decrease in average daily LFG flow for 2018. The

total flow during 2018 was 231.4 million standard cubic feet (MMSCF), a decrease of 13% from 2017. The total energy content at PTL during 2018 was 91,248 MMBTUs, a decrease of 4% from 2017. Although flow rates did decreased in 2018, CH_4 concentrations increased by 10%, resulting in a smaller reduction in total MMBTU's combusted when compared to years past.

The 2018 PTL Air Monitoring Report is included as Attachment D to this report. No odor related complaints occurred at PTL in 2017 or 2018; further confirming that the final cover system is functioning properly.

A surface scan were completed in August of 2018 using a Micro FID® (flame ionizing detector) or similar mobile device. During the 2018 scan, PTL staff did not encounter any locations that had CH_4 readings above the 500 ppm throughout the entire landfill cover system and all of its penetrations. This is compared to 3 locations that had been discovered the year prior.

4.3 Stability, Settlement, and Cover Monitoring

The 2018 Geotechnical Monitoring Report is provided in Attachment F of this report. During 2018, PTL continued to monitor site settlement and stability in Secure III as in the past with the assistance of Dr. Richard Wardwell. The stability of the cover and waste mass at the Pine Tree Landfill was primarily assessed by periodic landfill observations.

Consistent with operational and closure monitoring performed at the site since 1993, landfill observations indicate that the waste mass is stable, foundation soils are providing adequate support, and the cover is performing in accordance with design. There is no indication that there are excessive lateral displacements in the cover materials. Settlements are within tolerable limits and other than one exception, which was identified/repaired in 2018 and further described in Attachment G, there was no indication of cover instabilities or excessive settlements that would impair surface drainage or the collection and removal of infiltration into the cover system. Calculated cover strains derived from the observed displacements are de minimis and there are no indications that the internal drainage facilities are not collecting and discharging infiltration. Projections of the deformation rates through the 30-year post-closure period indicate the strains are consistent with design values.

4.4 Rapid Waste Mass Stabilization (Leachate Recirculation) Monitoring

The 2018 Post-Closure Leachate Recirculation Annual Report is provided in Attachment A of this report. In 2018, a total of 371,428 gallons of leachate was introduced into PTL's waste mass. During this time, all 371,428 gallons were pumped into the two remaining recirculation trenches. Routine inspections were continually performed in accordance with the Plan, to ensure proper system operation. Due to limited staffing and a lower demand for additional gas at PTL Gas to Energy Facility (PTL GTE), the entire volume of leachate approved by the MEDEP in the 2018 Recirculation Plan (3,417,400 gallons) was not applied.

PTL staff reported no operational issues in 2018. The system ran well and as intended throughout the course of the year. A detailed report on leachate recirculation activities completed during 2018 is located in Attachment A.

4.5 Tri-Annual Inspections

Completed sample 2018 quarterly inspection forms in accordance with the Plan, along with lists of all other identified landfill maintenance items and their resolutions are listed chronologically in Attachments B & G.

4.6 Annual Compliance Self Audit and Report

As required by Condition 22 of Department Order #S-001987-WN-HC-N, PTL performed an annual evaluation of landfill post-closure activities for conformance to the Plan for calendar year 2018. A copy of the Audit is included as Attachment H. As requested by the MEDEP an Annual Solid Waste Management Report has been completed, despite PTL being closed and no longer accepting waste. The completed Annual Solid Waste Management Report is included as Attachment I.

5.0 FINANCIAL ASSURANCE

The post-closure costs have been updated, as of the end of calendar year 2018. A copy of the revised closure and post-closure costs may be found in Attachment J of this report. Following approval of the estimates, a revised financial assurance package will be submitted to the MEDEP under a separate cover.

ATTACHMENT A

POST-CLOSURE LEACHATE RECIRCULATION ANNUAL REPORT

PINE TREE LANDFILL

2018 POST-CLOSURE LEACHATE RECIRCULATION REPORT

Operated by New England Waste Services of ME, Inc.

358 Emerson Mill Road, Hampden, Maine 04444 • (207) 862-4200

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION	1
2.0	HISTORY	1
3.0	GENERAL RECIRCULATION SYSTEM LAYOUT AND DESCRIPTION	2
4.0	2018 OPERATIONS	3
4.1	Operations Summary	3
4.2	Monthly Leachate Addition	4
4.3	Operational Issues	6
4.4	Inspections	6
5.0	ANNUAL LEACHATE RECIRCULATION ASSESSMENT	7
5.1	Phase VIII-C and Secure III Leachate Generation	7
5.2	Leachate Level Measurement on the Liner	9
5.3	Water Balance Evaluation	10
5.4	Assessment of Stability in Recirculation Areas	11
5.5	Impact Assessment of the LFG Quality at the GTE Facility	11
6.0	PROPOSED PLANS FOR 2019	14
7.0	SUMMARY	16

LIST OF TABLES

Table No.	Title	Page No.
4-1	Monthly Leachate Addition for 2018	5
4-2	Gas Well/GCT Leachate Addition, Proposed Versus Actual	5
5-1	Phase VIII-C & Secure III Leachate Collection Totals, 2010 & 2017 – 2018	7
5-2	Leachate Monthly Flows / Recirculation Mass Balance Worksheet for 2018	9
5-3	Water Balance Evaluation, 2011 – 2018	10
5-4	Trench 1-4 Leachate Recirculation Influence Area Wells	10
6-1	Leachate Recirculation Proposed Pumping Structures and Totals for 2019	14

LIST OF FIGURES

Figure No.	Title	Page No.
4-1	Leachate Recirculation Pumping Structure Locations for 2018	4
5-1	Phase VIII-C / Secure III Leachate Collection Totals, 2017 – 2018	8
5-2	PTL Energy Extraction Comparison, 2010-2018	12
5-3	Twice Weekly Tested H_2S Concentration at the GTE Facility	13
6-1	2018 Leachate Recirculation Pumping Structure Locations	15

PINE TREE LANDFILL
POST-CLOSURE LEACHATE RECIRCULATION
2018 ANNUAL REPORT

1.0 INTRODUCTION

This document serves as the 2018 Annual Report for the Pine Tree Landfill (PTL) Post-Closure Leachate Recirculation Program (Program). The Program was initiated in 2011, in general accordance with the Pine Tree Landfill Post-Closure Leachate Recirculation Plan (Plan) (January 2011) approved by Maine Department of Environmental Protection (MEDEP) Order #S-001987-WD-XH-M.

In 2018, a total of 371,428[1] gallons of leachate was introduced into PTL's waste mass. During this time, all 371,428 gallons were pumped into the two remaining active recirculation trenches (recirculation trenches) LRT-2 & LRT-3.[2] No gas wells and/or gas collection trenches were used for recirculation during 2018. Procedures and monitoring requirements associated with these activities are further described in Section 4.0 of the Plan.

This report summarizes the 2018 Leachate Recirculation Program and proposes future plans to be carried out from May 2019 through April 2020.

2.0 HISTORY

On June 11, 2009, New England Waste Services of ME Inc., dba Pine Tree Landfill (PTL), submitted an application to the MEDEP seeking approval to perform a pilot study to evaluate the effectiveness of leachate recirculation at the facility. The program was expected to provide an environment within the landfill that would foster ongoing waste mass stabilization. The pilot study was also intended to evaluate whether the landfill gas (LFG) generation rate and methane content could be enhanced by maintaining moisture conditions in the waste mass. The leachate would replace the precipitation recharge eliminated by the installed final cover and serve to continue stabilization of the waste

---

[1] Flow totals for 2018, for the purpose of this report, were computed from the sum of individual flow meters located at the recirculation manifold.

[2] In 2016, two of the four recirculation trenches (LRT-1 & LRT-4) were discontinued due to suspected short circuiting and leakage through geomembrane defects. There are no plans to return these two trenches to service.

mass. A secondary benefit to the program would be a reduced volume of leachate that ultimately requires offsite disposal.

On August 12, 2009, the MEDEP approved a pilot project recirculation study (#S-001987-WZ-XG-N). The pilot project was conducted at the facility through the months of August – December 2009. Data collected throughout the pilot recirculation project indicated that leachate recirculation could provide a benefit to the facility by accelerating waste mass stabilization and increasing methane production for use at the landfill gas-to-energy plant. This data was presented to the MEDEP.

On May 17, 2011, PTL received license #S-001987-WD-XH-M, approving the implementation of the Post-Closure Leachate Recirculation Program. In June 2011, PTL initiated the post closure recirculation plan.

3.0 GENERAL RECIRCULATION SYSTEM LAYOUT AND DESCRIPTION

The PTL recirculation program incorporates two types of leachate recirculation techniques: (1) leachate introduction into the waste mass using four recirculation trenches; and (2) leachate introduction via injection into gas wells and gas collection trenches. The design plans for the leachate recirculation infrastructure are located in the approved Pine Tree Landfill Post-Closure Recirculation Plan, maintained on file in the Environmental Manager's office and previously provided to the MEDEP.

A four inch leachate force main conveys leachate from the existing leachate storage tank pump station to a concrete manifold structure located at the top of the landfill (in Secure III, Phase VIII-C, Stage 2). The control and monitoring of the quantity of leachate being recirculated is done with an automated valve, flow meter, and separate pump, installed in the existing leachate tank pump station. The pumping system is designed to deliver a flow of approximately 150 gallons per minute (gpm) to a manifold system located at the top of the site in the distribution structure. The manifold contains manual valves for controlling and directing the leachate flow to each injection point. Each injection point has a flow meter to monitor flow to each location if simultaneous injection occurs.

The injection points include four recirculation trenches located below the final cover in the top area of the landfill. The recirculation trenches run north to south, are approximately three feet wide, and are backfilled with tire chips to a depth of one and a half feet. The location and orientation of the trenches is shown on Figure 1-1 of the Plan. In the center of each trench, bedded in the tire chips, is a four inch HDPE perforated pipe.

At the high point of the trench, the perforated pipe is connected to the leachate transmission pipe. Trenches are also equipped with cleanouts on the ends and injection risers at several locations along the trench. At the end of each trench, moisture inspection ports are also installed to provide a location to measure liquid level in the trenches. These structures are shown on Figure 1-1 of the Plan.

In addition to the recirculation trenches, three extraction points are located on the North, South, and West side of the top of the landfill to allow for leachate distribution to wells and collection trenches around the site. From these extraction points, leachate is distributed to individual wells and collection trenches using temporary piping that is in good working condition, with an appropriate pressure rating. The temporary piping, is connected to the well or collection trench piping, using a stainless-steel saddle coupling.

The leachate recirculation structures and conveyance pipes are designed to:

- Accommodate estimated waste settlement and maintain landfill stability.
- Operate in weather conditions anticipated during the period of planned leachate recirculation, i.e. throughout the year for the recirculation trenches, and during spring, summer, and fall months for the extraction points.
- Allow monitoring of water levels in the recirculation trenches and provide alternate access points in the trench for leachate addition.
- Provide for leachate flow monitoring to the various distribution points.
- Allow for periodic cleaning and maintenance, as necessary.
- Contain and control leachate during collection, transport, and re-introduction into the waste mass.
- Not create nuisance odors beyond the property boundary.
- Limit leachate head on the liner system to less than 12 inches.
- Maintain leachate quality compatibility with the collection, transport, storage, and treatment systems.
- Not create leachate breakouts on the landfill side slopes.

4.0 2018 OPERATIONS

4.1 *Operations Summary*

Throughout 2018, leachate was applied in accordance with the proposed application volumes approved by the MEDEP as part of the PTL 2017 Leachate Recirculation Annual Report (2018 Recirculation Plan), submitted with the Pine Tree Landfill Annual Report in April 2018. Due to limited staffing and a lower demand for additional gas at PTL Gas to

Energy Facility (PTL GTE), the entire volume of leachate approved in the 2018 Recirculation Plan was not applied. Only relatively light application volumes were introduced into the two active recirculation trenches (LRT-2 & LRT-3), to accommodate condensate disposal from the PTL GTE.

4.2 *Monthly Leachate Addition*

Throughout 2018, leachate was introduced into the two remaining active recirculation trenches (LRT-2 & LRT-3). During active recirculation, flow rates ranged from 15 - 30 gpm, while accommodating condensate disposal from the PTL GTE.

Below in Figure 4-1, is a map of the leachate recirculation pumping structures utilized in 2018.

Figure 4-1 Leachate Recirculation Pumping Structure Locations for 2018

Below in Table 4-1 and Table 4-2, are flow totals of recirculation activities that occurred in 2018. All totalized flows, reflect pumping flow measurements taken using flow meters located in the concrete manifold structure on top of the landfill. In Table 4-1, totalized monthly flows into each of these locations is listed. Table 4-2, reflects gas well/collection trench proposed vs. actual flow totals for 2018. Due to limited staffing and a lower demand for additional gas at PTL Gas to Energy Facility (PTL GTE), the entire volume of leachate approved in the 2018 Recirculation Plan was not applied. Only relatively light application volumes were introduced into the two active recirculation trenches (LRT-2 & LRT-3), to accommodate condensate disposal from the PTL GTE.

Table 4-1 Monthly Leachate Addition for 2018

Monthly Leachate Addition (gallons)						
Pumping Structure						
Month	LRT 1	LRT 2	LRT 3	LRT 4	Well/GCT	Monthly Totals
January	0	41,613	0	0	0	41,613
February	0	24,214	0	0	0	24,214
March	0	26,716	0	0	0	26,716
April	0	26,938	32,012	0	0	58,950
May	0	6	19,834	0	0	19,840
June	0	17,090	7,374	0	0	24,464
July	0	2,734	21,625	0	0	24,359
August	0	18,894	4,194	0	0	23,088
September	0	3	23,405	0	0	23,408
October	0	8,984	14,870	0	0	23,854
November	0	4,958	42,464	0	0	47,422
December	0	33,500	0	0	0	33,500
Yearly Totals	0	205,650	165,778	0	0	
Yearly Grand Total		371,428				

** Leachate Recirculation Trench (LRT) / Gas Collection Trench (GCT)*

Table 4-2 Gas Well/GCT Leachate Addition, Proposed Versus Actual

Gas Well/GCT Leachate Addition, Proposed vs. Actual (gallons)		
Well / GCT Identification	Proposed Totals	Actual Totals
GW-021	102,600	0
GW-129	155,800	0
GCT-7D	448,400	0
GCT-115	501,600	0
GCT-117	209,000	0
Total	1,417,400	0

4.3 *Operational Issues*

Throughout 2018, PTL staff reported no operational issues. The system ran as intended throughout the course of the year.

4.4 *Inspections*

During 2018, various inspections were performed by PTL staff, ensuring compliance and the integrity of the landfill and recirculation system. While some routine settlement was observed, there were no obvious signs of erratic and unpredicted changes.

These inspections are listed below.

- Flows to structures were monitored and recorded using individual flow meters installed within the distribution structure.
- Moisture inspection ports were inspected weekly during leachate applications that lasted more than one day using a water level meter. Liquid levels were closely monitored, verifying no accumulation occurred within the trenches.
- Visual inspections of the landfill cover systems were performed weekly, during times of active recirculation, and again during routine well tuning. Inspections verified that no leaks, bulging, sliding, cracking, and or excessive settlement had occurred. During these inspections, PTL staff also verified that gas venting was not occurring around any recirculation trench access points.
- Daily totalized leachate flows for each site pump station were recorded and compared to pre-leachate application flows.
- Leachate quality was monitored in accordance with the Post-Closure Monitoring and Maintenance Plan and the City of Bangor's Industrial Wastewater Discharge Permit requirements. The sampling associated with the environmental monitoring plan was done tri-annually and the sampling associated with the discharge permit was done quarterly.
- Weekly inspections of exposed piping and components for leachate leaks, seeps, and overall condition were performed during overland recirculation activities. Drains in the distribution structure were also checked for functionality.
- Odor monitoring was conducted routinely in accordance with landfill site inspections and during well tuning activities.
- Leachate pump stations and facility wet-wells were inspected in accordance with PTL's quarterly landfill inspections. The criteria and inspection procedures for

these inspections are located within the PTL Post Closure Monitoring and Maintenance Plan.

- LFG flow, methane, and oxygen content were recorded at the GTE facility. Twice weekly H_2S readings were taken.
- LFG composition readings were taken at extraction locations associated with, or adjacent to, recirculation areas. During this time, PTL staff tested for the compositions of Methane, Carbon Dioxide, Oxygen, and Balance Gas. LFG flow and temperature were also recorded.
- An annual comprehensive surface scan was completed to monitor fugitive LFG emissions through the cover. Discrepancies found were corrected.

5.0 ANNUAL LEACHATE RECIRCULATION ASSESSMENT

5.1 *Phase VIII-C & Secure III Leachate Generation*

To evaluate the effects that the leachate recirculation has to the leachate flows, two pump stations were compared: (1) Phase VIII-C, and (2) Secure III, which collect leachate from the area overlain by the recirculation trenches. In Table 5-1, the 2018 total monthly leachate flows for these two locations were compared with those of 2010 (first year of closure, pre-recirculation) and 2017.

Table 5-1 Phase VIII-C & Secure III Leachate Collection Totals, 2010 & 2017 – 2018

Month	Phase VIII-C LC (gal)			Secure III LC (gal)		
	2010	2017	2018	2010	2017	2018
January	551,397	202,436	174,084	114,168	43,893	40,594
February	324,020	164,960	154,348	282,857	94,907	33,710
March	484,958	180,204	168,633	824,433	38,646	34,842
April	440,027	177,416	159,145	252,785	49,484	31,819
May	295,881	183,805	144,368	144,984	39,036	32,469
June	333,847	201,991	149,255	123,829	39,240	31,506
July	243,152	157,939	127,443	13,747	39,811	32,772
August	284,138	167,293	121,877	4	32,397	31,602
September	498,913	181,668	109,149	125,981	26,416	30,270
October	312,811	176,751	110,687	512,590	26,984	30,514
November	262,447	188,850	125,128	179,582	41,926	29,106
December	289,227	195,063	120,297	165,481	39,661	30,523
Total	**4,320,818**	**2,178,376**	**1,664,414**	**2,740,441**	**512,401**	**389,727**

When compared with 2010 totals, leachate flows in 2018 have decreased by 61.5% in the Phase VIII-C pump station, and 85.8% in the Secure III pump station. Both decreases are likely related to completing the final cover in 2010 and the reduced recirculation amounts within the last few years.

Below in Figure 5-1, flows of Phase VIII-C and Secure III pump stations are further evaluated between the years of 2017 and 2018. Overall, leachate flows in 2018 continued to decrease in both Phase VIII-C and Secure III pump stations. No direct correlation between leachate pumping totals and leachate application rates were found. No evidence indicated increased liquid level on the liner or short circuiting. PTL staff will continue to monitor in 2019 as discussed in Section 6.

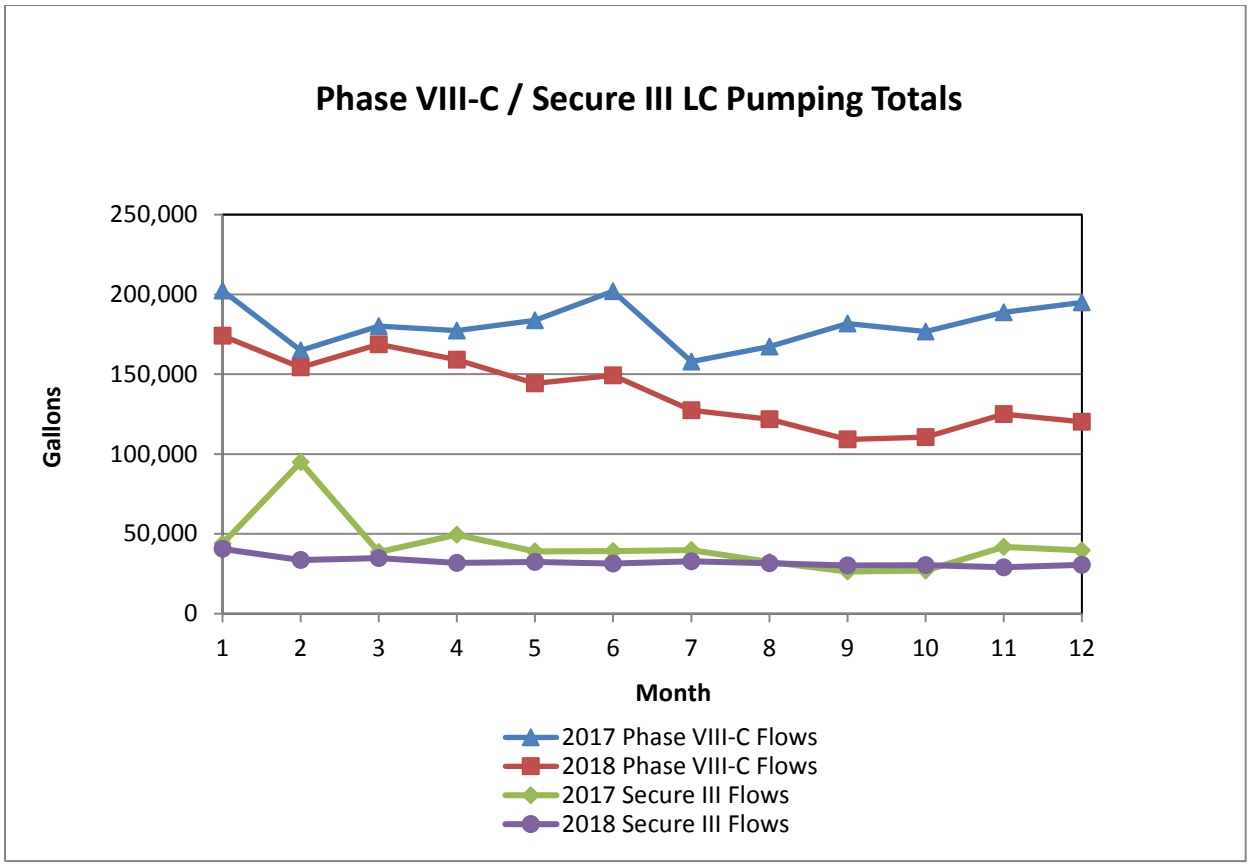


Figure 5-1 Phase VIII-C / Secure III Leachate Collection Totals, 2017 – 2018

5.2 *Leachate Level Measurement on the Liner*

During 2018, PTL staff monitored the effects of the leachate recirculation by comparing leachate recirculation additions to the leachate flows into each pump station. Level transducers that were previously installed have been discontinued due to failure.

During periods of active leachate recirculation, monthly leachate flows at each pump station were tabulated alongside leachate recirculation rates. PTL staff monitored and reviewed leachate flows on a weekly basis to evaluate whether short circuiting was occurring. In 2018, no suspicious trends or anomalies were seen while reviewing pump station and recirculation flows. Daily totals for 2018, also reassured PTL staff that the leachate collection system was functioning properly. No evidence of increased head pressure on the liner occurred in 2018.

In Table 5-2, monthly pump station flows totals are compared with the recirculation flows totals. These results, along with other visual inspections done during routine leachate system cleaning, point toward the proper function of the leachate collection system. No evidence was found to indicate increased liquid levels on the liner systems in the areas where recirculation occurred.

Table 5-2 Leachate Monthly Flows / Recirculation Mass Balance Worksheet for 2018

2018 Leachate Recirculation Mass Balance Worksheet						
Month	Secure III & Phase VIII		Phase VII		Phase VI	
	Combined Recirculated	Combined Flow	Recirculated	Flow	Recirculated	Flow
January	41,613	214,678	0	18,412	0	39,516
February	24,214	188,058	0	16,945	0	28,969
March	26,716	203,475	0	17,031	0	39,609
April	58,950	190,964	0	28,401	0	29,689
May	19,840	176,837	0	14,810	0	24,228
June	24,464	180,761	0	8,223	0	19,414
July	24,359	160,215	0	0	0	19,464
August	23,088	153,479	0	26,480	0	17,669
September	23,408	139,419	0	11,547	0	15,563
October	23,854	141,201	0	13,741	0	21,419
November	47,422	154,234	0	23,135	0	30,777
December	33,500	150,820	0	16,919	0	26,801

5.3 Water Balance Evaluation

In accordance with the Post-Closure Leachate Recirculation Plan, Section 3.2, a water balance evaluation was completed. Data was collected from all gas wells located in the leachate recirculation area of influence, then a water balance evaluation was completed using the following equation: *Waste Absorptive Capacity – Leachate Added to Date + Moisture Removed from Within LFG + Moisture Utilized in Methane Conversion – Reductions to address head on liner or other monitoring issues*. Table 5-3 below summarizes the water balance evaluation.

Table 5-3 Water Balance Evaluation, 2011 – 2018

Date	Starting Capacity	Leachate Added to the Trenches	Volume of Liquid Removed in Condensate	Water Consumed in Methane Generation	Annual Balance	Ending Leachate Recirculation Capacity
2011	36,000,000	3,259,025	11,759	30,694	3,216,572	32,783,428
2012	32,783,428	5,894,924	5,762	15,486	5,873,676	26,909,752
2013	26,909,752	3,517,962	25,642	59,029	3,381,832	23,476,461
2014	23,476,461	6,002,799	20,600	59,172	5,913,226	17,553,435
2015	17,553,435	2,975,127	17,849	38,603	2,918,675	14,634,760
2016	14,634,760	2,113,391	16,206	32,603	2,064,582	12,570,178
2017	12,570,178	881,189	16,834	32,586	831,769	11,738,409
2018	11,738,409	371,428	26,669	59,062	285,697	11,452,712

**** All values are in gallons***

Table 5-4 Trench 1-4 Leachate Recirculation Influence Area Wells

Trench 1-4 (Influence Area Wells)							
GW-8A	GW-8C	GW-8E	GW-36	GW-38	GW-42	GW-50	GW-114
GW-8B	GW-8D	GW-8G	GW-37	GW-41	GW-45	GW-53	GW-117

The initial calculated capacity of the waste mass within the top landfill area where the four leachate recirculation trenches are located was 36,000,000 gallons. During 2018, 371,428 gallons of leachate was added into two recirculation trenches. During 2018, 26,669 gallons were removed from within extracted LFG in the influence area of the trenches in condensate. During methane conversion in the influence area measured from

gas wells listed in Table 5-4, 59,062 gallons were removed. Calculation of moisture removed within LFG and moisture utilized in the methane conversion process was completed in accordance with calculations presented in Attachment C of the Plan. No reductions to address head on the landfill liner due to lack of evidence as described previously occurred during 2018. Total remaining capacity in the influence area of the four combined trenches as of end of 2018 was 11,452,712 gallons.

5.4 Assessment of Stability in Recirculation Areas

Throughout 2018, weekly visual inspections were performed within the recirculation areas to ensure the continued stability of PTL's waste mass. During these inspections, PTL staff walked and observed the landfill where leachate was added. Inspections ensured that no bulging, sliding, or cracking had occurred on or around the landfill cover system. Inspections also verified that no excessive settlement had occurred due to the leachate application. While some routine settlement was observed, there were no obvious signs of erratic and unpredicted changes.

For further assessment regarding the stability of the PTL, please refer to the 2018 Geotechnical Monitoring Report. No items of concern regarding recirculation were identified during 2018.

5.5 Impact Assessment of the LFG Quality at the GTE Facility

The intent of the recirculation program is to compensate for the reduction in the moisture content of the waste due to the installation of the final cover of the landfill, completed in 2010. The reduced moisture content of the waste has resulted in a decrease in rate of waste mass stabilization and a reduction in the methane generation at the site. Knowing that this reduction has occurred, PTL's staff has utilized the Program to maximize energy extraction by increasing methane generation and quality.

Energy extracted from the influence area of the four recirculation trenches (above el. 310') was calculated and compared with energy extraction for the entire site for 2010 through 2018 in Figure 5-2. From the first year of post-closure (2010), through 2012, energy extracted from the trench influence area decreased year over year at a higher rate than the decrease in total site energy extraction. At that time, energy extraction from influence area wells made up a relatively small portion of total site energy extraction from 2010 through 2012, at 9.7%, 7.9%, and 4.8% year over year respectively. During 2013 and 2014, energy extraction increased significantly in the trench influence area, and as a

portion of the total energy extraction at 20.9% and 22.5%. Throughout 2015 thru 2017, energy extracted in the trench influence area decreased slightly year over year from the 2014 highs. Even with the decrease, the trench influence area still provided a good portion of the total energy extracted from the entire site for those 3 years. For the years of 2015, 2016 and 2017, the trench influence area was responsible for 17.4%, 18.4%, and 19.9% respectfully.

In 2018, the total percentage energy extraction from the trench influence area set a new high of 37%, surpassing the 2014 high of 22.5%. The total trench influence area energy extraction in 2018 was 33,949 MMBtu's, as compared to 2017 (18,932 MMBtu's). This was a dramatic increase of 79% from 2017, greater than the overall site wide energy extraction decrease of 4%. Changes were likely attributed to other portions of the closed landfill becoming dry due to decreasing moisture conditions. A more complete summary of landfill gas generation and energy extraction is provided in the 2018 Annual Gas Monitoring Evaluation.

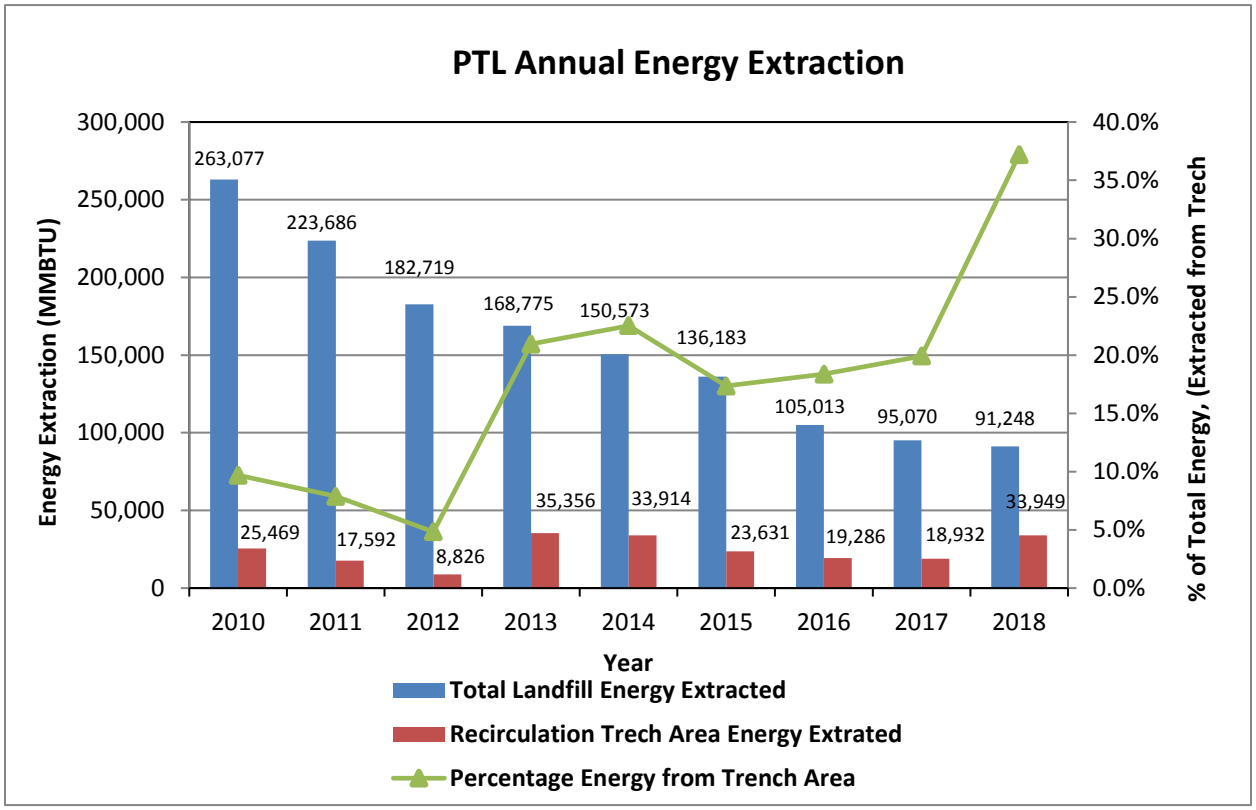


Figure 5-2 PTL Energy Extraction Comparison, 2010 – 2018

In addition to energy extraction, an evaluation of the H_2S concentrations at the PTL GTE facility was completed. As seen in Figure 5-3 below, H_2S levels at the PTL GTE facility fluctuated between 2500 and 3000 ppm at the beginning of 2018. As the year progressed, H_2S levels decreased slightly, maintaining an average of roughly 2200 ppm for the year. Throughout all of 2018, the H_2S loading at the PTL GTE facility remained low, well within the treatment capacity of the facility's Thiopaq® treatment system.

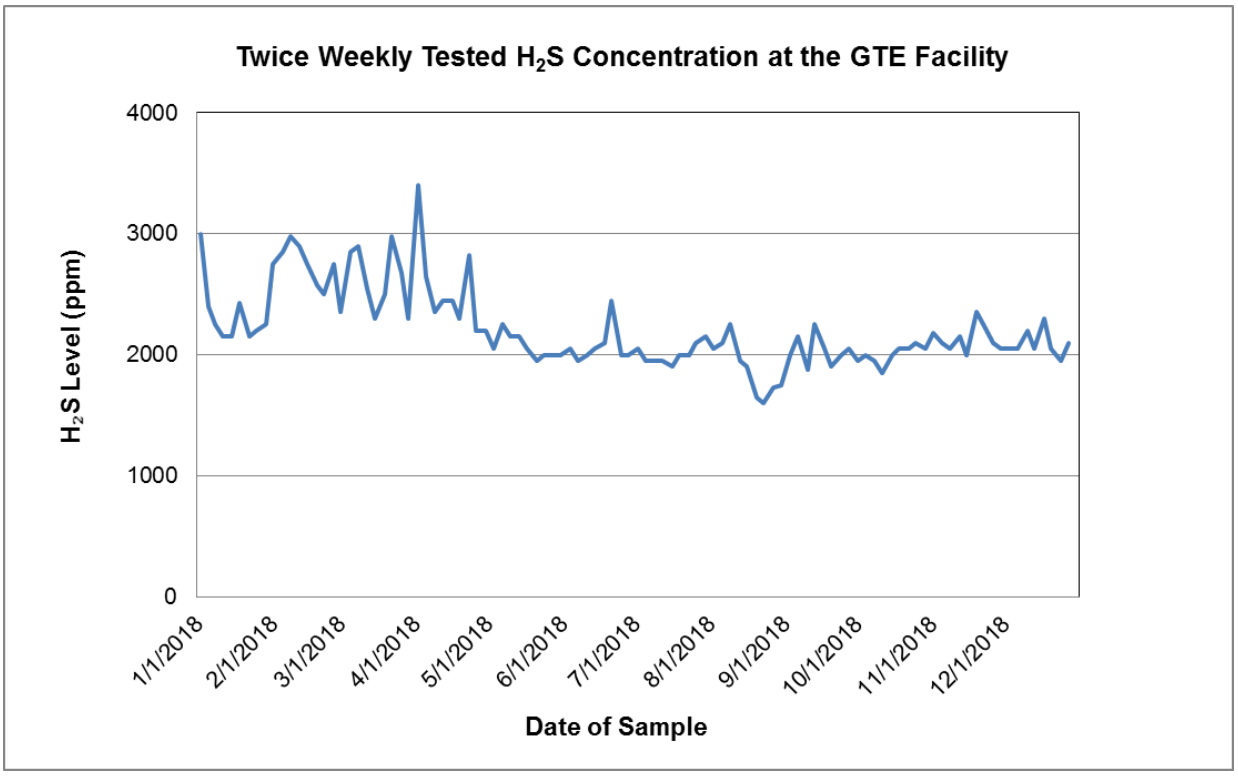


Figure 5-3 Twice Weekly Tested H_2S Concentration at the GTE Facility

6.0 PROPOSED PLANS FOR 2019

In 2019, PTL staff plan to continue the recirculation program to assist in gas production and waste mass stabilization. The proposed 2019 plan, mimics the 2018 Plan, by proposing to complete the unfinished recirculation activities approved as part of the 2018 Plan.

Phase 1 of the plan is to add leachate into two wells and three collection trenches. During this time, approximately 40,000 gallons per month will also be added into recirculation trenches LRT 2 and LRT 3. A list of these wells and collection trenches is listed below in Table 6-1.

In Figure 6-1, these same locations are pictured on a map along with the locations of the two recirculation trenches. The goal of the wetting procedure is to focus on areas outside the trench influence zone during the summer months, while still introducing small amounts of leachate into the two recirculation trenches, in order to maintain moisture and activity.

Table 6-1 Leachate Recirculation Proposed Pumping Structures and Totals for 2019

Well Identification	Well Depth or Trench Length (ft.)	Projected Pumping Totals (gal.)
GW-021	54	102,600
GW-129	82	155,800
GCT-7D	236	448,400
GCT-115	264	501,600
GCT-117	110	209,000

Phase 2, which will occur when weather no longer permits above ground application, will consist of adding the remainder of the 2,000,000 gallon volume into recirculation trenches LRT 2 and LRT 3. This approach will allow recirculation activity to continue even during colder months, when pumping above ground is impractical.

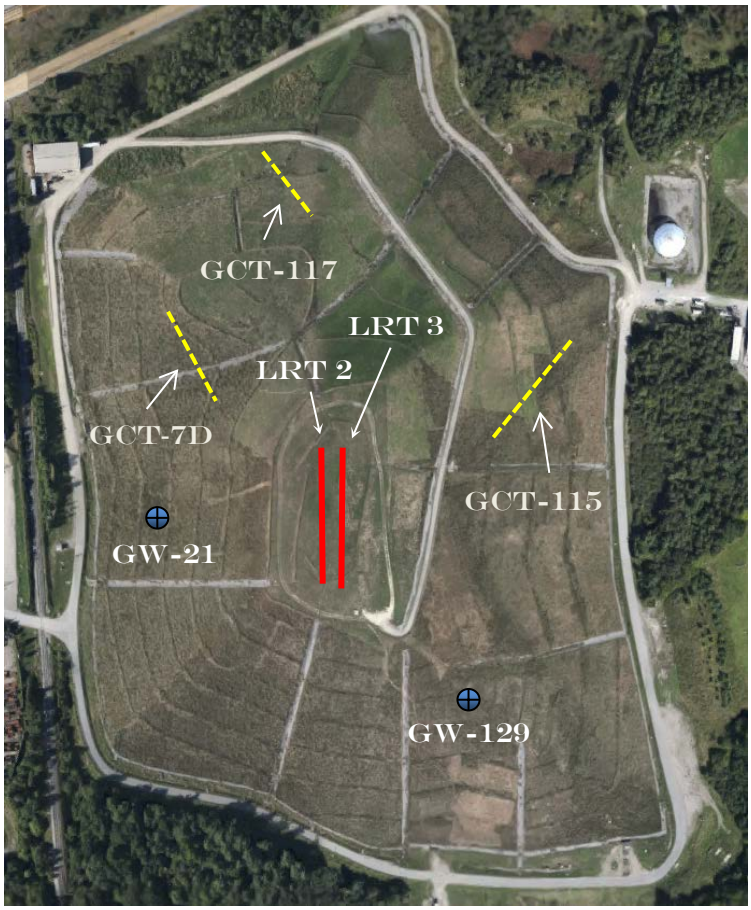


Figure 6-1 Leachate Recirculation Pumping Structure Locations for 2019

The two wells and three collection trenches were chosen strategically to maximize wetting procedures in some of the most inactive locations. Collection trenches used were chosen based on location and construction. To qualify, collection trenches had to have been constructed without water traps, to prevent leachate from short circuiting to the waste through a water trap. The listed wells/collection trenches and their surrounding locations were also checked to assure that the vacuum is significant enough to pull additional LFG generated due to the wetting. As occurred in previous years, care will be taken to oversee above ground pumping of leachate and prevent possible spills or leaks onto the landfill cover. In addition to the 2,000,000 gallons that are planned to be introduced to the recirculation trenches, the total leachate to apply into the two wells and three collection trenches will be approximately 1,417,400 gallons. The maximum amount of leachate to be introduced into Pine Tree Landfill during the summer and winter of 2019-2020 will be 3,417,400 gallons. PTL staff would like to begin application in May, 2019.

Application rates will be determined independently, and will occur in accordance with previously utilized application techniques. Application totals for each location have been calculated in accordance with the Plan and are provided in Table 6-1. The application totals are based on the landfill's calculated absorption capacity of 0.2 pounds of water per 1 pound of waste. Assuming an in-place waste density of 1,700 lbs/yd^3 (the historical average at PTL), the absorption capacity of in-place waste is 35.7 gal/yd^3. The development of these calculations can be seen in Appendix 2 of the Plan. Based on these capacity estimations, the application total of approximately 1,900 gal/ft of well depth was established.

This will be the second or third dosing for most locations. Information from 2019 will allow PTL Staff to determine the effects on gas production and leachate generation if leachate is applied at absorption capacity over the course of multiple years. Collection trenches are estimated to have similar capacity per foot as the four recirculation trenches, so it will take a dosing of multiple years at current rates, to fully saturate waste below the collection trenches.

PTL staff will continue to closely monitor the leachate collection system during 2019. During leachate application, monthly leachate flows at each pump station will be compared with leachate application rates. PTL staff will continue using the phase by phase mass balance tracking sheet to balance estimated waste absorption rates, leachate application rates, and leachate pumping totals on a monthly basis. This will enable staff to further investigate the validity of monitoring head on the primary liner through leachate pumping totals in each phase.

7.0 SUMMARY

In 2018, a total of 371,428 gallons of leachate was introduced into PTL's waste mass. During this time, all 371,428 gallons were pumped into the two remaining recirculation trenches. Routine inspections were continually performed in accordance with the Plan, to ensure proper system operation. Due to limited staffing and a lower demand for additional gas at PTL Gas to Energy Facility (PTL GTE), the entire volume of leachate approved in the 2018 Recirculation Plan was not applied.

PTL staff reported no operational issues in 2018. The system ran well and as intended throughout the course of the year.

During 2018, various inspections were performed by PTL staff, ensuring compliance and the integrity of the landfill and recirculation system. While some routine settlement was observed, there were no obvious signs of erratic and unpredicted changes.

Overall, leachate flows in 2018 continued to decrease in both Phase VIII-C and Secure III pump stations. No direct correlation between leachate pumping totals and leachate application rates were found. No evidence indicated increased liquid level on the liner or short circuiting. PTL staff will continue to monitor in 2019 as discussed in Section 6.

In 2018, the total percentage energy extraction from the trench influence area set a new high of 37%, surpassing the 2014 high of 22.5%. The total trench influence area energy extraction in 2018 was 33,949 MMBtu's, as compared to 2017 (18,932 MMBtu's). This was a dramatic increase of 79% from 2017, greater than the overall site wide energy extraction decrease of 4%. Changes were likely attributed to other portions of the closed landfill becoming dry due to decreasing moisture conditions. A more complete summary of landfill gas generation and energy extraction is provided in the 2018 Annual Gas Monitoring Evaluation.

H_2S levels fluctuated some throughout 2018, but maintained an average of roughly 2200 ppm for the year. H_2S loading remained low, well within the treatment capacity of the plant's Thiopaq® treatment system.

For 2019, PTL staff plan to continue the recirculation program to assist in gas production and waste mass stabilization. The proposed 2019 plan, mimics the 2018 Plan, by proposing to complete the unfinished recirculation activities approved as part of the 2018 Plan. The maximum amount of leachate planned to be introduced into Pine Tree Landfill during the summer and winter of 2019-2020 is 3,417,400 gallons. PTL staff would like to begin application in May, 2019.

ATTACHMENT B

LEACHATE COLLECTION MAINTENANCE ACTIVITIES

2018 Pine Tree Landfill Leachate Maintenance and Repairs	
02/08/18	Pulled out Secure II pump to clean it. Flow had dropped significantly.
03/01/18	Pulled out Secure II pump, cleaned pump and sump. Still low flow. Pulled perimeter drain, motor failed. Replaced pump and motor.
03/02/18	Worked on Secure II. Removed pump 2 (no good, bolt stuck in impeller and pump won't spin) and replaced with pump 1. Cleaned the check valve, still low flow. Swapped back the pumps.
03/06/18	Removed rain water from both Secure II/Phase VI force main man holes.
03/07/18	Removed rain water from 2 man holes by Bangor Pump station.
03/08/18	Removed check valve in metering pit, cleaned lines to Secure II and towards force main. Removed debris from check valve in pit, flow to 20 gpm. Relocated level transducer.
04/16/18	Removed Secure III pump, cleaned sump, replaced pump end, cleaned check valve, cleaned flow meter, cleaned lines going to auto valve and auto valve, reinstalled pump and cleaned pump station.
04/17/18	Secure 1 metering pit was full of ground water, cleaned out pit and repaired broken discharge line damaged during cleaning.
04/23/18	Removed rain water and inspected man holes #2, #4, #5, #8, #9, #10, #11, #14, #15, #16, #17, #19, #20, #22 and Secure II metering pit.
05/01/18	Phase VII Leak Detection (LD) flows were above ALR-1, but well below ALR-II. LD flows were sampled and reviewed. Sampling confirmed that flows were likely attributed to surface water. MEDEP was informed of the event.
05/10/18	Removed rain water from Bangor pump station.
06/15/18	Removed flow meter in Secure II, flushed discharge lines and tested pump. Pump is still not working.
06/22/18	Secure II - Disconnected line just before flow meter, installed jumper line to pump above ground. Installed 2hp submersible pump.
06/26/18	Pulled 3 extraction well pumps, flushed discharge lines, flushed well casings, cleaned pumps and pump houses.
06/27/18	Cleaned Bangor pump station, cleaned Secure III metering pit.
06/29/18	Removed rain water and inspected man holes #2, #4, #5, #8, #9, #10, #11, #14, #15, #16, #17, #19, #20, #22 and Secure II metering pit.
07/19/18	Removed all pipes, pumps, brackets, from Secure II. Installed a straight pipe and bracket, pitless adapter for the submersible pump.

07/20/18	Installed new Secure II submersible pump on pitless adapter.
07/31/18	Cleaned Secure 2, Secure 3 metering pits.
10/15/18	Removed rain water and inspected man holes #2, #4, #5, #8, #9, #10, #11, #14, #15, #16, #17, #19, #20, #22 and Secure II metering pit.
10/17/18	Removed pump in EW 101.
10/26/18	Replaced failed motor in EW 101.
11/08/18	Removed and replaced motor on Phase 7. Tested/cleaned pump and pump house - did not clean sump.
11/15/18	Phase VII Leak Detection (LD) flows were above ALR-1, but well below ALR-II. LD flows were sampled and reviewed. Sampling confirmed that flows were likely attributed to surface water. MEDEP was informed of the event.
12/12/18	Removed rain water and inspected man holes #2, #4, #5, #8, #9, #10, #11, #14, #15, #16, #17, #19, #20, #22 and Secure II metering pit.

ATTACHMENT C

ANNUAL WATER QUALITY MONITORING REPORT

2018 WATER QUALITY REPORT
PINE TREE LANDFILL
HAMPDEN, MAINE

Prepared for

NEW ENGLAND WASTE SERVICES OF MAINE, INC.

April 2019

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

SME
SEVEE & MAHER ENGINEERS

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	**INTRODUCTION**	**1-1**
2.0	**2018 SITE ACTIVITIES**	**2-1**
2.1	2018 Environmental Monitoring Activities	2-1
2.2	2018 Precipitation	2-1
2.3	2018 Repairs to Secure II Cover	2-2
2.4	2018 Groundwater Extraction Well and Perimeter Drain Activities	2-2
2.5	2018 Landfill and External Landfill Gas Extraction System Activities and Leachate Recirculation Program	2-3
3.0	**2018 WATER QUALITY EVALUATION**	**3-1**
3.1	2018 On-Site Groundwater Quality Evaluation	3-6
3.1.1	Northeastern On-Site Monitoring Locations	3-6
3.1.2	Southern On-Site Monitoring Locations	3-9
3.1.3	North On-Site Monitoring Location	3-16
3.1.4	East On-Site Monitoring Locations	3-16
3.1.5	West On-Site Monitoring Locations	3-19
3.2	Residential Wells	3-19
3.3	Surface Water Quality	3-22
3.4	Leachate	3-24
4.0	**LEAK DETECTION MONITORING**	**4-1**
5.0	**DATA VALIDATION AND LABORATORY QUALITY CONTROL**	**5-1**
6.0	**LANDFILL GAS MONITORING SUMMARY**	**6-1**
7.0	**CONCLUSIONS AND RECOMMENDATIONS**	**7-1**
7.1	Conclusions	7-1
7.2	Recommendations	7-4

LIST OF APPENDICES

APPENDIX A	2018 AND HISTORICAL WATER QUALITY DATA
APPENDIX B	2018 WATER QUALITY SUMMARY REPORTS
	NORTHEASTERN ON-SITE MONITORING LOCATIONS
	SOUTHERN ON-SITE MONITORING LOCATIONS
	NORTH ON-SITE MONITORING LOCATION
	EAST ON-SITE MONITORING LOCATIONS
	WEST ON-SITE MONITORING LOCATIONS
	RESIDENTIAL WELLS
	SURFACE WATER LOCATIONS
	LEACHATE
APPENDIX C	MANN-KENDALL TREND ANALYSES RESULTS
APPENDIX D	LEAK DETECTION DATA
APPENDIX E	2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING RESULTS
APPENDIX F	2018 AND HISTORICAL PUMP STATION FLOWS
	LECHATE COLLECTION
	LEAK DETECTION

LIST OF FIGURES

Figure No.	Title	Page No.
1-1	SITE FEATURES	1-2

LIST OF TABLES

Table No.	Title	Page No.
3-1	SUMMARY OF MANN-KENDALL ANALYSES AT MONITORING WELLS	3-3
3-2	SUMMARY OF SPECIFIC CONDUCTANCE AND DISSOLVED METHANE RESULTS	3-5
3-3	SUMMARY OF RECENT WATER QUALITY AT MW03-802B AND MW03-803A	3-14
3-4	SUMMARY OF OFF-SITE RESIDENTIAL WELL MCL AND/OR MEG EXCEEDANCES	3-15
3-5	SUMMARY OF OFF-SITE RESIDENTIAL WELL MCL AND/OR MEG EXCEEDANCES	3-20
3-6	SUMMARY OF 2018 ANNUAL MAXIMUM LEACHATE KEY INDICATOR VALUES	3-25

2018 WATER QUALITY REPORT
PINE TREE LANDFILL
HAMPDEN, MAINE

1.0 INTRODUCTION

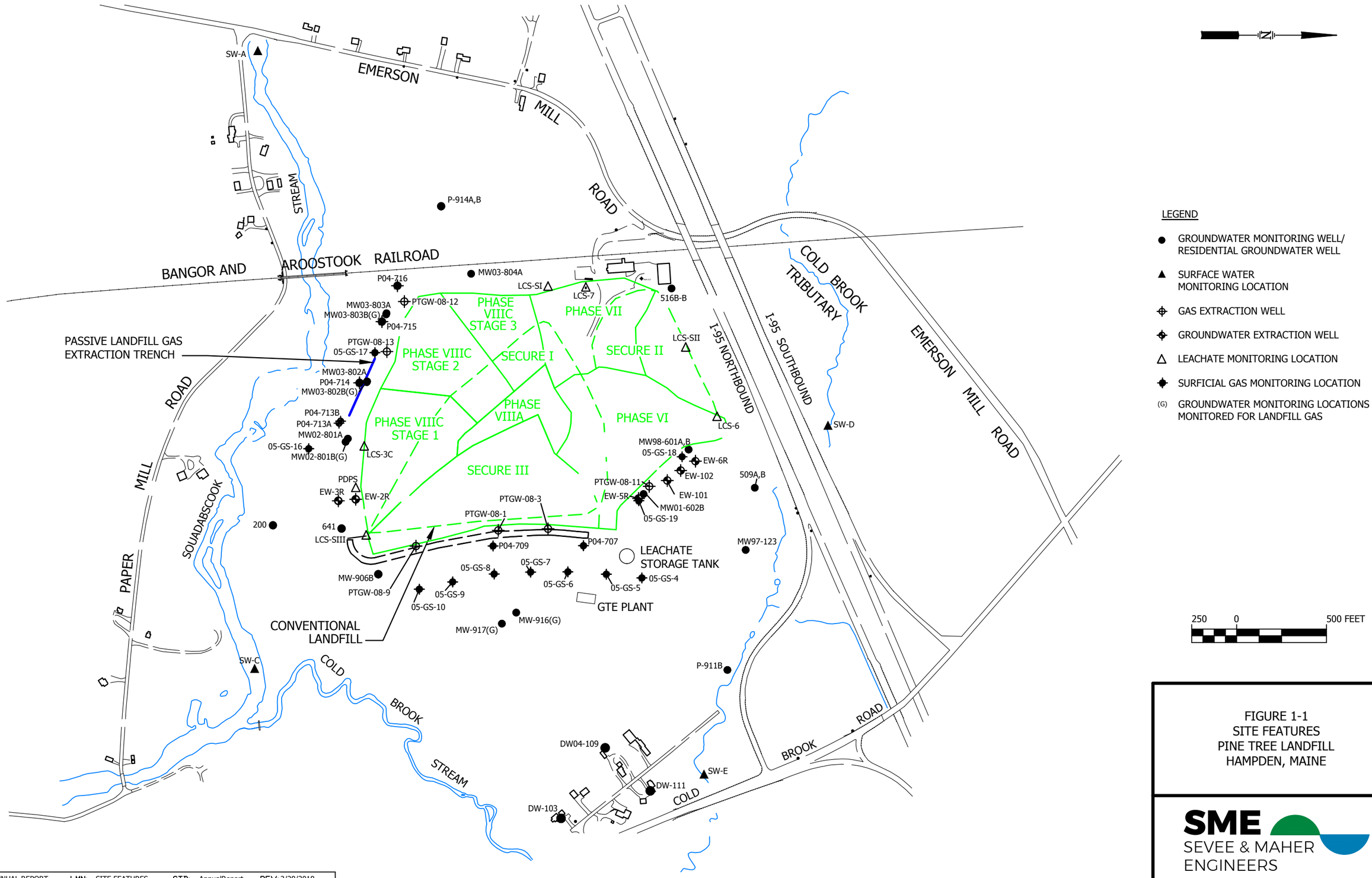
This report provides an overview of the 2018 environmental monitoring of the closed Pine Tree Landfill (PTL or "site") in Hampden, Maine. The facility is owned by New England Waste Services of Maine, Inc. (NEWSME). The site operated for 34 years between 1975 and 2009 for the disposal of municipal solid waste (MSW) and special wastes in four licensed landfills. Final closure of the site was completed over a three-year period with the construction of a composite final cover in three phases beginning in 2008. The final closure of the site was completed in 2010. As part of the final Maine Department of Environmental Protection (MEDEP) closure order MEDEP #S-0019787-WN-HC-N, hereafter referred to as the Department Closure Order, the MEDEP approved a post-closure Environmental Monitoring Plan (EMP)[1] prepared by Sevee & Maher Engineers, Inc. (SME) for the PTL on behalf of NEWSME. Post-closure monitoring began at the site in 2011. The post-closure EMP reflects the knowledge of site geologic and hydrogeologic conditions, and the knowledge of influence of existing site facilities on site water quality developed during numerous site investigations and evaluations, as summarized in the site-wide closure plan.[2]

The post-closure EMP specified a reduction in sampling frequency from triannual to biannual after the initial five years of post-closure sampling (i.e., 2011 through 2015), and 2018 marked the third year of biannual sampling at the site for years 2016 through 2020. This reduction in sampling frequency, as well as several other modifications to the monitoring program, were approved by MEDEP in March 2016.[3]

Figure 1-1 illustrates the site features, the post-closure EMP monitoring locations, and the areas of the four licensed landfills at the site (i.e., the Conventional Landfill, and the Secure I, Secure II, and Secure III Landfills). The objectives of the post-closure EMP include:

- To routinely characterize groundwater, surface water, and leachate at the PTL during the post-closure period to monitor the performance of the landfill's final cover systems;
- To monitor the effectiveness of intermediate and long-term corrective actions that have been implemented at the PTL site to address leachate and landfill gas generated by the Conventional Landfill; and

[1] SME, 2011. Post-Closure Environmental Monitoring Plan, Pine Tree Landfill, Hampden, Maine, May 2011.
[2] SME, 2007. Site-Wide Closure Plan, Pine Tree Landfill, Hampden, Maine, March 2007.
[3] SME, 2011. Post-Closure Environmental Monitoring Plan, Pine Tree Landfill, Hampden, Maine, May 2011 (Revised March 2016).



LEGEND

- ● GROUNDWATER MONITORING WELL/ RESIDENTIAL GROUNDWATER WELL
- ▲ SURFACE WATER MONITORING LOCATION
- GAS EXTRACTION WELL
- GROUNDWATER EXTRACTION WELL
- △ LEACHATE MONITORING LOCATION
- SURFICIAL GAS MONITORING LOCATION
- (G) GROUNDWATER MONITORING LOCATIONS MONITORED FOR LANDFILL GAS

FIGURE 1-1
SITE FEATURES
PINE TREE LANDFILL
HAMPDEN, MAINE

SME
SEVEE & MAHER ENGINEERS

DWG: ANNUAL REPORT LMN: SITE FEATURES CTB: AnnualReport REV: 3/28/2018

\\nserver\CFS\Saw\ACAD\AnnualReport.dwg, 3/28/2018 9:34:30 AM, paf

- To evaluate the site's conformance with the threshold criteria established for the site groundwater over the post-closure period in order to demonstrate successful corrective action, as defined during the Department's review of the site-wide closure plan and included in the Department Closure Order. The water quality threshold criteria are:
    - Off-site groundwater quality
        - Tested water quality parameters below applicable groundwater U.S.EPA Maximum Contaminant Levels (MCLs) and Maine Maximum Exposure Guidelines (MEGs);
        - The 95% upper confidence level for specific conductance at off-site private water supply wells below 400 µmhos/cm; and
        - Dissolved methane at off-site private water supply wells less than 700 µg/L.
    - On-site groundwater quality
        - Specific conductance at on-site monitoring locations less than 500 µmhos/cm.
    - Off-site surface water quality
        - Off-site surface water quality meets existing water quality classification standard.

2018 was the eighth year of post-closure monitoring at the site in accordance with the post-closure EMP, which represents 27 percent of the 30-year post-closure monitoring period. Although it is still relatively early in the post-closure monitoring period, there are some improvements to water quality at and surrounding the PTL site since its closure.

Prior to final closure of the PTL (i.e., during 2010), only one of the 22 on-site groundwater monitoring wells met the on-site groundwater quality threshold criterion of specific conductance values less than 500 µmhos/cm during only one of the three annual monitoring events. During 2018, there were three on-site groundwater monitoring wells with specific conductance values less than 500 µmhos/cm during one or more monitoring events (i.e., MW01-602B, MW-906B, and 200). Monitoring locations MW03-802A, 509A, MW-916, and MW-917 have also previously had one or more specific conductance measurement values of less than 500 µmhos/cm during post-closure monitoring (i.e., since 2011), but had specific conductance values above 500 µmhos/cm during 2018.

In general, the groundwater monitoring wells to the south, southeast, and east of the PTL continue to show lower specific conductance values compared the start of closure in 2008, while groundwater monitoring wells to the southwest and west show an overall increase in specific conductance values since that time. To the northeast and north of the landfill, specific conductance values have increased since the start of closure in 2008 at groundwater monitoring wells proximate to Interstate 95. The northeast groundwater monitoring wells located further from Interstate 95 and downgradient from the PTL's northeast groundwater extraction wells have shown an overall decrease in specific conductance values

since the start of closure in 2008. One of the two off-site residential wells, DW04-109, has had specific conductance values below the threshold criterion for the past three years of monitoring.
The 2018 on-site specific conductance values are further discussed in Section 3.0.

Substantial groundwater quality improvements with respect to dissolved methane concentrations have also occurred during the eight years of post-closure monitoring at both on-site and off-site groundwater monitoring locations. Both off-site residential monitoring wells had dissolved methane concentrations well below the threshold criterion of 700 µg/L in 2018. MW-916 and MW-917, which are located slightly beyond the site property boundaries, also met the off-site groundwater quality threshold criterion for dissolved methane in 2018.

The 2018 surface water data continues to show that there are no adverse effects from landfill operations on water quality in Souadabscook Stream or the Cold Brook Stream tributary. There were no Maine Freshwater Criterion Continuous Concentration (MFCCC) exceedances from surface water locations during 2018 water quality sampling events for the parameters analyzed.

2.0 2018 SITE ACTIVITIES

This section gives a brief description of the 2018 PTL environmental monitoring activities, annual site precipitation, and the 2018 corrective action activities.

2.1 2018 Environmental Monitoring Activities

The 2018 environmental monitoring activities included two water quality sampling events that were completed by SME in April and October. In 2018, the post-closure water quality monitoring program included sampling groundwater at 22 on-site groundwater monitoring wells, on-site and off-site surface water at four monitoring locations, groundwater at two residential area wells, two landfill leachate locations,[4] and the perimeter drain of the Conventional Landfill (i.e., PDPS). These post-closure monitoring locations are outlined in Table 3-1 in the post-closure EMP revised in March 2016. The frequency of monitoring and the components of the analytical program vary by monitoring location and are outlined in Table 3-2 and Table 3-3 in the post-closure EMP revised in March 2016. After each monitoring event, the water quality data was forwarded to the MEDEP in its electronic data deliverable (EDD) format. The EMP also identifies sampling at 23 gas monitoring points around the landfill, and samples were obtained at these locations by NEWSME in January 2018, May 2018, July 2018, and October 2018.

Supplemental sampling was completed during 2018 as recommended by SME and MEDEP at MW03-802B and MW03-803A to investigate increasing parameter concentrations in these wells.

The results of the 2018 environmental monitoring activities are discussed in Sections 3.0 through 3.4. Further sections of this report discuss: (1) the results of the leachate leak detection monitoring in 2018 (Section 4.0); (2) the data validation and laboratory quality control (Section 5.0); and (3) the results of the landfill perimeter gas monitoring in 2018 (Section 6.0).

2.2 2018 Precipitation

Based on National Climatic Data Center (NCDC) climatological data from the Bangor International Airport, the annual precipitation near the PTL was 46.99 inches during 2018. The 2018 annual precipitation was 5.06 inches above normal for the Bangor International Airport. Monthly precipitation totals ranged from a low of 2.18 inches in March 2018 to a maximum of 7.00 inches in November 2018.

---

[4] The post-closure EMP specified that LCS-SIII be sampled in October 2018; however, LCS-SII was inadvertently sampled for a second consecutive year in October 2018 and LCS-SIII was not sampled. LCS-SIII will be sampled in April 2019 to make up for the 2018 scheduling error, and LCS-6 will be sampled in October 2019 in accordance with the EMP. The results of the LCS-SIII and LCS-6 samples will be evaluated in the 2019 water quality monitoring report.

2.3 2018 Repairs to Secure II Cover

Historically, the leachate flows from Secure II have been greater than what would be expected from a closed landfill especially during timed of increased precipitation. In early 2018, SME and NEWSME completed a detailed inspection and evaluation of surface water control structures located on the Secure II cover. The inspection and evaluation identified a number of areas where surface water could be infiltrating through the cover and SME identified a number of repairs to the Secure II surface water drainage system in a letter to the MEDEP dated April 27, 2018. With approval from the MEDEP, the repairs were made to stormwater control features on Secure II in July 2018, including relining the geosynthetic clay liner in the stormwater swale.

2.4 2018 Groundwater Extraction Well and Perimeter Drain Activities

During 2018, NEWSME operated six groundwater extraction wells identified as EW-2R, EW-3R, EW-5R, EW-6R, EW-101, and EW-102. The locations of the extraction wells are shown on Figure 1-1. The purpose of the extraction wells is to capture groundwater outside of and downgradient of both the southern and northeastern edges of the Conventional Landfill. These areas are in the principal directions of groundwater flow away from the landfills and, as a result, have historically been among the locations most impacted by leachate from the Conventional Landfill. In addition to the groundwater extraction wells, groundwater is pumped from the perimeter drain of the Conventional Landfill at the perimeter drain pump station (PDPS). The groundwater removed from the extraction wells and PDPS is collected in the on-site leachate storage tank and is either recirculated into the Secure III Landfill as part of the approved post-closure leachate recirculation program or is pumped via the Hermon sewer to the Bangor wastewater treatment plant. In 2018, the majority of the leachate produced was pumped to the Bangor wastewater treatment plant (8,638,587 gallons) and a small amount recirculated into the landfill (371,428 gallons).

Extraction wells EW-2R and EW-3R are used to intercept shallow groundwater outside of the southern edge of the Conventional Landfill. Pumping operation of EW-2R and EW-3R in 2018 resulted in total collected groundwater volumes of approximately 107,512 gallons and 158,264 gallons, respectively. A total of 4,097,318 gallons was pumped from the PDPS in 2018. Thus, the total volume of water pumped from the south side of the Conventional Landfill at EW-2R, EW-3R, and PDPS in 2018 was approximately 4,363,094 gallons. For comparison, the total volume pumped from EW-2R, EW-3R, and the PDPS in 2017 was approximately 3,211,404 gallons.

Extraction wells EW-5R, EW-6R, EW-101, and EW-102 are used to intercept groundwater along the northeast corner of the site. EW-5R is screened in overburden sand located directly above the bedrock, while EW-6R, EW-101, and EW-102 are all screened across the sand and gravel and just into bedrock. Groundwater extraction at EW-5R, EW-6R, EW-101, and EW-102 collected total metered volumes of approximately 454,569 gallons, 553,159 gallons, 18,750 gallons, and 744,967 gallons, respectively, in

2018. Therefore, the total volume of water pumped from the northeast side of the Conventional Landfill in 2018 was 1,771,445 gallons. For comparison, the total volume pumped from the northeast side of the Conventional Landfill in 2017 was approximately 1,429,545 gallons.

2.5 2018 Landfill and External Landfill Gas Extraction System Activities and Leachate Recirculation Program

Landfill gas is collected from both the Conventional Landfill and the Secure III landfill using a combination of gas collection trenches, gas extraction wells, and gas collection connections to various leachate collection locations. Extracted landfill gas is used at the landfill's gas-to-energy (LFGTE) plant, which was constructed at the PTL site and began operations in early 2008. Details of the landfill gas extraction are provided in the facility's Landfill Gas Monitoring Evaluation.

To enhance gas production during the post-closure period, NEWSME maintains an active leachate recirculation program in the Secure III landfill. The leachate is recirculated from the on-site leachate storage tank. Condensate from the LFGTE plant knock out pot was re-piped into the leachate recirculation infrastructure in 2015. During 2018, a total of 371,428 gallons of leachate and condensate was recirculated into the Secure III facility. This is a reduction from the 1,296,813 gallons recirculated in 2017. The lower leachate recirculation volume in 2018 was due to lower demand for additional gas in 2018. Further details of the leachate recirculation program are provided in the facility's Post-Closure Leachate Recirculation Annual Report.

In addition to the continued operation of the active gas collection system within the Conventional Landfill and the Secure III Landfill, NEWSME monitors, and operates when appropriate, the six external landfill gas extraction wells located outside of the eastern and southwestern perimeter of the landfill. The eastern wells are installed on the east side of Secure III and the Conventional Landfill. The eastern external landfill gas extraction wells are identified as PTGW-08-1, PTGW-08-3, PTGW-08-9, and PTGW-08-11; their locations are shown on Figure 1-1. Gas extraction from these wells controls and limits gas migration from the landfill towards the east. Additionally, passive landfill gas extraction continued at the vents that were installed in a trench southwest of the landfill with a length of approximately 400 feet and a depth below ground surface ranging from approximately 8 to 14 feet. Two gas extraction wells, PTGW-08-12 and PTGW-08-13, are installed on the southwest side of the site directly adjacent to the Secure III Landfill boundary. Their locations are shown on Figure 1-1.

The external landfill gas extraction wells were monitored periodically throughout 2018 using a GEM2000 multi-gas meter. Gas has not been extracted from PTGW-08-3 during the post-closure monitoring period, including 2018, because of the lack of landfill gas at this location. Gas was extracted from PTGW-08-9 briefly at the start of post-closure monitoring in 2011, but has not been extracted since then, including during 2018, because the volumetric percentage of methane gas in the external landfill gas is low (approximately a 0.3 percent methane average in 2018).

External landfill gas was extracted from PTGW-08-1 in 2018. The average methane content in the extracted external landfill gas from PTGW-08-1 was approximately 53 percent by volume. The total landfill gas extracted from this well in 2018 was 12.6 Million Standard Cubic Feet (MSCF). Based on the reported average methane percent and total flow, a total of about 138 tons of methane were removed from PTGW-08-1 in 2018. The average of annual total landfill gas extracted from this well during post-closure from 2011 through 2017 is approximately 209 tons per year.

External landfill gas was extracted from PTGW-08-11 in 2018. The average methane content in the extracted external landfill gas from PTGW-08-11 was approximately 33 percent by volume. The total landfill gas extracted from this well in 2018 was 7.1 MSCF. Based on the reported average methane percent and total flow, a total of about 49 tons of methane were removed from PTGW-08-11 in 2018. The average of annual total landfill gas extracted from this well during post-closure from 2011 through 2017 is approximately 23 tons per year.

External landfill gas was extracted from PTGW-08-12 in 2018. The average methane content in the extracted external landfill gas from PTGW-08-12 was approximately 29 percent by volume. The total landfill gas extracted from this well in 2018 was 5.5 MSCF. Based on the reported average methane percent and total flow, a total of about 33 tons of methane were removed from PTGW-08-12 in 2018. The average of annual total landfill gas extracted from this well during post-closure from 2011 through 2017 is approximately 4 tons per year.

External landfill gas was extracted from PTGW-08-13 in 2018. The average methane content in the extracted external landfill gas from PTGW-08-13 was approximately 22 percent by volume. The total landfill gas extracted from this well in 2018 was 3.7 MSCF. Based on the reported average methane percent and total flow, a total of about 17 tons of methane were removed from PTGW-08-13 in 2018. The average of annual total landfill gas extracted from this well during post-closure from 2011 through 2017 is approximately 4 tons per year.

3.0 2018 WATER QUALITY EVALUATION

Post-closure monitoring began at the site in 2011. This section compares the 2018 water quality monitoring results to the post-closure threshold criteria given in the Department Closure Order, and uses other approaches used historically to evaluate water quality at the site. These threshold criteria are intended to be achieved over the course of the entire 30-year closure period. This must be kept in mind when evaluating the 2018 water quality data, which is eight years (i.e., 27 percent) into the closure period. The water quality threshold criteria are:

- Off-site groundwater quality
  - Water quality parameters below applicable groundwater MCLs and MEGs;
  - The 95% upper confidence level for specific conductance at off-site private water supply wells below 400 µmhos/cm;[5] and
  - Dissolved methane at off-site private water supply wells less than 700 µg/L.
- On-site groundwater quality
  - Specific conductance at on-site monitoring locations less than 500 µmhos/cm.
- Off-site surface water quality
  - Off-site surface water quality meets existing water quality classification standard.

Historical water quality data are included in Appendix A of this report for the water quality data collected from 2008 through 2018 for the sampling locations and parameters discussed in this report (i.e., closure and post-closure monitoring). A summary sheet for each monitoring location is provided in Appendix B which includes: (1) a description of the monitoring location; (2) a summary of the 2018 data for monitored parameters; (3) the historical range of data values for monitored parameters; and (4) the mean and standard error of the mean for monitored parameters. For each off-site post-closure monitoring location and surface water monitoring location, the sheet also identifies the parameters that exceed applicable State of Maine water quality standards (i.e., MEGs, MCLs, and MFCCCs).

Water quality trends are not part of the Department Closure Order threshold criteria; however, they are useful when evaluating changes in water quality over time. We have used two approaches to evaluate trends. The first is a simple comparison of the mean value for both the specific conductance and dissolved methane obtained in 2018 to the mean value for these parameters in 2017 (i.e., last year), in 2008 (i.e.,

---

[5] Since water quality improvements are anticipated for all monitoring locations over the full course of the 30-year post-closure monitoring period, the calculation of the 95% upper confidence level for specific conductance is made using the most recent data from the past five years. The five-year period is suitable for demonstrating whether or not a location has met the criterion for a sustained period.

the first year of closure), and the historical maximum value measured at the location. The second approach was the use of Mann-Kendall trend analyses. Mann-Kendall analyses were run for the site water quality data to screen for statistically significant changes in water quality parameter concentrations over time. The Mann-Kendall analysis was chosen because it is nonparametric and is robust to outliers, missing data, and non-detects. The Mann-Kendall test was run for analyzed parameters, except for VOCs, with a 0.05 Type-I error (i.e., 95% confidence level). For this evaluation, we consider a statistically significant trend to be one in which the potential Type-I error is less than 0.05.

Mann-Kendall trend analyses were run for the site data over two time periods; five years back from the end of 2018 and three years back from the end of 2018. The three-year timeframe is suitable for evaluating recent changes in water quality related to site operations (e.g., site corrective actions such as groundwater extraction wells and gas extraction wells). The five-year timeframe is suitable for clearly identifying ongoing water quality trends during post-closure monitoring. Trends identified over short periods may also be due to natural phenomenon, such as drought or rainfall periods, that need to be considered when reviewing the monitoring data.

A basic summary of the results of the upward or downward trends identified by the Mann-Kendall analyses are presented in Table 3-1 with monitoring locations grouped by their relative positions around the landfill. The full results of the Mann-Kendall analyses are included in Appendix C.

TABLE 3-1

SUMMARY OF MANN-KENDALL ANALYSES AT MONITORING WELLS

Monitoring Location		Decreasing Trends						Increasing Trends					
		3-Year			5-Year			3-Year			5-Year		
		Multiple Parameters with Trend [1]	Specific Conductance	Dissolved Methane	Multiple Parameters with Trend [1]	Specific Conductance	Dissolved Methane	Multiple Parameters with Trend [1]	Specific Conductance	Dissolved Methane	Multiple Parameters with Trend [1]	Specific Conductance	Dissolved Methane
Northeast Wells	MW97-123	No	No	NS	No	No	NS	No	No	NS	No	No	NS
	509A	-	No	NS	-	No	NS	-	No	NS	-	No	NS
	509B	No	No	NS	No	No	NS	No	No	NS	No	No	NS
	P-911B	-	No	NS	-	No	NS	-	No	NS	-	No	NS
	MW98-601A	-	No	NS	-	No	NS	-	No	NS	-	No	NS
	MW98-601B	-	No	NS	-	No	NS	-	No	NS	-	No	NS
	MW01-602B	-	No	NS	-	No	NS	-	No	NS	-	No	NS
South Wells	MW-906B	No	No	NS	Yes (8)	Yes	NS	No	No	NS	No	No	NS
	200	No	No	NS	No	No	NS	No	No	NS	No	No	NS
	641	No	No	I	Yes (4)	No	No	No	No	I	No	No	No
	MW02-801A	No	No	I	Yes (11)	Yes	Yes	No	No	I	No	No	No
	MW02-801B	-	Yes	NS	-	Yes	NS	-	No	NS	-	No	NS
	MW03-802A	No	No	I	Yes (3)	Yes	No	No	No	I	Yes (3)	No	No
	MW03-802B	No	No	No	-	No	No	No	No	No	-	No	No
	MW03-803A	No	No	Yes	-	No	Yes	No	Yes	No	-	Yes	No
	MW03-803B	No	No	I	Yes (3)	No	Yes	No	No	I	Yes (5)	Yes	No
	MW03-804A	-	No	NS	-	No	NS	-	No	NS	-	Yes	NS
North Wells	516B-B	No	No	NS	No	No	NS	No	No	NS	Yes (3)	Yes	NS
East Wells	MW-916	No	No	I	Yes (6)	No	No	No	No	I	No	Yes	No
	MW-917	No	No	I	Yes (4)	No	No	No	No	I	No	No	No
West Wells	P-914A	No	No	NS	No	No	NS	No	No	NS	Yes (7)	Yes	NS
	P-914B	-	No	NS	-	No	NS	-	No	NS	-	Yes	NS

Notes:

[1] Number of parameters with trend shown in parenthesis for analyses with three or more parameters with trends. Locations monitored for field parameters only are not assessed for multiple (three or more) parameters due to limited number of parameters.

NS - parameter not analyzed for a specific location

I - insufficient sample data points for analyses

Discussion of trends in the water quality data is generally limited to increasing or decreasing trends of multiple parameters (three or more) at one sampling location. Since 2018 was the eighth year of the 30-year post-closure period, the trend analyses are a quantitative means of assessing post-closure water quality trends over the early years (i.e., the first third) of the post-closure monitoring period. The trends must be considered in conjunction with the hydrogeologic setting of the site, on-site closure and post-closure activities, off-site activities, and the anticipated changes in site groundwater redox conditions as a result of the closure. It is also important to note that due to the nature of the monitoring program, where different locations have a different list of monitoring parameters and different parameters have different monitoring frequencies, the Mann-Kendall results cannot necessarily be compared by location. Rather, they should be considered individually by location.

Groundwater quality changes are also assessed herein by comparison of 2018 specific conductance values and dissolved methane concentrations to values reported in 2008, when landfill closure activities began at the PTL, and values reported last year (i.e., from 2017) to assess the more recent water quality changes (see Table 3-2). Dissolved methane concentrations provide an indication of the effectiveness of the landfill gas migration corrective actions on groundwater quality. In 2018, the methane concentrations reported at all eight monitoring locations were lower than in 2008. Changes in specific conductance values give a general sense of the changes in the total amount of dissolved constituents in the groundwater. As shown on Table 3-2, in most cases the 2018 specific conductance values continue to be consistent with longer term trends observed over the past several years. In general, the groundwater monitoring wells to the south, southeast, and east of the PTL continue to show lower specific conductance values compared the start of closure in 2008, while groundwater monitoring wells to the southwest and west show an overall increase in specific conductance values since that time. To the northeast and north of the landfill, specific conductance values have increased since the start of closure in 2008 at groundwater monitoring wells proximate to Interstate 95. The northeast groundwater monitoring wells located further from Interstate 95 and downgradient from the PTL's northeast groundwater extraction wells have shown an overall decrease in specific conductance values since the start of closure in 2008.

TABLE 3-2

SUMMARY OF SPECIFIC CONDUCTANCE AND DISSOLVED METHANE RESULTS

Monitoring Location		Specific Conductance (µmhos/cm)				Dissolved Methane (µg/L)				
		2018	2017	2008	Historical Maximum*	2018		2017	2008	Historical Maximum*
		Range	Range	Mean		Range	Mean	Mean	Mean	
Northeast Wells	MW97-123	969 – 1,363	949 - 1,226	1,171 [3]	1,834	NA				
	509A	988 – 1,150	869 – 1,117	965 (2007) [1]	1,234	NA				
	509B	934 – 1,134	889 – 1,119	969 (2007) [1]	1,249	Dissolved Methane Removed From Sampling Program in 2016				
	P-911B	933 – 935	884 – 887	1,028 (2007) [1]	1,249	NA				
	MW98-601A	2,174 – 2,248	2,158 - 2,303	2,202 [3]	4,140	NA				
	MW98-601B	1,369 – 1,500	1,419 - 1,487	1,338 [3]	2,840	NA				
	MW01-602B	424 – 658	487 – 679	3,057 [3]	5,770	NA				
South Wells	MW-906B	382 – 455	382 – 418	563 [3]	1,882	Dissolved Methane Removed From Sampling Program in 2016				
	200	414 – 620	**362** – 518	760 [3]	2,270	NA				
	641	972 – 1,250	874 – 1,174	1,890 [3]	6,520	88	88 [1]	20 U [1]	1,193 [3]	3,290
	MW02-801A	2,568 – 2,870	2,537 - 2,558	4,330 [3]	6,490	660	660 [1]	540 [1]	1,863 [3]	4,300
	MW02-801B	1,402 – 1,686	2,097 - 2,307	2,191 [3]	5,850	NA				
	MW03-802A	525 – 540	714 – 762	852 [3]	1,168	560	560 [1]	470 [1]	4,720 [3]	9,010
	MW03-802B	1,131 – 1,500	1,176 - 1,241	1,003 [3]	1,587	890	890 [1]	1,320 [2]	3,230 [3]	6,740
	MW03-803A	1,700 – **1,867**	1,527 - **1,691**	1,037 [3]	1,867	**22**	22 [1]	40 [2]	1,353 [3]	3,570
	MW03-803B	1,502 – **1,507**	1,358 - 1,465	1,118 [3]	1,507	370	370 [1]	1,200 [1]	4,317 [3]	7,660
	MW03-804A	896 – 900	805 – 1,036	746 [3]	1,190	NA				
North Wells	516B-B	1,109 – **1,169**	1,062 - 1,111	947 [3]	1,169	NA				
East Wells	MW-916	769 – 1,160	571 – 722	1,068 [3]	1,848	20 U	20 U [1]	140 [1]	7,850 [3]	13,200
	MW-917	903 – 1,042	792 – 889	1,346 [3]	1,920	280	280 [1]	30 [1]	6,313 [3]	10,000
West Wells	P-914A	925 – 949	816 – 850	736 [3]	1,072	NA				
	P-914B	880 – 918	750 – 776	617 [3]	971	NA				

Notes:
Numbers in superscript indicate the number of samples taken during the respective year; bold values represent new historical minimum or maximum values.
* Historical maximum values from sampling date ranges that vary by location; sampling date ranges for each well are included on the Water Quality Summary Reports included in Appendix B.
NA Not Applicable

Site-wide arsenic concentrations were reported at notably lower values at most monitoring locations in 2017 and 2018 compared to recent historical data before 2017. The presence of arsenic in groundwater at the PTL is attributed to a number of redox driven reactions that occur as the site adjusts to both the simple act of covering the landfill and cutting off recharge to the waste mass, and the mixing of leachate emanating from under a closed, unlined landfill with groundwater. The presence of arsenic in groundwater surrounding the PTL is consistent with other landfills that have been documented in literature.[6]

Section 3.1 presents an evaluation of the on-site PTL groundwater quality during 2018. Further evaluation of water quality at the site is provided for: (1) groundwater quality at off-site residential area wells included in the site EMP (Section 3.2); (2) water quality at surface water monitoring locations around the PTL (Section 3.3); and (3) leachate monitoring locations (Section 3.4).

3.1 2018 On-Site Groundwater Quality Evaluation

Below are discussions of the 2018 PTL groundwater quality at monitoring wells, which are grouped based on their locations on-site with respect to the site's principal groundwater flow directions and/or landfill gas migration flow pathways. Monitoring results are compared to the site's post-closure threshold criteria established in the Department Closure Order.

3.1.1 Northeastern On-Site Monitoring Locations

Monitoring locations northeast of the landfills are positioned in one of the two principal groundwater flow pathways away from the landfills. Groundwater quality northeast of the landfills is monitored by wells MW98-601A, MW98-601B, and MW01-602B, which are proximate to the northeast perimeter of the landfill; and by MW97-123, 509A, 509B, and P-911B, which are more distant from the landfill. Monitoring locations 509A, P-911B, MW98-601A, MW98-601B, and MW01-602B are monitored for field parameters during the post-closure period, while MW97-123 and 509B are monitored for field parameters and sampled for a broader list of detection monitoring parameters. Groundwater quality data from northeast monitoring locations have historically exhibited influence from Conventional Landfill leachate and gas migration, and site operations related to the secure landfills.

Corrective activities northeast of the landfill currently include groundwater extraction from four wells (EW-5R, EW-6R, EW-101, and EW-102) proximate to the perimeter of the Conventional Landfill, and a gas extraction well (PTGW-08-11) located outside of the Conventional Landfill. About 1,771,445 gallons of water were extracted from the northeast groundwater extraction wells in 2018, and about 49 tons of methane are estimated to have been removed from PTGW-08-11 in 2018.

---

[6] e.g.: Law-wai, 2001, *Mobilization and Transport of Arsenic by Landfill Leachates and Contamination of Groundwater at Winthrop, Maine*, Department of Earth and Environmental Engineering, Columbia University; and Harte, et. al, 2012, *Heterogeneous redox conditions, arsenic mobility, and groundwater flow in a fractured-rock aquifer near a waste repository site in New Hampshire, USA*. Hydrogeology Journal, DOI 10.1007/210040-012-0844-4.

The April 2018 specific conductance value at MW01-602B (424 µmhos/cm) was below the on-site post-closure threshold value of 500 µmhos/cm. Specific conductance values at the rest of the on-site northeastern monitoring locations were over the on-site post-closure threshold value of 500 µmhos/cm during 2018, the eighth year of the 30-year post-closure period.

Specific conductance values at MW01-602B, which is located in close proximity to extraction well EW-5R, have intermittently been below the on-site threshold value of 500 µmhos/cm from 2013 through 2018. The water quality at this well maintains significant improvements since the beginning of landfill closure activities as the mean specific conductance values in this well have decreased by 82 percent between 2008 (3,057 µmhos/cm) and 2018 (541 µmhos/cm). Specific conductance values at MW01-602B are influenced by groundwater extraction volumes from proximate extraction well EW-5R.

Table 3-2 provides a relative assessment of specific conductance values for the northeast monitoring locations during 2018 compared to historical data from the previous year, at the start of landfill closure activities (i.e., 2008), and the historical maximum detection results at each well. Mean specific conductance values were slightly lower during 2018 than 2017 at the groundwater monitoring wells proximate to the PTL (MW01-602B, MW98-601A, and MW98-601B), and were slightly higher at the groundwater monitoring wells located further downgradient from the PTL (MW97-123, 509A, 509B, and P-911B). All specific conductance values measured at the northeast monitoring locations during 2018 were within their respective historical ranges. The Mann-Kendall trend analyses indicate relatively stable groundwater quality over the past several years at the northeastern on-site monitoring locations. There were no northeastern on-site monitoring locations with multiple parameters (three or more) with statistically significant increasing or decreasing trends (95% confidence level) over the past three-year and five-year periods.

At MW97-123, post-closure monitoring results indicate generally improving groundwater quality. The water quality data at MW97-123 in 2018 includes lower specific conductance values and lower concentrations of arsenic, calcium, magnesium, manganese, nickel, potassium, total dissolved solids, sulfate, bicarbonate, organic carbon, and sodium compared to those at the start of post-closure monitoring in 2011. Similarly at P-911B, which is only monitored for field parameters, there were lower specific conductance values in 2018 compared to those at the start of post-closure in 2011.

Monitoring wells 509A and 509B are monitoring locations northeast of the PTL that are also proximate to and hydraulically downgradient from Interstate 95. At 509B, multiple parameters have increased over the post-closure monitoring period. These increases appear to be stabilizing. Compared to the Mann-Kendall trend analyses from last year, when there were eight parameters with five-year statistically significant increasing trends (95% confidence level) from 2013 through 2017 at 509B (including specific conductance and chloride), only iron has a five-year statistically significant increasing trend from 2014 through 2018. Iron (2.2 mg/L in October 2018), Eh (351 mV in October 2018), and dissolved oxygen (3.6 mg/L in April

2018) were detected during 2018 at new historical maximum values at 509B. Given the noted improvements to other northeast groundwater monitoring wells (e.g., MW97-123 and P-911B), and that 509B is hydraulically downgradient of and within approximately 200 feet of Interstate 95, the Interstate and other upgradient anthropogenic activities likely have some influence on the water quality at 509B. The recent water quality trends correlate with multiple parameter value increases at SW-D, which monitors a tributary to Cold Brook Stream upstream from Interstate 95 and the landfill (i.e., not influenced by the landfill or landfill operations). There are currently five-year statistically significant increasing trends (95% confidence level) for pH, sodium, and chloride at SW-D, and visual review of the data also shows increases for specific conductance, dissolved oxygen, calcium, magnesium, manganese, potassium, bicarbonate, and total dissolved solids over the period of post-closure monitoring. Surface water monitoring location SW-D is further discussed in Section 3.3. At 509A, which is only monitored for field parameters, specific conductance values have been similar in apparent trend in magnitude to those at 509B during post-closure monitoring.

MW98-601A and MW98-601B are located hydraulically upgradient from northeast groundwater extraction wells; therefore, the groundwater quality monitoring results from these wells are characteristic of the quality of groundwater being pumped and collected in the on-site leachate storage tank,[7] particularly the groundwater pumped from extraction well EW-6R. Approximately 553,159 gallons of groundwater were extracted from EW-6R during 2018. The monitoring wells located downgradient from extraction well EW-6R (509A, 509B, and MW97-123) have specific conductance values lower than upgradient from the extraction well at MW98-601A and MW98-601B (see Table 3-2). This suggests the groundwater extraction in this area is having a positive effect on the water quality on the northeast side of the site. MW98-601A and MW98-601B are monitored for field parameters only. At these locations, the only statistically significant trend (95% confidence level) identified was a five-year increasing trend for dissolved oxygen at MW98-601B. Visual review of the data shows a subtle decrease in specific conductance values over the course of post-closure monitoring at these locations. The annual average specific conductance at MW98-601A in 2018 was 2,211 µmhos/cm compared to 2,555 µmhos/cm in the first year of post-closure monitoring in 2011. The annual average specific conductance at MW98-601B in 2018 was 1,435 µmhos/cm compared to 1,703 µmhos/cm in 2011. Since these monitoring locations are located upgradient form the northeast extraction wells, these improvements to water quality are likely attributed to the PTL closure.

At the northeast on-site monitoring locations, arsenic concentrations are measured twice annually at monitoring locations 509B and MW97-123. Arsenic concentrations detected at these monitoring locations in 2017 and 2018 were considerably lower than the annual maximum arsenic concentrations detected in 2016. Arsenic was detected at monitoring location 509B in April 2016 at a historical maximum concentration of 0.063 mg/L; however, it was detected at a concentration of 0.005 mg/L during both the

[7] Leachate and extraction well groundwater collected in the on-site leachate storage tank is either recirculated into the Secure III landfill as part of the approved post-closure leachate recirculation program, or is pumped via the Hermon sewer to the Bangor wastewater treatment plant.

April 2018 and October 2018 monitoring events. Arsenic was detected at monitoring location MW97-123 in April 2016 at a historical maximum concentration of 0.078 mg/L; however, it was detected at a concentration of 0.005 mg/L in April 2018 and was below the laboratory reporting limit of 0.005 mg/L in October 2018. These monitoring results are consistent with the generally site-wide lower arsenic values observed in 2017 and 2018, as discussed earlier in Section 3.0. There are currently no statistically significant trends (95% confidence level) for arsenic over the past three-year and five-year periods at 509B. There are currently statistically significant decreasing trends (95% confidence level) for arsenic over the past three-year and five-year periods at MW97-123.

3.1.2 Southern On-Site Monitoring Locations

Monitoring locations south (i.e., southeast, south, and southwest) of the landfills are positioned in one of the two principal groundwater flow pathways away from the landfills. Groundwater quality south of the landfill is monitored by wells MW-906B, 641, and 200 to the southeast; MW02-801A, MW02-801B, MW03-802A, and MW03-802B directly south of the landfill; and MW03-803A, MW03-803B, and MW03-804A southwest of the landfill. During the post-closure period, monitoring locations MW02-801B and MW03-804A are monitored only for field parameters, and monitoring locations MW03-802B and MW03-803A are monitored only for field parameters and dissolved methane. The remaining wells are tested for a broader list of detection monitoring parameters. Supplemental sampling parameters were also completed during 2018 as part of an investigation recommended by SME and MEDEP at MW03-802B and MW03-803A. These wells have exhibited increases for multiple parameters prior to and during the post-closure monitoring program. This was the third consecutive year of sampling for supplemental parameters at these locations. A discussion of the results of the supplemental sampling at MW03-802B and MW03-803A is provided later in this Section, which includes recommendations for further supplemental sampling based on the supplemental data collected since 2016.

Groundwater quality data from wells south of the landfill have historically exhibited influence from Conventional Landfill leachate and landfill gas migration, and site operations related to the secure landfills. Locations of corrective activities associated with the wells south of the landfills includes: (1) the perimeter drain, which collects groundwater at the toe of the Conventional Landfill; (2) two groundwater extraction wells (i.e., EW-2R and EW-3R) that are operated proximate to wells located south and southeast of the Secure III; and (3) the passive landfill gas extraction trench and two landfill gas extractions wells (i.e., PTGW-08-12 and PTGW-08-13) proximate to the wells located south and southwest of the Secure III.

Table 3-2 (above) provides a relative assessment of specific conductance and dissolved methane results for the southern monitoring locations for the eighth year of post-closure monitoring compared to historical data at the start of landfill closure activities (i.e., 2008), more recent water quality last year (i.e., during 2017), and the historical maximum detection results at each well.

Mean specific conductance values were greater at seven of the ten southern wells during 2018 compared to 2017. Six of the southern wells had 2018 mean specific conductance values that were lower than the mean values at the start of landfill closure activities in 2008.

At MW-906B, specific conductance values have been below the post-closure threshold value of 500 µmhos/cm since July 2014, including both of the 2018 monitoring events (382 µmhos/cm in April 2018 and 455 µmhos/cm in October 2018). At monitoring location 200, specific conductance was below the post-closure threshold value of 500 µmhos/cm during the April 2018 monitoring event (414 µmhos/cm), but not during the October 2018 monitoring event (620 µmhos/cm). Specific conductance values have intermittently been below the post-closure threshold value of 500 µmhos/cm at this location since April 2013. Monitoring locations MW-906B and 200 have had steadily decreasing specific conductance values for more than ten years. Monitoring location MW03-802A had specific conductance values of less than 500 µmhos/cm during the April 2016 and October 2016 monitoring events, but had specific conductance values above 500 µmhos/cm during 2017 and 2018. Consistent with historical water quality, the specific conductance values at the remaining on-site southern monitoring locations were over the on-site post-closure threshold value of 500 µmhos/cm during the 2018 monitoring events, which is consistent with the historical water quality at these wells.

The current trends for specific conductance vary based on their direction from the landfill (i.e., southeast, south, or southwest). Specific conductance values since the start of PTL closure in 2008 have decreased for monitoring locations located to southeast from the landfill (i.e., MW-906B, 200, 641, MW02-801A, MW02-801B, and MW03-802A), which are the southern monitoring wells closer to extraction wells EW-2R and EW-3R. Specific conductance values have five-year and/or three-year statistically significant decreasing trends (95% confidence level) at MW-906B, MW02-801A, MW02-801B, and MW03-802A.

Mean 2018 specific conductance values at monitoring locations MW-906B, 200, and 641 have decreased from 2008 mean values by 26 percent, 32 percent, and 41 percent, respectively.

The highest recent historical specific conductance values among the southern monitoring wells continue to occur at MW02-801A; however, the specific conductance values have decreased at this well during post-closure monitoring. The 2018 mean annual specific conductance value has decreased by 37 percent at MW02-801A compared to the 2008 mean annual specific conductance value at the start of landfill closure activities. Similarly, specific conductance values have decreased since the start of the PTL closure at MW02-801B, the shallow companion well to MW02-801A. The 2018 mean annual specific conductance value at MW02-801B has decreased by 74 percent compared to its historical maximum value of 5,850 µmhos/cm in October 2009. It also decreased by 30 percent compared to the mean annual specific conductance value from 2017.

Mann-Kendall trend analyses for the southern monitoring locations, as summarized in Table 3-1, provide a quantitative idea of what water quality trends exist in the eighth year of closure. The monitoring

locations south to southeast from the landfill that are sampled for both field parameters and the broader list of detection monitoring parameters that have multiple parameters (i.e., three or more) with statistically significant decreasing trends (95% confidence level) over the past three-year and/or five-year periods are discussed below:

- MW-906B has statistically significant decreasing trends (95% confidence level) for specific conductance, potassium, bicarbonate, sulfate, sodium, magnesium, calcium, and total dissolved solids over the past five years;
- Monitoring location 641 has statistically significant decreasing trends (95% confidence level) for bicarbonate, organic carbon, total dissolved solids, and arsenic over the past five years;
- MW02-801A has statistically significant decreasing trends (95% confidence level) for specific conductance, calcium, chloride, organic carbon, bicarbonate, total dissolved solids, manganese, sodium, dissolved methane, potassium, and nickel over the past five years; and
- MW02-802A has statistically significant decreasing trends (95% confidence level) for specific conductance, arsenic, and iron over the past five years.

The improvements to groundwater quality south and southeast of the landfill are attributed to site closure and the continued operations of proximate groundwater extraction wells EW-2R and EW-3R, and the perimeter drain.

Of the south and southeast monitoring locations, only MW03-802A has multiple parameters (i.e., three or more) with statistically significant increasing trends (95% confidence level) over the past three-year and/or five-year periods. MW03-802A has statistically significant increasing trends (95% confidence level) for organic carbon, Eh, and pH over the past five years.

The specific conductance values have been generally increasing for monitoring locations MW03-802B, MW03-803A, MW03-803B, and MW03-804A, which are located south to southwest from the landfill. Specific conductance values have five-year statistically significant increasing trends (95% confidence level) at MW03-803A, MW03-803B, and MW03-804A, and a three-year statistically significant increasing trend (95% confidence level) at MW03-803A. There was a new historical maximum specific conductance value measured during 2018 at MW03-803A (1,867 µmhos/cm in April 2018). There was a new historical maximum specific conductance value measured during 2018 at MW03-803B (1,507 µmhos/cm in October 2018). MW03-803A, which as discussed above was subject to supplemental sampling in 2018 to evaluate increasing parameter trends, and MW03-803B have been sampled since 2003. The new historical maximum specific conductance value at MW03-803A and MW03-803B in 2018, after 16 years of monitoring, suggest groundwater quality impacts from a new source. This is discussed in more detail later in this Section.

Monitoring well MW03-803B currently has five-year statistically significant increasing trends (95% confidence level) for five parameters (specific conductance, magnesium, potassium, pH, and dissolved oxygen). Some improvements are also evident at MW03-803B, which has statistically significant decreasing trends (95% confidence level) over the past five years for three parameters (dissolved methane, arsenic, and sulfate).

During 2018, supplemental sampling was completed as part of an investigation recommended by SME and MEDEP at both MW03-802B and MW03-803A, which have exhibited increases for multiple parameters prior to and during the post-closure monitoring periods. In addition to the monitoring of field parameters and dissolved methane, as specified in the post-closure EMP, these wells were sampled for a broader list of detection parameters, including VOCs, in October 2018. 2018 was the third year of supplemental sampling at these locations. In most cases, the supplemental sampling parameters were previously included in routine sampling prior to post-closure monitoring. The supplemental sampling results from 2016 through 2018 confirm many of the detection monitoring parameters at MW03-802B and MW03-803A, which had previously not been sampled since 2010, have increased since the start of the post-closure monitoring period. Multiple VOCs were detected above their respective laboratory reporting limits at MW03-802B and MW03-803A in 2018, which are summarized later in this Section.

The recent increase in parameter concentrations at MW03-802B and MW03-803A, after 16 years of monitoring, likely signify groundwater quality impacts from a new source. On June 21, 2016 NEWSME identified a condition in the landfill cover on the southwest side of the landfill that may in-part explain the change in water quality in MW03-802B and MW03-803A. Leachate was noted to be draining from several defects in the cover onto the soils surrounding the landfill. The length of time that this condition existed is unknown. This condition was reported to the MEDEP on the same day, and NEWSME then removed the visually impacted soils and repaired the cover during the week of July 10, 2016.

The noted leachate seeps from the cover defects may have been associated with the leachate recirculation program. Approximately 2,615,975 gallons of leachate and condensate was recirculated into the Secure III landfill in 2016, which followed the approximately 4,256,525 gallons recirculated in 2015. Since then, less leachate has been recirculated into the Secure III landfill, with approximately 1,296,813 gallons recirculated in 2017 and approximately 371,428 gallons recirculated in 2018.

MW03-803B and MW03-804A, which are also located on the southwest side of the landfill, have shown some similar water quality changes to those at MW03-802B and MW03-803A. Recent water quality at MW03-802B, MW03-803A, MW03-803B, and MW03-804A share some characteristics that may also suggest influence from the abated leachate seeps from the landfill cover defects. MW03-802B, MW03-803A, and MW03-803B all had substantial increases in dissolved oxygen concentrations starting in 2015. For example, dissolved oxygen concentrations at MW03-802B were typically around 1 mg/L or less from the start of landfill closure in 2008, but increased to values as high as 5.4 mg/L in October 2017. The dissolved oxygen at MW03-804A, which is located at a greater distance from the repaired landfill cover

defects, also began to increase in 2017. Iron concentration increases from the increased dissolved oxygen concentrations have been observed at MW03-802B and MW03-803A. SME recommends that dissolved oxygen be measured in 2019 in the leachate that is recirculated into the landfill. This leachate is comprised of water pumped from the onsite leachate storage tank and consists of water from the extraction wells and PDPS, from the leachate detection sumps, and condensate from the LFGTE plant. If the dissolved oxygen in the recirculated leachate is shown to be high, then it will provide further indication that the noted leachate seeps from the cover defects may have been associated with the leachate recirculation program. Another source of the higher dissolved oxygen concentrations may be from the conditions near the well associated with the removal of the impacted soil from the leachate seeps cleaned up in 2016.

The water quality at the southwest monitoring locations in 2018 has not yet indicated substantial improvements or consistently sequential parameter decreases since the abatement of this condition; however, with more than two years of monitoring data since the corrective actions completed in 2016, there are multiple parameters at MW03-802B and MW03-803A that have remained below peak values detected in 2016 or early 2017. These observations are summarized in Table 3-3.

Based on the water quality data summarized in Table 3-3, water quality at these wells shows some signs of overall improvement following abatement of the cover defects. Continued monitoring in 2019 will be useful to determine if these tendencies continue. We recommend that supplemental sampling at these two locations be continued in 2019 as they were done in 2018.

TABLE 3-3

SUMMARY OF RECENT WATER QUALITY AT MW03-802B and MW03-803A

Monitoring Location	Parameters	Recent Peak Concentration and Date	Concentration Range Since Recent Peak Concentration Detected
MW03-802B	Specific Conductance (µmhos/cm)	1,587 (Oct-2016)	1,131 to 1,500 [4]
	Total Dissolved Solids (mg/L)	877 (Oct-2016)	693 to 822 [3]
	Arsenic (mg/L)	0.146 (Apr-2016)	0.006 to 0.058 [4]
	Calcium (mg/L)	140 (Apr-2017)	130 [2]
	Cobalt (mg/L)	0.023 (Apr-2016)	0.010 U to 0.019 [4]
	Lead (mg/L)	0.009 (Apr-2016)	0.003 U [4]
	Magnesium (mg/L)	57 (Apr-2017)	45 to 47 [2]
	Manganese (mg/L)	22.3 (Apr-2016)	5.0 to 8.87 [4]
	Bicarbonate (mg/L)	575 (Oct-2016)	440 to 540 [3]
	Nickel (mg/L)	0.029 (Oct-2016)	0.005 U to 0.019 [3]
	Organic Carbon (mg/L)	8.7 (Oct-2016)	2.3 to 7.4 [3]
	Potassium (mg/L)	13.1 (Oct-2016)	3.1 to 11 [3]
	Chloride (mg/L)	140 (Apr-2017)	92 to 130 [2]
	Sodium (mg/L)	71.3 (Oct-2016)	41 to 65 [3]
	Turbidity (mg/L)	6.1 (Oct-2016)	2.0 to 3.7 [4]
MW03-803A	Dissolved Oxygen (mg/L)	4.2 (Apr-2017)	1.2 to 3.3 [3]
	Total Dissolved Solids (mg/L)	1,178 (Apr-2017)	939 to 1,079 [2]
	Arsenic (mg/L)	0.048 (Jul-2016)	0.005 U to 0.011 [4]
	Calcium (mg/L)	222 (Oct-2016)	180 to 200 [3]
	Cobalt (mg/L)	0.025 (Jul-2016)	0.010 U to 0.020
	Magnesium (mg/L)	75 (Apr-2017)	59 to 62 [2]
	Manganese (mg/L)	3.13 (Jul-2016)	1.4 to 2.7 [4]
	Bicarbonate (mg/L)	491 (Jul-2016)	250 to 472 [4]
	Nickel (mg/L)	0.020 (Apr-2017)	0.005 U to 0.007 [2]
	Potassium (mg/L)	3.3 (Apr-2017)	2.5 to 2.9 [2]
	Chloride (mg/L)	450 (Apr-2017)	240 to 280 [2]
	Sodium (mg/L)	42 (Apr-2017)	24 to 29 [2]
	Turbidity (mg/L)	3.9 (Oct-2016)	0.3 to 2.3 [4]

Numbers in superscript indicate the number of samples taken since the recent peak value.
U – Not detected above indicated laboratory reporting limit.

The south/southwestern side of the landfill has been one of the principal directions of landfill gas migration from the Conventional Landfill. NEWSME monitors and operates the two perimeter extraction wells, PTGW-08-12 and PTGW-08-13, on the southwest side of the landfill. Additionally, passive landfill gas extraction continues at the vents that were installed in a trench southwest of the landfill. As shown on Table 3-2, groundwater quality with respect to dissolved methane concentrations has substantially improved at the dissolved methane sampling locations south of the landfill (i.e., 641, MW02-801A, MW03-802A, MW03-802B, MW03-803A, and MW03-803B). The recent decreases in dissolved methane concentrations have resulted in statistically significant decreasing trends (95% confidence level) for the past five years at monitoring locations MW02-801A, MW03-803A, and MW03-803B. A new historical minimum dissolved methane concentration was detected during 2018 at monitoring location MW03-803A (22 µg/L in October 2018). Mean annual dissolved methane concentrations have decreased since the start of post-closure activities at the PTL in 2008 by 93 percent at monitoring location 641, 65 percent at MW02-801A, 88 percent at MW03-802A, 72 percent at MW03-802B, 98 percent at MW03-803A, and 91 percent at MW03-803B. These decreasing methane concentrations are likely associated with the overall decrease

in methane generated by the Conventional Landfill, as observed in a general site-wide trend of decreasing methane concentrations detected at the various monitoring points (See Section 6.0), and the removal of methane from gas extraction wells PTGW-08-12 (33 tons of methane removed during 2018) and PTGW-08-13 (17 tons of methane removed during 2018), and the passive landfill gas extraction trench.

At the southern on-site monitoring locations, arsenic concentrations were measured during both 2018 sampling events at monitoring locations MW-906B, 200, 641, MW02-801A, MW03-802A, and MW03-803B, and once in October 2018 at MW02-802B and MW03-803A. The 2018 annual maximum arsenic concentrations at these locations were lower than the 2016 annual maximum arsenic concentrations. These monitoring results are consistent with the generally site-wide lower arsenic values in 2017 and 2018, as discussed earlier in Section 3.0. The lower reported annual maximum arsenic concentrations at the southern on-site monitoring locations are summarized in Table 3-4 below:

TABLE 3-4

MAXIMUM ARSENIC CONCENTRATIONS AT ON--SITE MONITORING WELLS

Monitoring Well	Concentration (mg/L)	
	2018	2016
MW-906B	<0.005	0.026
200	0.043	0.057
641	0.035	0.067
MW02-801A	0.088	0.256
MW02-802A	<0.005	0.034
MW02-802B	0.057	0.146
MW02-803A	<0.005	0.048
MW02-803B	0.017	0.181

VOCs samples were collected and analyzed during the October 2018 monitoring event at southern monitoring locations 641, MW02-801A, MW03-802A, MW03-802B, MW03-803A, and MW03-803B. There were no VOCs (excluding dissolved methane) detected above their respective laboratory reporting limits during 2018 at monitoring locations 641 and MW03-802A. The VOCs detected above laboratory reporting limits at the southern on-site monitoring locations are included in the historical water quality data summary reports in Appendix B. Only one of the VOCs detected above laboratory reporting limits, vinyl chloride, was at a concentration above an MCL and/or MEG. Vinyl chloride was detected at MW03-803B at a concentration of 2.9 µg/L in October 2018, which is above its MCL of 2 µg/L and its MEG of 0.2 µg/L. This is consistent with previous MCL and MEG exceedances for vinyl chloride at this location, and the

October 2018 vinyl chloride value was within its historical range at MW03-803B. Water quality parameters being below applicable groundwater MCLs and MEGs is not a post-closure threshold criteria given in the Department Closure Order.

VOC detections during 2018 at the southeast monitoring locations are consistent with historical VOC detections at monitoring locations, and did not exceed maximum concentrations detected during post-closure at their respective locations.

3.1.3 North On-Site Monitoring Location

Monitoring well 516B-B monitors groundwater quality in the bedrock at the north corner of the PTL site. This well is hydraulically upgradient of the Conventional Landfill and Secure Landfills. Similar to water quality at 509B (as discussed in Section 3.1.1), the close proximity of 516B-B to the site facilities does not preclude landfill influences; however, the presence of Interstate 95 and other upgradient site activity in close proximity to this well needs to be considered when reviewing the water quality data.

North on-site specific conductance results are summarized in Table 3-2 for 2018 and show that monitoring well 516B-B is above the on-site closure threshold value of 500 µmhos/cm. Specific conductance values at 516B-B have increased at a steady but slow rate since the beginning of landfill closure at the PTL in 2008. The average of annual specific conductance values at 516B-B were higher in 2018 compared to 2008. Annual average chloride concentrations were moderately lower in 2018 (145 mg/L) compared to the start of the PTL closure in 2008 (162 mg/L). The Mann-Kendall trend analyses show statistically significant increasing trends (95% confidence level) for specific conductance, iron, and dissolved oxygen over the past five years. All parameters monitored at 516B-B were within their respective historical ranges with the exception of a new historical maximum specific conductance value in April 2018 (1,169 µg/L).

The 2018 annual maximum arsenic concentration at monitoring location 516B-B was 0.011 mg/L in October 2018, which decreased substantially from the historical maximum arsenic concentration of 0.062 mg/L detected at 516B-B in April 2016. This is consistent with generally site-wide lower arsenic concentrations in 2017 and 2018 compared to 2016.

3.1.4 East On-Site Monitoring Locations

Shallow bedrock groundwater quality east of the landfill is monitored by MW-916. Deep bedrock groundwater quality east of the landfill is monitored by MW-917. Monitoring wells MW-916 and MW-917 were installed and constructed as landfill monitoring wells and their locations are in close proximity to the PTL site boundaries. Over their monitoring history, groundwater in these wells previously had high concentrations of bicarbonate and dissolved methane, and low concentrations of leachate-related parameters. This indicates an influence primarily from Conventional Landfill gas historically (i.e. carbon dioxide and methane). The groundwater quality in both wells is similar in concentrations and trends over time. Substantial reductions in the concentrations of dissolved methane and bicarbonate at MW-916 and MW-917 since 2009 are attributed to the implemented corrective action plan, namely the nearby

perimeter landfill gas extraction wells located outside of the eastern perimeter of the Conventional Landfill that began operation in May 2009. About 138 tons of methane gas were removed during 2018 from PTGW-08-1, which is located east of the landfill. The mean bicarbonate concentration at MW-916 in 2018 (240 mg/L) has decreased by approximately 79 percent from a historical maximum value of 1,120 mg/L in October 2007, and the dissolved methane concentration at MW-916 in 2018 (less than the laboratory reporting limit of 20 µg/L) has decreased by more than 99 percent from a historical maximum value of 13,200 mg/L in October 2006. The mean bicarbonate concentration at MW-917 in 2018 (460 mg/L) has decreased by approximately 58 percent from a historical maximum value of 1,098 mg/L in March 2002, and the dissolved methane concentration at MW-917 in 2018 (280 µg/L) has decreased by approximately 97 percent from a historical maximum value of 10,000 mg/L in April and June 2006.

The specific conductance values at MW-916 and MW-917 were above the post-closure threshold criterion of 500 µmhos/cm during 2018. Monitoring results at the east monitoring locations for specific conductance and dissolved methane are summarized in Table 3-2 for 2018. The mean 2018 specific conductance values at MW-916 and MW-917 were 965 µmhos/cm and 973 µmhos/cm, respectively. The values are higher than the mean 2017 specific conductance values at MW-916 (647 µmhos/cm) and MW-917 (841 µmhos/cm). Both locations had generally decreasing values since the beginning of the closure of the landfills in 2008 to approximately 2016. Currently, there is a five-year statistically significant increasing trend (95% confidence level) for specific conductance at MW-916. There are not statistically significant increasing trends (95% confidence level) for specific conductance at MW-917 over the past three years or five years.

Other parameters analyzed for these locations, continue to show improvement to groundwater quality. Mann-Kendall trend analyses indicate improvements to water quality at MW-916 with six parameters having statistically significant decreasing trends (95% confidence level) over the past five years (arsenic, bicarbonate, total dissolved solids, sodium, magnesium, and Eh). Visual review of the data also indicates that calcium, iron, manganese, and dissolved methane have decreased at MW-916 since the start of PTL closure in 2008. Mann-Kendall trend analyses indicate improvements to water quality at MW-917 with four parameters having statistically significant decreasing trends (95% confidence level) over the past five years (total dissolved solids, iron, arsenic, and bicarbonate). Visual review of the data also indicates that calcium, magnesium, potassium, sodium, and dissolved methane have decreased at MW-917 since the start of PTL closure in 2008.

The chloride concentrations at MW-916 and MW-917 remain very low with 2018 annual maximum concentrations of 8.3 mg/L (October 2018) and 6.1 mg/L (April 2018), respectively. These low chloride concentrations and the continued or sustained improvements for multiple other parameters at MW-916 and MW-917 are an indication that the recent specific conductance increases are not associated with influence from PTL leachate.

At the east on-site monitoring locations, arsenic concentrations were measured two times during 2018 at monitoring locations MW-916 and MW-917. The arsenic concentrations at MW-916 have decreased from a concentration of 0.072 mg/L at the start of landfill closure activities in 2008 to concentrations less than the laboratory reporting limit of 0.005 mg/L in April 2018 and October 2018. Arsenic concentrations in the deeper bedrock groundwater at MW-917 remain at higher values of 0.086 mg/L in April 2018 and 0.110 mg/L in October 2018, but were lower than the annual maximum arsenic concentrations of 0.185 mg/L in April 2016. This is consistent with generally site-wide lower arsenic concentrations in 2017 and 2018 compared to 2016. As discussed above, there are five-year statistically significant decreasing trends (95% confidence level) for arsenic at MW-916 and MW-917.

Although MW-916 and MW-917 are located slightly beyond the site property boundaries, they have historically been considered on-site wells due to their location relative to the landfill. Since they are located beyond the site property boundaries, the 2018 groundwater quality at MW-916 and MW-917 are also discussed here as they relate to the post-closure threshold criteria for off-site groundwater quality. These criteria include: (1) parameter concentrations below MCLs and MEGs; (2) a specific conductance upper 95 percent confidence limit of less than 400 µmhos/cm; and (3) a dissolved methane concentration of less than 700 µg/L. Comparison of 2018 water quality to these criteria is discussed below:

- The manganese concentration at MW-916 exceeded the MEG of 0.3 mg/L in October 2018 (0.65 mg/L). Manganese has previously exceeded its MEG at MW-916;
- The arsenic concentrations at MW-917 exceeded the MCL and MEG of 0.01 mg/L in April 2018 (0.086 mg/L) and October 2018 (0.110 mg/L). The iron concentrations at MW-917 exceeded the MEG of 5 mg/L in April 2018 (7.5 mg/L) and October 2018 (8.1 mg/L). The manganese concentration at MW-917 exceeded the MEG of 0.3 mg/L in October 2018 (0.95 mg/L). These parameters have previously exceeded their respective standards at MW-917;
- The upper limit of the 95 percent confidence interval for specific conductance data at MW-916 for the past five years of the post-closure monitoring period (i.e., since 2014) is 731 µmhos/cm;
- The upper limit of the 95 percent confidence interval for specific conductance data at MW-917 for the past five years of the post-closure monitoring period (i.e., since 2014) is 978 µmhos/cm; and
- As discussed above, dissolved methane at MW-916 was not detected above the laboratory reporting limit of 20 µg/L in October 2018 and at MW-917 was at a concentration of 280 µg/L in October 2018. These concentrations satisfy the off-site groundwater quality threshold criterion of 700 µg/L for dissolved methane.

A VOC sample was collected and analyzed during the October 2018 monitoring event at MW-916. Toluene was detected at a low concentration of 1.7 µg/L at MW-916 in October 2018. This was the first detection

of toluene at MW-916 during closure and post-closure monitoring. There were no other VOCs (excluding dissolved methane) that were detected above laboratory reporting limits at MW-916 in October 2018.

3.1.5 West On-Site Monitoring Locations

Monitoring locations P-914A and P-914B are located over 800 feet to the west of the Conventional Landfill and are used to monitor bedrock groundwater quality. P-914B is monitored only for field parameters under the post-closure EMP. P-914A is monitored for field parameters as well as the detection monitoring parameters.

With respect to groundwater flow, this group of wells is cross-gradient to the Conventional Landfill and the Secure I, Secure II, and Secure III Landfills, and downgradient from Interstate 95 and the PTL entrance road and scale. Water quality for several parameters at P-914A are generally similar to that at well 516B-B, which is also located downgradient from Interstate 95. The trends for specific conductance, sodium, and chloride at both wells are similar, but with higher parameter values at well 516B-B, which located is much closer to Interstate 95.

Specific conductance values at P-914A and P-914B remained above the threshold criterion of 500 µmhos/cm during 2018 with mean annual values of 937 µmhos/cm and 899 µmhos/cm, respectively (see Table 3-2). There are statistically significant increasing trends (95% confidence level) at P-914A for seven parameters over the past five years (specific conductance, manganese, chloride, sulfate, total dissolved solids, sodium, and Eh). There are also statistically significant increasing trends (95% confidence level) for specific conductance and Eh at P-914B over the past five years.

At the west on-site monitoring locations, arsenic concentrations were measured two times during 2018 at monitoring location P-914A. Arsenic was not detected above the laboratory reporting limit of 0.005 mg/L in April 2018 and October 2018 at P-914A. This reported concentration is at a lower value than the 2016 annual maximum arsenic concentration for this location of 0.050 mg/L in April 2016. This is consistent with generally site-wide lower arsenic concentrations in 2017 and 2018 compared to 2016. There is a statistically significant decreasing trend (95% confidence level) for arsenic at P-914A for the past five years.

3.2 Residential Wells

Off-site groundwater quality data is collected at one residential water supply well (i.e., DW-103) and one open borehole bedrock monitoring well (non-water supply) located at a residential location surrounding the PTL (i.e., DW04-109). DW04-109 is grouped as a residential well due to its location and construction; however, DW04-109 is not used as a water supply well.

DW-103 and DW04-109 are located east from the landfill. As outlined in the post-closure EMP: (1) field parameters and dissolved methane samples were collected at DW04-109 and DW-103 during the April

2018 sampling event; (2) field parameters, dissolved methane, the indicator parameter list, and the expanded parameter list were sampled for at DW04-109 and DW-103 during the October 2018 sampling event; and (3) VOCs were sampled for at DW04-109 during the October 2018 sampling event. The post-closure threshold criteria for off-site groundwater quality include: (1) parameter concentrations below MCLs and MEGs; (2) a specific conductance upper 95 percent confidence limit of less than 400 µmhos/cm; and (3) a dissolved methane concentration of less than 700 µg/L. Comparison of 2018 water quality to these criteria are discussed below.

Off-site MCL and MEG Exceedances. The off-site applicable MCL and MEG criterion for DW-103 and DW04-109 (based on parameters analyzed at those locations) are summarized on Table 3-5. The iron concentration exceeded its MEG at DW04-109 in October 2018. The iron concentration was within its historical range for this location, and iron has been detected at a concentration as high as 164 mg/L (July 2009) at DW04-109. There is not a statistically significant increasing trend (95% confidence level) for iron at DW04-109 over the past five years. DW04-109 is an inactive open borehole bedrock well with steel casing set into bedrock, and it is sampled with a bailer. It is likely that the source of the high iron concentrations at DW04-109 are from weathering of the interior of the steel casing. The iron concentration at active nearby residential well DW-103 was only 0.48 mg/L in October 2018.

The sodium concentration exceeded its MEG at DW-103; however, its 2018 value is consistent with historical data and there is not a statistically significant increasing trend (95% confidence level) for sodium at DW-103 over the past five years.

TABLE 3-5
SUMMARY OF OFF-SITE RESIDENTIAL WELL
MCL AND/OR MEG EXCEEDANCES

Parameter Exceeding Standard	DW-103	DW04-109
Arsenic (0.01 mg/L MCL/MEG)	Not Exceeded	Not Exceeded
Sodium (20 mg/L MEG)	36 mg/L	Not Exceeded
Nickel (0.02 mg/L MEG)	Not Exceeded	Not Exceeded
Manganese (0.5 mg/L MEG)	Not Exceeded	Not Exceeded
Lead (0.01 mg/L MEG, 0.015 mg/L MCL)	Not Exceeded	Not Exceeded
Iron (5 mg/L MEG)	Not Exceeded	17 mg/L
Cobalt (0.01 mg/L MEG)	Not Exceeded	Not Exceeded
Note: Samples obtained for all of these parameters in October 2018.		

Off-site Specific Conductance Threshold Criterion. SME calculated the 95 percent upper confidence limit for specific conductance values measured for the past five years of the post-closure monitoring period (i.e., since 2014) at the off-site residential wells for comparison to the post-closure threshold criterion of 400 µmhos/cm.

The specific conductance values at DW-103 were 442 µmhos/cm in April 2018 and 485 µmhos/cm in October 2018. The upper limit of the 95 percent confidence interval for specific conductance data at this location for the past five years of the post-closure monitoring period (i.e., since 2014) is 456 µmhos/cm, which slightly exceeds the threshold criterion of 400 µmhos/cm. The upper limit of the 95 percent confidence interval for specific conductance data at this location for five-year intervals has been slowly increasing since 2015 when it was 422 mg/L. There is a statistically significant increasing trend (95% confidence level) for specific conductance at DW-103 over the past five years.

The specific conductance values at DW04-109 were 206 µmhos/cm in April 2018 and 237 µmhos/cm in October 2018. The upper limit of the 95 percent confidence interval for specific conductance data at this location for the past five years of the post-closure monitoring period (i.e., since 2014) is 417 µmhos/cm. Although this slightly exceeds its threshold criterion of 400 µmhos/cm, all of the specific conductance measurements during 2015 through 2018 have not exceeded 280 µmhos/cm at DW04-109.

Off-site Dissolved Methane Threshold Criterion. The threshold criterion for dissolved methane of 700 µg/L was met at DW04-109 in April 2018 (less than the laboratory reporting limit of 20 µg/L) and October 2018 (94 µg/L). Dissolved methane concentrations at DW04-109 in 2018 have decreased dramatically from 2008 values that ranged from 5,580 µg/L to 7,320 µg/L. There is a statistically significant decreasing trend (95% confidence level) for dissolved methane at DW04-109 over the past five years. The decrease in dissolved methane concentrations at DW04-109 indicates that the external landfill gas extraction system (which was installed in 2009) has shown effectiveness on groundwater quality farther east of the landfill.

The threshold criterion for dissolved methane was met at DW-103 in April 2018 (37 µg/L) and October 2018 (33 µg/L). Historical dissolved methane data has never exceeded 700 µg/L at DW-103. There is a statistically significant decreasing trend (95% confidence level) for dissolved methane at DW-103 over the past five years.

A VOC sample was collected and analyzed during the October 2018 monitoring event at DW04-109. There were no VOCs (excluding dissolved methane) that were detected above laboratory reporting limits at DW04-109 in October 2018.

The Mann-Kendall analyses indicate that there are four parameters at DW04-109 with statistically significant decreasing trends (95% confidence level) over the past five years, including specific conductance, bicarbonate, dissolved methane, and total dissolved solids. Only Eh has a statistically significant increasing trend (95% confidence level) over the past three years and five years at DW04-109.

There are not multiple parameters (three or more) with statistically significant increasing or decreasing trends (95% confidence level) over the past three years or five years at DW-103.

3.3 Surface Water Quality

Under the current post-closure EMP, surface water quality is monitored two times annually at two locations along Souadabscook Stream and at two locations on a tributary to Cold Brook Stream. Monitoring locations along both water courses include locations upstream and downstream with respect to the landfill. Notable observations at these locations during 2018 include:

Souadabscook Stream

During 2018, chemical parameter concentrations in Souadabscook Stream upstream of the landfill (SW-A) remained very similar to the location downstream of the landfill (SW-C). At upgradient monitoring location SW-A, all parameters with detections above laboratory reporting limits were within their respective historical ranges. At downgradient monitoring location SW-C, all but two of the 2018 parameters had values within their respective historical ranges. The dissolved oxygen concentration of 15.5 mg/L detected at SW-C in April 2018 was greater than the previous historical maximum concentration at that location of 10 mg/L. The iron concentration of 0.08 mg/L detected at SW-C in October 2018 was less than the previous historical minimum concentration at that location of 0.09 mg/L. These new historical values are not an indication of degrading water quality at SW-C.

There were no MFCCC surface quality standards exceeded at SW-A or SW-C in Souadabscook Stream during 2018 monitoring for the parameters analyzed. Annual maximum specific conductance values were low at both SW-A (167 µmhos/cm in October 2018) and SW-C (170 µmhos/cm in October 2018). Annual maximum chloride concentrations were low at both SW-A (17 mg/L in October 2018) and SW-C (17 mg/L in October 2018). Water quality at downgradient surface water sampling location SW-C is not indicative of impact from landfill leachate.

Cold Brook Stream

Surface water sampling stations along the tributary to Cold Brook Stream (SW-D and SW-E) have generally higher constituent concentrations than along Souadabscook Stream (SW-A and SW-C). This is consistent with historical water quality data when comparing these two water bodies. The higher concentrations are likely due to the close proximity of the Cold Brook Stream tributary to major roadways, commercial development in the watershed of the stream, landfill site operations, and the higher suspended sediment loads caused by the silt-clay substrate over which the stream runs. Monitoring location SW-D is located hydraulically upgradient from the PTL, and on the north and upstream side of Interstate 95 (the PTL is on the south side of Interstate 95). Monitoring location SW-E is located downgradient from the PTL and Interstate 95, just upstream from Cold Brook Road.

The 2018 specific conductance values at upgradient monitoring location SW-D (337 µmhos/cm in April 2018 and 728 µmhos/cm in October 2018) were somewhat less than those at downgradient monitoring location SW-E (547 µmhos/cm in April 2018 and 1,046 µmhos/cm in October 2018). Similarly, the 2018 chloride concentrations at upgradient monitoring location SW-D (87 mg/L in April 2018 and 150 mg/L in October 2018) were somewhat less than those at downgradient monitoring location SW-E (110 mg/L in April 2018 and 180 mg/L in October 2018). The parameters with higher concentrations at the downgradient sampling location of the tributary to Cold Brook Stream (SW-E) are attributed to SW-D being upstream of both Interstate 95 and landfill operations. There were no MFCCC surface water quality exceedances at SW-D or SW-E during 2018, which is consistent with recent historical data.

At upgradient monitoring location SW-D, all but two of the 2018 parameters had values within their respective historical ranges. The dissolved oxygen concentration of 13.2 mg/L detected at SW-D in April 2018 was greater than the previous historical maximum concentration at that location of 11.9 mg/L. The pH value of 8.4 mg/L at SW-D in April 2018 was greater than the previous historical maximum value at that location of 8.3 mg/L. These new historical values are not an indication of degrading water quality at SW-D.

At downgradient monitoring location SW-E, there were new historical maximum values of specific conductance, total dissolved solids (582 mg/L), and chloride in October 2018. Review of the water quality data shows that specific conductance, total dissolved solids, and chloride have been increasing over the past several years at SW-E. Similar to SW-E, specific conductance, total dissolved solids, and chloride have been increasing over the past several years at SW-D, which is upgradient from the Landfill. There are not statistically significant increasing trends (95% confidence level) for these parameters at SW-E over the past three to five years.

The concentrations of arsenic during April 2018 and October 2018 at surface water monitoring locations SW-A, SW-C, SW-D, and SW-E were low. This is consistent with generally site-wide lower arsenic concentrations in 2017 and 2018 compared to 2016. The 2018 arsenic concentrations from sampling at SW-A, SW-C, and SW-D were less than the laboratory reporting limit of 0.005 mg/L in April 2018 and October 2018. The 2018 arsenic concentrations at SW-E were less than the laboratory reporting limit of 0.005 mg/L in April 2018 and 0.005 mg/L in October 2018. The 2018 arsenic concentrations at all four surface water monitoring locations remained within their respective historical ranges.

The Mann-Kendall trend analyses have identified that there are statistically significant increasing trends (95% confidence level) for sodium, chloride, and pH at upgradient surface water monitoring location SW-D for the past five years. There are no other statistically significant trends (95% confidence level) for multiple parameters (i.e., three or more) at the PTL surface water monitoring locations for the past three years or five years.

3.4 Leachate

Leachate from the Secure Landfills is captured by leachate collection systems and is stored in an on-site, aboveground, 980,000-gallon leachate storage tank. Currently, groundwater impacted by the residual leachate from the Conventional Landfill is captured by a groundwater interceptor drain (i.e., perimeter drain) and six groundwater extraction wells. This groundwater is also conveyed to and stored in the on-site aboveground leachate storage tank. The leachate and extracted groundwater from the storage tank is either recirculated in the landfill, or sent to the Bangor wastewater treatment plant. In 2018, a total of 371,428 gallons of this leachate was recirculated into the Secure III facility and 8,638,587 gallons sent to the Bangor wastewater treatment plant.

Under the current post-closure EMP, the PDPS and leachate monitoring location LCS-3C are monitored for: (1) field parameters and the indicator list of parameters during the spring (i.e., April) sampling event; and (2) field parameters, the indicator list of parameters, the expanded list of parameters, dissolved methane, and VOCs during the fall (i.e., October) sampling event. Conventional Landfill leachate parameter concentrations are monitored at a manhole on the perimeter drain at the southeastern toe of the Conventional Landfill (PDPS). LCS-3C is the leachate sampling location at the Phase VIII-C pump station and has been monitored since 2011.

For each year during the 2016 through 2020 post-closure monitoring period, leachate was/will be sampled from one of the other site leachate monitoring locations (i.e., LCS-SI, LCS-SII, LCS-SIII, LCS-6, and LCS-7) during the fall sampling event. Leachate was supposed to be sampled from LCS-SIII in October 2018. LCS-SII, which was sampled in October 2017, was inadvertently sampled for a second consecutive year in October 2018 for field parameters, the indicator list of parameters, the expanded list of parameters, dissolved methane, and VOCs. Leachate monitoring location LCS-SII was also monitored annually between 2011 and 2015. The results from the October 2018 LCS-SII sample are summarized below, including comparison to historical results. LCS-SIII will be sampled in April 2019 to make up for the 2018 scheduling error, and LCS-6 will be sampled in October 2019 in accordance with the EMP. The results of the LCS-SIII and LCS-6 samples will be evaluated in the 2019 water quality monitoring report.

A summary of the key indicator parameter values at the PDPS and leachate monitoring locations sampled in 2018 is shown on Table 3-6.

TABLE 3-6
SUMMARY OF 2018 ANNUAL MAXIMUM
LEACHATE KEY INDICATOR VALUES

Parameter	PDPS	LCS-3C [1]	LCS-SII
Specific Conductance (µmhos/cm)	8,190 (6,670) [2]	45,800 (36,400)	15,430 (15,630)
Chloride (mg/L)	1,100 (1,610)	25,000 (19,200)	9,000 (6,660)
Dissolved Methane (µg/L)	840 (4,200)	1,500 (4,010)	500 (1,140)
Arsenic (mg/L)	0.30 (0.171)	0.51 (0.239)	0.01 (0.048)

Notes:
[1] LCS-3C is the leachate sampling location at the Phase VIII-C pump station.
[2] 2011 maximum annual parameter values (i.e., the first year of post-closure) are included in parentheses for comparison to 2018 parameter values.

Dissolved methane concentrations from the perimeter drain and the 2018 leachate sampling locations rebounded from historical minimum values in 2017, but remain considerably lower than dissolved methane concentrations detected since the PTL closure began in 2008. Maximum dissolved methane concentrations detected during closure and post-closure at the PTL were 6,960 µg/L at PDPS (July 2013), 5,560 µg/L at LCS-3C (July 2013), and 2,440 µg/L at LCS-SI (April 2012). The lower dissolved methane concentrations detected from the perimeter drain and leachate samples during post-closure monitoring is concurrent with the substantial decrease in dissolved methane concentrations during the post-closure monitoring period at southern and eastern monitoring locations 641, MW02-801A, MW03-802A, MW03-803A, MW03-803B, MW-916, and MW-917 (see Table 3-2); this suggests that the Conventional Landfill is not producing as much methane as has been generated in the past.

Annual maximum arsenic concentrations from the perimeter drain and leachate samples from LCS-3C and LCS-SII were higher during 2018 than during the first year of post-closure monitoring during 2011. These increases are likely attributed to a number of redox driven reactions that occur as leachate and water entering the perimeter drain adjusts to the act of covering the landfill and cutting off recharge to the waste mass. Therefore, these arsenic increases are not unexpected following the closure, which occurred from 2008 through 2010.

Specific conductance values and chloride concentrations at PDPS and LCS-3C during 2018 were within their historical ranges.[8] At leachate monitoring location LCS-SII, the specific conductance value in October 2018 was within its historical range. Chloride was detected at a new historical maximum concentration of 9,000 mg/L in October 2018 at LCS-SII; the previous historical maximum chloride concentration at LCS-SII

[8] This excludes the April 2018 specific conductance measurement at LCS-3C, which was reported as greater than the meter's upper limit of 20,000 µmhos/cm. Excluding this result, the historical range of specific conductance values at LCS-3C are from 22,800 µmhos/cm to 47,600 µmhos/cm.

was 6,660 mg/L. This is an indication that the 2018 repairs to the surface water drainage system that conveys water off the Secure II cover are being effective in removing some of the surface water that was making its way into the Secure II leachate collection system.

The Mann-Kendall trend analyses for PDPS indicate that there are no parameters with statistically significant increasing or decreasing trends (95% confidence level) over the past five-year and three-year periods. The Mann-Kendall trend analyses for LCS-3C indicate that calcium, magnesium, and potassium have statistically significant decreasing trends (95% confidence level) over the past five years. There are not multiple (three or more) parameters at LCS-3C with statistically significant (95% confidence level) increasing or decreasing trends over the past three years, or increasing trends for the past five years. Due to the sampling inactivity from LCS-SII in 2016, there is insufficient data for three year Mann-Kendall trend analyses. Most parameters analyzed for at this location also have insufficient data for Mann-Kendall trend analyses over the past five years. Specific conductance, arsenic, dissolved oxygen, Eh, pH, and arsenic have sufficient data for a five-year Mann-Kendall trend analysis at LCS-SII, and only Eh has a statistically significant increasing trend (95% confidence level) during that period.

VOC samples were collected and analyzed during the October 2018 monitoring event at the perimeter drain PDPS, LCS-3C, and LCS-SII. There were no VOCs that were detected above laboratory reporting limits at LCS-SII in October 2018 (excluding dissolved methane). The following VOCs (excluding dissolved methane) were detected above laboratory reporting limits at the perimeter drain and LCS-3C during 2018:

- Acetone at PDPS (35 µg/L) and LCS-3C (110 µg/L);
- Methyl Ethyl Ketone at LCS-3C (65 µg/L);
- Benzene at PDPS (1.2 µg/L) and LCS-3C (4.3 µg/L);
- 4-methyl-2-pentanone at LCS-3C (10 µg/L);
- Toluene at LCS-3C (34 µg/L);
- Ethylbenzene at PDPS (2.2 µg/L) and LCS-3C (8.9 µg/L);
- m,p-xylene at PDPS (3.8 µg/L) and LCS-3C (9.3 µg/L);
- o-xylene at PDPS (1.5 µg/L) and LCS-3C (5.2 µg/L);
- Tetrahydrofuran at PDPS (50 µg/L) and LCS-3C (340 µg/L);
- 1,4-dichlorobenzene at PDPS (1.9 µg/L) and LCS-3C (2.8 µg/L); and
- Diethyl ether at PDPS (11 µg/L).

Annual flows from the leachate collection pump stations at Secure I, Secure II, Secure III, Perimeter Drain, Phase VI, Phase VII, and Phase VIII-C have shown a decreasing trend since post-closure monitoring began in 2011. Though the flows at the perimeter drain pump station displays an overall decreasing trend, the flow in 2018 is higher than the flow recorded in 2011. As noted in Section 2.2 this is consistent with the higher than normal precipitation that occurred in 2018. The leachate collection pump stations will continue to be monitored in 2019. The annual data for the leachate collection pump stations is provided on the graphs in Appendix F.

4.0 LEAK DETECTION MONITORING

During 2018, the flow rates in the leak detection systems of the Secure III Landfill were recorded by PTL at the systems' discharge point for Phase VI, Phase VII, Phase VIII-C (Stage 1, Stage 2, and Stage 3), and Phases I through V, and VIII-A (the flows are recorded for Phase VIII-A at two locations; at the southern and northern end of Secure III within leak detection manholes). These flows drain to the Secure III pump station, which serves Phases I through V, and VIII-A of Secure III. The leak detection flows are collected and treated as leachate. A summary of the leak detection data provided to SME is found in Appendix D. SME reviewed the data and, where appropriate, compared detected leakage flows to the Action Leakage Rate (ALR-1) from each leak detection sump.

The total reported leak detection flow from the Phases I through V and Phase VIII-A sump in 2018 was 10,510 gallons. The 2018 average daily leakage flow rate detection from the sump was approximately 29 gallons per day (gpd). There lowest daily average leak detection flow over a calendar month was 4 gpd in November 2018. The highest daily average leak detection flow over a calendar month was 110 gpd in March 2018. Average daily flow rates were below the ALR-1 value of 676 gpd for this area for all months during 2018.

The total reported leak detection flow from the Phase VI leak detection sump in 2018 was 14,975 gallons. The 2018 average daily leakage flow rate detection from the sump was approximately 41 gpd. The lowest daily average leak detection flow over a calendar month was 8 gpd in August 2018. The highest daily average leak detection flow over a calendar month was 107 gpd in January 2018. Average daily flow rates were below the ALR-1 value of 210 gpd for this area for all months during 2018.

The total reported leak detection flow from the Phase VII leak detection sump in 2018 was 37,032 gallons. The 2018 average daily leakage flow rate detection from the sump was approximately 101 gpd. There lowest daily average leak detection flow over a calendar month was 5 gpd in July 2018. The highest daily average leak detection flow over a calendar month was 291 gpd in November 2018. November 2018 was also the month with the highest precipitation total in 2018 (7.00 inches) based on NCDC climate data from the Bangor International Airport. The daily average leak detection flows were above the ALR-1 value of 130 gpd for this area in January 2018 (167 gpd), April 2018 (246 gpd), November 2018 (291 gpd), and December 2018 (145 gpd); however, the average detected leakage flows during these periods (based on assumed daily average leakage derived from the volume of a leachate sump pumping event from the previous leachate sump operation) did not occur for greater than four consecutive weeks above the ALR-1 for this area. Historically the flow levels seen in the Phase VII leak detection sump have followed a similar pattern. Average daily flow rates were below the ALR-1 value of 130 gpd for this area for all the remaining months during 2018.

Historically, the Phase VII leak detection sump has typically collected a greater average leak detection flow than at other landfill leak detection locations, especially during times of increased precipitation totals.

NEWSME sampled the leachate from the Phase VII leak detection sump during 2018, and based on the results concluded that the leachate was significantly influenced by stormwater or groundwater.

The total leak detection flow reported by NEWSME from the Phase VIII-C, Stages 1, 2, and 3 leak detection sump in 2018 was 32,488 gallons in 2018. The 2018 average daily leakage flow rate detection from the sump was approximately 89 gpd. There were no leak flows reported in May, June, September, and October of 2018. The highest daily average leak detection flow over a calendar month was 183 gpd in November 2018. Average daily flow rates were below the ALR-1 value of 336 gpd for this area for all months during 2018.

Annual flows from the leak detection pump stations at Secure III and Phase VI have shown a decreasing trend since post-closure monitoring began in 2011. Annual flows from the Phase VII and Phase VIII-C leak detection pump stations at have shown an increasing trend since post-closure monitoring began in 2011. As noted previously in this section, the Phase VII leak detection sump has typically collected a greater average leak detection flow than at other landfill leak detection locations, especially during times of increased annual precipitation totals. This is consistent with the data observed in 2018. The flows at the Phase VIII-C pump station will continue to be monitored in 2019. The annual data for the leak detection pump stations is provided on the graphs in Appendix F.

5.0 DATA VALIDATION AND LABORATORY QUALITY CONTROL

Quality assurance (QA)/ quality control (QC) activities associated with sampling include the utilization of standardized collection procedures and sample data records, calibration of field instruments, and the use of chain-of-custody procedures. SME followed EMP procedures to ensure that both the field instruments and protocols employed generate data that is reliable and provided valid analysis results. Instruments were calibrated, analyses were conducted to determine potential matrix interference as necessary, precision and accuracy were checked, and hold-times were verified. Analytical QA/QC involves the use of approved analytical protocols by a qualified laboratory. Water quality samples were all analyzed within the required hold-times.

Data validation and laboratory quality control procedures were generally followed and documented as described in the MEDEP Solid Waste Management Rules, Chapter 405. During 2018 sampling rounds, duplicate water quality samples were obtained from several monitoring locations, as discussed in water quality data submittals for each round. Reports on Relative Percent Difference (RPD), calculated ratios of TDS to specific conductance, and values falling outside of historic ranges for each sampling round were presented and discussed in each of the data transmittals provided in 2018.

No VOCs were detected in the trip blanks associated with the 2018 sampling events.

Nearly all of the groundwater turbidity values measured during 2018 were 5 NTU or less; the only exception was one turbidity measurement of 5.2 NTU during 2018.

Based on our review of data quality, there are no issues affecting the usability of the data for its intended purposes.

6.0 LANDFILL GAS MONITORING SUMMARY

As part of the post-closure monitoring program, 23 gas probes around the Conventional Landfill are monitored by NEWSME for subsurface landfill gas on a quarterly basis. These gas probe locations are listed in Table 3-1 in the post-closure EMP, and are shown on Figure 1-1 of this report. Landfill gas monitoring parameters include methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), balance gas, and pressure. Procedures and equipment for measuring gas at these locations are discussed in Section 4.5 of the post-closure EMP. A GEM2000 multi-gas meter was used for subsurface landfill gas monitoring during 2018.[9]

Methane gas readings for 2018 are summarized in Appendix E. The results are organized by monitoring location and by the orientation of the monitoring locations in relation to the Conventional Landfill (i.e., northeast, south, and east). The intent of this monitoring program is to assist in evaluating the effectiveness of the gas collection systems installed to collect gas generated by the Conventional Landfill.

Northeast of the Conventional Landfill, subsurface landfill gas is monitored at 05-GS-18 and 05-GS-19. During 2018, methane gas in the headspace of 05-GS-18, which is located in close proximity to the perimeter of the Conventional Landfill, ranged from 3.7 percent by volume (May 2018) to 75.3 percent by volume (July 2018). The July 2018 methane gas was slightly higher the previous historical maximum value measured in March 2014 (72.2 percent by volume); otherwise the methane gas in the headspace of 05-GS-18 in 2018 were generally consistent with historical monitoring at this location. Monitoring location 05-GS-19 is in close proximity to external landfill gas extraction well PTGW-08-11, which removed a total of about 49 tons of methane in 2018. Methane gas content was low in 05-GS-19 in 2018, ranging from non-detect (May 2018 and July 2018) to 0.2 percent (October 2018). These values are consistent with historical monitoring at this location.

South of the Conventional Landfill, subsurface landfill gas is monitored at ten locations, which are identified in the summary tables in Appendix E and shown on Figure 1-1. The subsurface landfill gas monitoring results south of the Conventional Landfill generally correlate well with the dissolved methane concentrations detected in the groundwater samples collected from the monitoring wells located south of the Conventional Landfill. The methane gas content in the headspace of the monitoring wells and gas probes had generally decreased since 2013 along the southwest side of the Conventional Landfill (e.g., MW03-802B, MW03-803B, P04-714, and P04-715); however, there was a rebound of methane gas in the headspace of these monitoring wells and gas probes during parts of 2017 and 2018. For example, methane gas in the headspace at MW03-802B ranged from non-detect to 10.7 percent by volume from June 2014 through March 2017, but has since had intermittent higher values (e.g., 39.0 percent methane by volume in May 2018 and 45.3 percent methane per volume in July 2018). Methane gas in the headspace of MW03-802B was lower in January 2018 (4.1 percent by volume) October 2018 (0.1 percent by volume).

---

[9] GEM2000 multi-gas meter accuracy is ±0.5% for detections ranging from 0-5%, and ±3.0% for detections ranging from 5-15%.

Dissolved methane in groundwater southeast of the Conventional Landfill and the methane content in the headspace of wells and gas probes at monitoring locations closer to the south and southeast perimeter of the Conventional Landfill are typically low. Subsurface landfill gas monitoring locations south of the Conventional Landfill at MW03-801B, P04-713A, P04-713B, and 05-GS-16 had annual monitored methane gas content results of 0.1 percent methane by volume or less in 2018. Subsurface landfill gas monitoring locations south of the Conventional Landfill at 05-GS-17 ranged from 0.1 percent methane by volume in October 2018 to 19.2 percent methane by volume in January 2018.

East of the Conventional Landfill, subsurface landfill gas is monitored at eleven locations, which are identified in the summary tables in Appendix E and shown on Figure 1-1. The subsurface landfill gas monitoring results east of the Conventional Landfill have generally been low for the past few years. Methane gas in the headspace of MW-916, P04-707, 05-GS-4, 05-GS-5, 05-GS-8, and 05-GS-10 ranged from non-detect to 5.4 percent by volume during 2018. At P04-709 and 05-GS-7, methane gas increased in 2017 from previously typically low to non-detect values (e.g., 73.4 percent by volume in June 2017 at P04-709 and 65.1 percent by volume in September 2017 at 05-GS-7). In 2018, methane gas in these wells remained high in January 2018, but were not detected above 1.2 percent by volume for the remainder of the year. 05-GS-9 had monitored methane gas content results that ranged from 23.6 percent by volume in July 2018 to 69.3 percent by volume in January 2018.

The lower methane content in 2018 compared to 2017 at some of the monitoring locations east of the Conventional Landfill may be associated with greater landfill gas extraction east of the landfill perimeter at PTGW-08-01 in 2018 compared with 2017, where about 138 tons of methane were removed during 2018 compared with the 101 tons were removed in 2017. There was a slightly lower average content of methane gas at PTGW-08-01 in 2018 (53 percent) compare to 2017 (56 percent), but the total flow from PTGW-08-01 increased from 8.6 MSCF in 2017 to 12.6 MSCF in 2018. The amount of gas extraction from PTGW-08-01 in 2017 was lower than during previous years. NEWSME discovered a structural defect in the piping for this well in early 2018 and repaired it.

The MEDEP Closure Order (#S-001987-WN-HC-N) defines a successful corrective action criterion for landfill gas migration at the PTL as maintenance of a zero or negative pressure at the landfill's external gas probes. The gas pressures reported during the 2018 subsurface landfill gas monitoring events are included on the tables provided in Appendix E. Based on reported measurements made during 2018, zero or negative pressures were maintained at the external gas probes for roughly 61 percent of the measurements made. The overall historical decrease in methane measured in both the gas probes, and at the various water quality sampling locations, indicate that the amount of methane being generated by the Conventional Landfill is decreasing as the post-closure period continues.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Post-closure monitoring began at the site in 2011 under the Post-Closure EMP approval by the MEDEP. The post-closure EMP specified a reduction in sampling frequency from triannual to biannual after the initial five years of post-closure sampling (i.e., 2011 through 2015), and 2018 marked the third year of biannual sampling at the site for years 2016 through 2020.

2018 was the eighth year of post-closure monitoring at the PTL, which represents less than a third of the 30-year post-closure monitoring period. The 2018 water quality data for the PTL site is consistent with the historical use and operations of the site. The 2018 water quality at the site generally indicates improvement over the past several years at the landfill; these improvements are supported by decreasing trends for multiple water quality parameters at multiple sampling locations and in various directions of groundwater flow away from the landfill. In the eight years of post-closure monitoring at the PTL, many of these improvements are attributed to the continued and enhanced corrective actions at the site (i.e., completion of closure, and the groundwater extraction system and landfill gas extraction system). Because the site is relatively early in its 30-year post-closure monitoring period, it is too soon to evaluate the effectiveness of closure in terms of achieving the post-closure threshold criteria given in the Department Closure Order. However, in the eight years of post-closure monitoring at the PTL, there are overall trends toward improvements in groundwater quality, with several monitoring locations either achieving or very close to achieving the threshold criteria.

Prior to final closure of the PTL (i.e., during 2010), only one of the 22 on-site groundwater monitoring wells met the on-site groundwater quality threshold criterion of specific conductance values less than 500 µmhos/cm during only one of the three annual monitoring events. During 2018, there were three on-site groundwater monitoring wells with specific conductance values less than 500 µmhos/cm during one or more monitoring events (i.e., MW01-602B, MW-906B, and 200). Monitoring locations MW03-802A, 509A, 916, and 917 have also previously had one or more specific conductance measurement values of less than 500 µmhos/cm during post-closure monitoring (i.e., since 2011), but had specific conductance values above 500 µmhos/cm during 2018.

In general, the groundwater monitoring wells to the south, southeast, and east of the PTL continue to show lower specific conductance values compared the start of closure in 2008, while groundwater monitoring wells to the southwest and west show an overall increase in specific conductance values since that time. To the northeast and north of the landfill, specific conductance values have increased since the start of closure in 2008 at groundwater monitoring wells proximate to Interstate 95. The northeast groundwater monitoring wells located further from Interstate 95 and downgradient from the PTL's northeast groundwater extraction wells have shown an overall decreases in specific conductance values since the start of closure in 2008.

Substantial groundwater quality improvements have occurred during the eight years of post-closure monitoring at both on-site and off-site groundwater monitoring locations. Both off-site monitoring wells had dissolved methane concentrations well below the threshold criterion of 700 µg/L in 2018. One of the two off-site wells, DW04-109 has had specific conductance values below the threshold criterion for the past three years of monitoring. The specific conductance values at DW-103 were 442 µmhos/cm in April 2018 and 485 µmhos/cm in October 2018, which slightly exceeds the threshold criterion of 400 µmhos/cm. There were no MCL exceedances at DW-103 and DW04-109 during 2018 for the parameters analyzed at those locations. Sodium was the only monitored parameter at off-site monitoring location DW-103 with an MEG exceedance during 2018 (36 mg/L in October 2018). Iron was the only monitored parameter at off-site monitoring location DW04-109 with an MEG exceedance during 2018 (17 mg/L in October 2018).

Continued or sustained substantial improvement to water quality with respect to decreasing dissolved methane concentrations occurred on a site-wide basis during 2018 at dissolved methane monitoring locations. All of the eight on-site dissolved methane monitoring locations had 2018 mean dissolved methane concentrations substantially lower than at the start of landfill closure activities in 2008. There were no off-site post-closure threshold criterion exceedances for dissolved methane at the off-site monitoring locations during 2018. One of the eight on-site monitoring wells sampled for dissolved methane, MW03-803A, had a new historical minimum dissolved methane concentration during 2018. The substantial water quality improvements surrounding the PTL with respect to dissolved methane are attributed to both the decrease in methane being generated in the landfill, and the methane gas removal from the landfill perimeter gas extraction wells surrounding the site. During 2018, a combined total of approximately 237 tons of methane were removed from landfill gas extraction wells PTGW-08-1, PTGW-08-11, PTGW-08-12, and PTGW-08-13.

The 2018 surface water data continues to show that there are no adverse effects from landfill operations on water quality in Souadabscook Stream or the Cold Brook Stream tributary. There were no Maine Freshwater Criterion Continuous Concentration (MFCCC) exceedances from surface water locations during 2018 water quality sampling events for the parameters analyzed.

During 2018, supplemental sampling was completed as part of an investigation recommended by MEDEP and SME at both MW03-802B and MW03-803A, which have exhibited increases for multiple parameters prior to and during the post-closure monitoring program. On June 21, 2016, NEWSME identified a condition in the landfill cover on the southwest side of the landfill that may in-part explain the change in water quality in MW03-802B and MW03-803A. Leachate was noted to be draining from several defects in the cover onto the soils surrounding the landfill. The length of time that this condition existed is unknown. This condition was reported to the MEDEP on the same day, and NEWSME then removed the visually impacted soils and repaired the cover during the week of July 10, 2016. The recent increase in parameter concentrations at MW03-802B and MW03-803A, after 16 years of monitoring, likely signify groundwater

quality impacts from this new source such as the leachate seeps from the cover defect noted and repaired in 2016.

In addition to the monitoring of field parameters and dissolved methane, as specified in the post-closure EMP, MW03-802B and MW03-803A were sampled for a broader list of detection parameters, including VOCs, in October 2018. 2018 was the third year of supplemental sampling at these locations. In most cases, the supplemental sampling parameters were included in routine sampling prior to post-closure monitoring. The supplemental sampling results from 2016 through 2018 confirm many of the detection monitoring parameters at MW03-802B and MW03-803A, which had previously not been sampled since 2010, have increased since the start of the post-closure monitoring period.

MW03-803B and MW03-804A, which are also located on the southwest side of the landfill, have shown some similar water quality changes to those at MW03-802B and MW03-803A. Recent water quality at MW03-802B, MW03-803A, MW03-803B, and MW03-804A share some characteristics that may also suggest influence from the abated leachate seeps from the landfill cover defects. The noted leachate seeps from the cover defects may have been associated with the leachate recirculation program, with the repairs to the cover defect completed in 2016. Approximately 2,615,975 gallons of leachate and condensate was recirculated into the Secure III landfill in 2016, which followed the approximately 4,256,525 gallons recirculated in 2015. Since then, less leachate has been recirculated into the Secure III landfill, with approximately 1,296,813 gallons recirculated in 2017 and approximately 371,428 gallons recirculated in 2018.

MW03-802B, MW03-803A, and MW03-803B all had substantial increases in dissolved oxygen concentrations starting in 2015. For example, dissolved oxygen concentrations at MW03-802B were typically around 1 mg/L or less from the start of landfill closure in 2008, but increased to values as high as 5.4 mg/L in October 2017. The dissolved oxygen at MW03-804A, which is located at a greater distance from the repaired landfill cover defects, also began to increase in 2017. SME recommends that dissolved oxygen be measured in 2019 in the leachate that is recirculated into the landfill. This leachate is comprised of water pumped from the leachate storage tank. If the dissolved oxygen in the recirculated leachate is shown to be high, then it will provide further indication that the noted leachate seeps from the cover defects could be the reason for water quality in these wells.

The water quality at the southwest monitoring locations in 2018 has not yet indicated substantial improvements or consistently sequential parameter decreases since the abatement of this condition; however, with more than two years of monitoring data since the corrective actions completed in 2016 there are multiple parameters at MW03-802B and MW03-803A that have remained below peak values detected in 2016 or early 2017. Water quality at these wells has generally showed some signs of overall improvement following abatement of the cover defects. Continued monitoring in 2019 will be useful to determine if these tendencies continue. We recommend that supplemental sampling at these two locations be continued in 2019 as they were done in 2018.

Arsenic increases in groundwater are not unexpected adjacent to the PTL following the closure, as has been a topic of discussion with the MEDEP following the closure of the site. During the first few years of post-closure monitoring, arsenic concentrations generally increased at most on-site monitoring locations. In 2017 and 2018, arsenic concentrations were reported at lower concentrations than 2016 annual maximum values at site-wide monitoring locations. Eight of the twelve on-site locations and one of the two off-site locations routinely monitored for arsenic have three-year and/or five-year statistically significant decreasing trends (95% confidence level) for arsenic. None of the site monitoring locations currently have five-year or three-year statistically significant increasing trends (95% confidence level) for arsenic. The trends in arsenic concentrations at the site should continue to be evaluated in 2019.

7.2 Recommendations

The 2018 water quality data shows the continued influence of closure and the installed corrective actions at the PTL site, including landfill gas and groundwater extraction systems. SME recommends the continued operations of these corrective action systems. The vacuum applied to the gas extraction location for the Conventional Landfill should be continued to be closely monitored and adjusted since historical monitoring data demonstrates that keeping a vacuum on these wells is having a beneficial effect on the water quality around the site.

SME recommends continued monitoring at the PTL site in 2019 in accordance with the EMP that was revised in March 2016. SME also recommends that supplemental sampling at MW03-802B and MW03-803A be continued in 2019 as they were done in 2018. The recent spike in the water quality at wells MW03-802B, MW03-803A, MW03-803B, and MW03-804A is consistent with the seep and the finite amount of leachate that made it into the groundwater system. SME recommends additional pumping of these wells to remove any residual leachate that may be in the groundwater in these areas.

SME recommends that dissolved oxygen be measured in 2019 in the leachate that is recirculated into the landfill (i.e., from the leachate storage tank) to determine if it was potentially a source of the water quality changes occurring at the monitoring locations located southwest of the landfill.

Consistent with recommendations in our previous annual reports for 2015, 2016, and 2017 water quality, SME recommends that VOC sampling be removed from the monitoring program for monitoring locations 641, MW-916, and DW04-109. VOCs were not detected above laboratory reporting limits from samples from monitoring wells 641 and DW04-109 during 2012 through 2018 sampling events. SME will confirm agreement with MEDEP to eliminate VOC sampling from 641 and DW04-109 prior to the fall 2019 sampling event. VOCs were not detected above laboratory reporting limits from samples from monitoring well MW-916 during 2009 through 2017 sampling events. Toluene, a common laboratory contaminant, was detected at a low concentration of 1.7 µg/L at MW-916 in October 2018. This was the first detection of toluene at MW-916 during closure and post-closure monitoring. There were no other VOCs (excluding

dissolved methane) that were detected above laboratory reporting limits at MW-916 in October 2018. SME will sample MW-916 during the fall 2019 sampling event for verification on whether the toluene detection was a laboratory contaminant. If toluene is not present, VOC sampling will be eliminated from MW-916 in 2020.

SME recommends that VOC sampling and analysis by EPA Method 8260B continue at MW02-801A, MW03-802A, MW03-803B, the perimeter drain (i.e., PDPS), and leachate samples from LCS-3C, as specified in the EMP revised in March 2016.

APPENDIX A

2018 AND HISTORICAL WATER QUALITY DATA

SME
SEVEE & MAHER
ENGINEERS

SUMMARY REPORT

Groundwater Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(200) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
200																	
4/30/2008	XX	GW200X700	LF	956	6.9	4.8	92.5	86.2	6.3	169	0.8		0.5				
7/22/2008	XX	GW200X72B	LF	738	6.8	13	92.5	81.41	11.09	114	0.2		1.3				
10/7/2008	XX	GW200X753	LF	586	6.8	12.3	92.5	84.5	8	81	0.2	20.21	1				
4/21/2009	XX	GW200X77E	LF	645	7	5.1	92.5	84.08	8.42	63	0.3		0				
7/22/2009	XX	GW200X7A3	LF	621	6.9	11.8	92.5	83.24	9.26	434	0.2		0.3				
10/20/2009	XX	GW200X7EJ	LF	679	7.3	10.7	92.5	80.5	12	-9	0.2	20.2	0				
3/31/2010	XX	GW200X7HB	LF	577	6.8	5.6	92.5	86.8	5.7	190	0.2		0.4				
7/27/2010	XX	GW200X7JF	LF	643	6.9	11.7	92.5	80.52	11.98	101	0		0.8				
10/5/2010	XX	GW200X823	LF	782	6.8	13.3	92.5	83.56	8.94	133	0.6	20.2	0				
4/12/2011	XX	GW200X89B	LF	629	7.1	6.5	92.5	85.5	7	190	0.6		1.7				
7/27/2011	XX	GW200X8D7	LF	517	6.2	12.8	92.5	80.8	11.7	105	0.4		0				
10/17/2011	XX	GW200X8FG					92.5										
10/17/2011	XX	GW200X8B9	LF	614	7.4	13.8	92.5	84.05	8.45	88	0.3	20.2	3.5				
4/11/2012	XX	GW200X8HE	LF	659	7.3	5.7	92.5	83.08	9.42	107	0.3		4.5				
7/11/2012	XX	GW200X8JH	LF	618	7.2	11.3	92.5	83.65	8.85	211	1		0				
10/3/2012	XX	GW200X91J	LF	654	6.9	13.7	92.5	83.45	9.05	98	0.2	20.21	0				
4/10/2013	XX	GW200X93J	LF	462	6.9	5.7	92.5	85.55	6.95	174	0.3		3.4				
7/10/2013	XX	GW200X95J	LF	548	7.1	11	92.5	82.95	9.55	117	1		0.6				
10/23/2013	XX	GW200X99I	LF	563	7.4	12.2	92.5	81.6	10.9	84	0.3	20.21	0.9				
4/30/2014	XX	GW200X9C1	LF	472	7.1	5.2	92.5	85.44	7.06	212	0.3		2.5				
7/16/2014	XX	GW200X9E3	LF	488	7.1	12	92.5	82.85	8.65	94	0.3		4.2				
10/1/2014	XX	GW200X9G2	LF	475	7	12.3	92.5	80.46	12.04	99	0.2	20.2	2.2				
4/15/2015	XX	GW200XA1G	LF	503	7.2	4.6	92.5	87.4	5.1	117	0.1		0.2				
7/22/2015	XX	GW200XA40	LF	485	7.1	10.7	92.5	81.62	10.88	109	0.1		3.1				
10/21/2015	XX	GW200XA66	LF	691	7.1	12	92.5	82.68	9.82	115	0.1 U	20.2	0.3				
4/27/2016	XX	GW200XA87	LF	440	7.3	4.6	92.5	84.7	7.8	94	0.22		4.7				
10/19/2016	XX	GW200XAC8	LF	633	7.2	12.2	92.5	79.1	13.4	88	0.1	20.2	0.3				
4/26/2017	XX	GW200XAE8	LF	362	7.2	4.8	92.5	85.8	6.7	111	0.1		2.5				
10/4/2017	XX	GW200XAG6	LF	518	7.6	11.2	92.5	79.88	12.62	96	0.1	20.2	0.4				
4/11/2018	XX	GW200XAI4	LF	414	7.4	3.9	92.5	86.2	6.3	179	0.1		0.6				
10/11/2018	XX	GW200XB04	LF	620	7.3	10.9	92.5	79.95	12.55	90	0.1	20.2	1.4				
509A																	
8/31/2010	XX	GW509A86E		1056	7.1	11.7	116.95	108.4	8.55								
4/11/2011	XX	GW509A8AC	LF	1012	6.9	7.4	116.95	109.75	7.2	4	0.2		1.8				
7/27/2011	XX	GW509A8E8	LF	357	7	13.7	116.95	106.15	10.8	67	0.4		0				
10/18/2011	XX	GW509A8CA	LF	1058	7.2	11.4	116.95	112.25	4.7	181	0.4	24.4	1.2				
4/10/2012	XX	GW509A8IF	LF	890	7	6.6	116.95	109.07	7.88	-39	0.4		0				
7/10/2012	XX	GW509A90H	LF	941	6.8	13	116.95	103.43	13.52	7	0.6		0				
10/2/2012	XX	GW509A92H	LF	1208	6.8	12.4	116.95	109.09	7.86	-48	0.6	21.07	0				
4/9/2013	XX	GW509A950	LF	860	6.8	5.4	116.95	109.53	7.42	149	0.6		0.1				
7/9/2013	XX	GW509A96J	LF	923	6.6	11.6	116.95	108.6	8.35	13	0.4		1.3				
10/22/2013	XX	GW509A9AG	LF	931	6.8	11.7	116.95	108.65	8.3	-25	0.4	24.32	0.2				
4/29/2014	XX	GW509A9D2	LF	846	7.1	6.9	116.95	109.28	7.67	130	0.3		0.8				
7/15/2014	XX	GW509A9F3	LF	1028	6.7	12.9	116.95	108.8	8.15	192	0.4		1.5				
9/30/2014	XX	GW509A9H0	LF	1144	6.6	11.2	116.95	108.4	8.55	171	0.4	24.3	0.4				
4/14/2015	XX	GW509AA2H	LF	891	6.8	6.5	116.95	109.85	7.1	133	1.1		0.5				
7/21/2015	XX	GW509AA50	LF	1074	6.7	11.9	116.95	108.42	8.53	163	0.6		0.6				

SUMMARY REPORT

Groundwater Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU
(509A)													
10/20/2015	XX	GW509AA74	LF	975	6.8	9.8	116.95	108.65	8.3	147	0.4	24.3	0.1
4/26/2016	XX	GW509AA95	LF	933	6.9	5.6	116.95	109.15	7.8	166	0.4		1
10/18/2016	XX	GW509AAD4	LF	1234	6.7	10.3	116.95	108.05	8.9	177	0.7	24.4	4.3
4/25/2017	XX	GW509AAF4	LF	869	6.8	6.6	116.95	109.25	7.7	158	0.7		1.7
10/3/2017	XX	GW509AAH2	LF	1117	6.9	10.2	116.95	108.25	8.7	178	2.2	24.4	1.1
4/10/2018	XX	GW509AAJ0	LF	988	6.9	3.5	116.95	109.4	7.55	153	0.3		2
10/11/2018	XX	GW509AB10	LF	1150	6.9	10.3	116.95	108.4	8.55	237	0.4	24.4	1.8
509B													
8/31/2010	XX	GW509B86F		1077	6.9	12.7	117.11	108.36	8.75				
4/11/2011	XX	GW509B899	LF	889	6.8	7.2	117.11	109.81	7.3	40	0.3		1.3
7/27/2011	XX	GW509B8D5	LF	580	6.8	11.6	117.11	105.91	11.2	187	1		0
10/18/2011	XX	GW509B8B7	LF	940	6.9	11.7	117.11	109.48	7.63	287	0.6	17.72	1.1
10/18/2011	XX	GW509B8FE					117.11						
4/10/2012	XX	GW509B8HC	LF	782	6.9	6.2	117.11	109	8.11	34	0.3		0.6
7/10/2012	XX	GW509B8JF	LF	817	6.7	13.6	117.11	108.92	8.19	66	0.4		0
10/2/2012	XX	GW509B91H	LF	1136	6.6	13.1	117.11	109.03	8.08	295	0.4	17.68	0
4/9/2013	XX	GW509B93H	LF	756	6.7	4.4	117.11	109.31	7.8	238	0.3		0.3
7/9/2013	XX	GW509B95H	LF	775	6.6	12.8	117.11	108.84	8.27	227	0.8		1.7
10/22/2013	XX	GW509B99G	LF	786	6.7	12.6	117.11	108.61	8.5	13	0.4	17.71	0.2
4/29/2014	XX	GW509B9BJ	LF	827	7	5.1	117.11	109.21	7.9	245	0.3		0.8
7/15/2014	XX	GW509B9E1	LF	1039	6.6	12.4	117.11	108.86	8.28	319	0.4		1.2
9/30/2014	XX	GW509B9G0	LF	1120	6.6	11.9	117.11	108.31	8.8	232	0.4	17.65	0.5
4/14/2015	XX	GW509BA1E	LF	920	6.7	5.1	117.11	109.91	7.2	208	1.2		0.5
7/21/2015	XX	GW509BA3I	LF	1068	6.6	12.2	117.11	108.41	8.7	196	0.5		0.5
10/20/2015	XX	GW509BA64	LF	961	6.7	10	117.11	108.6	8.51	199	0.6	17.6	0.1
4/26/2016	XX	GW509BA85	LF	951	6.9	5.5	117.11	109.06	8.05	193	0.4		0.9
10/18/2016	XX	GW509BAC6	LF	1249	6.7	10.8	117.11	108.11	9	216	0.7	17.72	1.9
4/25/2017	XX	GW509BAE6	LF	889	6.8	4.8	117.11	109.31	7.8	174	0.6		1
10/3/2017	XX	GW509BAG4	LF	1119	6.8	10.8	117.11	108.19	8.92	193	2.9	17.72	0.7
4/10/2018	XX	GW509BAI2	LF	934	6.8	3.4	117.11	109.49	7.62	195	3.6		0.7
10/11/2018	XX	GW509BB02	LF	1134	6.8	11.3	117.11	110.51	6.6	351	0.1	17.72	2.1
516B-B													
4/30/2008	XX	GW516B701	LF	1084	7.3	7.5			9.2	211	3		0.9
7/22/2008	XX	GW516B72C	LF	964	7.1	12.9			10.63	363	2		1.6
10/7/2008	XX	GW516B754	LF	792	7.3	14.1			9.5	320	4	43.8	0.9
4/22/2009	XX	GW516B77F	LF	1035	7	9.2			9.4	314	1		0
7/21/2009	XX	GW516B7A4	LF	1014	7.1	14.7			9.62	367	1		0.2
10/20/2009	XX	GW516B7F0	LF	945	7.5	8.3			9.9	49	0.4	43.8	0
3/31/2010	XX	GW516B7HC	LF	948	7	7.6			8.67	300	1		0
7/28/2010	XX	GW516B7JG	LF	1031	7	12.6			10.9	299	1		0.6
10/5/2010	XX	GW516B824	LF	1074	7.2	12			9.82	270	0.4	43.8	0
4/12/2011	XX	GW516B897	LF	1036	7.3	11.2			8.8	313	2		0.3
7/26/2011	XX	GW516B8D3	LF	967	7	13.5			11	340	0.8		0
10/17/2011	XX	GW516B8B5	LF	1012	7.6	12			8.9	424	0.4	43.82	2
4/11/2012	XX	GW516B8HA	LF	1025	7.4	8.4			9.64	250	2		0
7/11/2012	XX	GW516B8JD	LF	1032	7.3	13.2			9.92	329	0.6		0
10/2/2012	XX	GW516B91F	LF	1004	7.1	12.3			9.62	255	0.3	43.8	0
4/9/2013	XX	GW516B93F	LF	1001	7.5	7.8			9.7	456	2		1.1

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU
(516B-B)													
7/9/2013	XX	GW516B95F	LF	1076	7.3	13.4			9.75	241	0.8		0.4
10/22/2013	XX	GW516B99E	LF	974	7.3	11.2			9.9	-19	0.4	43.8	0.2
4/30/2014	XX	GW516B9BH	LF	1074	7.5	7.7			9.2	1	0.4		.6
7/15/2014	XX	GW516B9DJ	LF	1048	7.1	13.9			9.6	111	0.3		1
9/30/2014	XX	GW516B9FI	LF	1019	7.2	10.4			11	151	0.4	43.8	0.3
4/14/2015	XX	GW516BA1C	LF	981	7.2	9.5			8.95	5	0.6		1.8
7/20/2015	XX	GW516BA3G	LF	1100	7.1	16.5			10.1	26	0.4		1.2
10/20/2015	XX	GW516BA62	LF	1030	7.1	10			9.9	54	0.4	43.8	1.1
4/26/2016	XX	GW516BA83	LF	1103	7.3	7.6			9.55	69	0.4		0.6
10/18/2016	XX	GW516BAC4	LF	1141	7.1	10.7			14	99	0.6	43.9	1.9
4/25/2017	XX	GW516BAE4	LF	1062	7.2	9.7			9.3	112	1.6		6.5
10/3/2017	XX	GW516BAG2	LF	1111	7.4	10.6			13.12	78	0.4	43.85	1.2
4/10/2018	XX	GW516BAJG	LF	1169	7.3	6.6			9.3	241	1.9		1
10/8/2018	XX	GW516BB00	LF	1109	7.3	10.1			11.2	66	0.5	43.85	2.1
641													
4/29/2008	XX	GW641X708	LF	1941	6.5	8.9	107.47	86.74	20.73	208	1		1.6
7/21/2008	XX	GW641X72J	LF	1955	6.4	19.6	107.47	85.67	21.8	21	0.6		2.8
10/7/2008	XX	GW641X75B	LF	1773	6.5	13.2	107.47	87.45	20.02	39	0.6	34.31	0.9
4/20/2009	XX	GW641X782	LF	2860	6.7	13.2	107.47	87.57	19.9	46	0.8		1.9
7/20/2009	XX	GW641X7AB	LF	3290	6.5	17	107.47	87.05	20.42	-17	0.6		0.9
10/20/2009	XX	GW641X7F7	LF	3060	7.2	7.9	107.47	85.7	21.77	-42	0.6	34.3	0
3/29/2010	XX	GW641X7HJ	LF	2380	6.7	8.3	107.47	88.07	19.4	-38	0.6		0
7/27/2010	XX	GW641X803	LF	1707	6.3	18.6	107.47	84.73	22.74	25	0.6		1
10/5/2010	XX	GW641X82B	LF	1691	6.4	14.1	107.47	87.29	20.18	123	1	34.3	0
4/13/2011	XX	GW641X89C	LF	1877	6.7	8.9	107.47	87.47	20	101	0.6		1
7/26/2011	XX	GW641X8D8	LF	1519	6.9	16.6	107.47	84.59	22.88	126	1		0.8
10/19/2011	XX	GW641X8FH					107.47						
10/19/2011	XX	GW641X8BA	LF	1618	6.8	11.4	107.47	87.77	19.7	-48	0.3	34.3	2.2
4/10/2012	XX	GW641X8HF	LF	1124	6.9	12	107.47	86.63	20.84	-23	0.4		0
7/10/2012	XX	GW641X8JI	LF	984	6.7	17.2	107.47	86.97	20.5	-22	0.4		0
10/1/2012	XX	GW641X920	LF	3860	6.6	13.3	107.47	87.22	20.25	-61	0.4	34.31	0
11/7/2012	XX	GW641X93E	LF	1540	6.7	10.6	107.47	88.37	19.1	-65	0.3	34.27	1.3
4/9/2013	XX	GW641X940	LF	1699	6.9	6.8	107.47	88.47	19	103	0.4		1.2
7/9/2013	XX	GW641X960	LF	815	6.6	16.6	107.47	86.4	21.07	11	0.6		2.4
10/21/2013	XX	GW641X99J	LF	1140	6.5	15.3	107.47	84.99	22.48	85	0.6	34.35	0.5
4/30/2014	XX	GW641X9C2	LF	1049	6.7	9	107.47	89.37	18.1	154	0.3		1
7/16/2014	XX	GW641X9E4	LF	1184	6.6	14.7	107.47	86.62	20.85	136	0.4		0.7
10/1/2014	XX	GW641X9G3	LF	922	6.7	12.6	107.47	84.72	22.75	66	0.4	34.32	0.2
4/15/2015	XX	GW641XA1H	LF	1368	6.9	10.3	107.47	90.53	16.94	127	0.6		0.2
7/22/2015	XX	GW641XA41	LF	1018	7	14.5	107.47	85.87	21.6	134	0.4		0.3
10/20/2015	XX	GW641XA67	LF	933	7	13.8	107.47	86.11	21.36	143	0.4	34.32	1.2
4/26/2016	XX	GW641XA88	LF	1301	7	7.6	107.47	87.57	19.9	110	0.5		0.9
10/19/2016	XX	GW641XAC9	LF	822	6.9	15.3	107.47	84.41	23.06	119	0.4	34.33	0.4
4/25/2017	XX	GW641XAE9	LF	1174	7	9	107.47	88.32	19.15	105	0.4		0.4
10/3/2017	XX	GW641XAG7	LF	874	7.1	17.3	107.47	84.07	23.4	94	1	34.35	0.8
4/10/2018	XX	GW641XAI5	LF	1250	7.1	8	107.47	89.06	18.41	157	1.4		0.3
10/8/2018	XX	GW641XB05	LF	972	7	11.9	107.47	84.27	23.2	120	1.1	34.35	1.6
MW01-602B													

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW01-602B) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
4/28/2008	XX	GW602B707	LF	4220	6.9	12.4	131.11	112.61	18.5	75	1		0				
9/8/2008	XX	GW602B72I	LF	3830	6.5	15.1	140.1	110.4	29.7	66	0.6	50.45	2.2				
10/6/2008	XX	GW602B75A	LF	1122	6.8	11.3	140.1	113	27.1	50	0.6	50.45	5				
4/22/2009	XX	GW602B781	LF	493	7.1	8.3	140.1	113.7	26.4	22	0.4		5.1				
7/20/2009	XX	GW602B7AA	LF	661	6.7	16.2	140.1	113.05	27.05	107	0.4		5.3				
10/19/2009	XX	GW602B7F6	LF	1930	6.9	10.6	140.1	110.3	29.8	144	0.2	50.45	0.2				
3/29/2010	XX	GW602B7HI	LF	642	6.9	7.6	140.1	114.2	25.9	11	0.4		0				
7/26/2010	XX	GW602B802	LF	2400	6.7	13.9	140.1	107	33.1	35	3		0				
10/4/2010	XX	GW602B82A	LF	914	6.8	12.8	140.1	113.1	27	54	0.1	50.43	0				
4/12/2011	XX	GW602B8AB	LF	550	7.2	8.3	140.1	115.15	24.95	143	2		0				
7/25/2011	XX	GW602B8E7	LF	1043	6.7	13.3	140.1	108.95	31.15	89	1		2.1				
4/9/2012	XX	GW602B8IE	LF	578	6.9	8.3	140.1	112.42	27.68	152	0.6		2.3				
7/9/2012	XX	GW602B90G	LF	606	6.8	8.9	140.1	112.6	27.5	-15	0.2		1.7				
4/9/2013	XX	GW602B94J	LF	401	6.8	6.7	140.1	114.3	25.8	-92	0.8		0.6				
7/8/2013	XX	GW602B96I	LF	462	7.1	15.7	140.1	111.9	28.2	82	1		1.3				
4/29/2014	XX	GW602B9D1	LF	259	7.3	6.9	140.1	114.24	25.86	172	0.3		2.1				
7/14/2014	XX	GW602B9F2	LF	493	7.2	8.3	140.1	113.05	27.05	79	0.3		0.6				
4/13/2015	XX	GW602BA2G	LF	441	7.2	6.5	140.1	115.69	24.41	148	0.1		0.5				
7/20/2015	XX	GW602BA4J	LF	483	7.4	8.6	140.1	109.74	30.36	137	0.1 U		0.8				
4/25/2016	XX	GW602BAA3	LF	520	7.4	5.7	140.1	113.83	26.27	114	0.1		0.6				
10/18/2016	XX	GW602BADI	LF	660	6.8	9.5	140.1	107.63	32.47	105	0.1	50.45	0.3				
4/24/2017	XX	GW602BAFI	LF	487	7.2	7.2	140.1	113.95	26.15	144	0.1		0.4				
10/3/2017	XX	GW602BAHG	LF	679	7.5	10.4	140.1	108.6	31.5	132	0.1	50.45	0.5				
4/10/2018	XX	GW602BAJE	LF	424	7.4	5.5	140.1	114.91	25.19	267	1.8		0.3				
10/9/2018	XX	GW602BB1E	LF	658	7.6	11.3	140.1	109.25	30.85	217	1	50.45	1.2				
MW02-801A																	
4/30/2008	XX	GW801A709	LF	4370	7.2	10.3	112.9	86.7	26.2	196	3		1.8				
7/22/2008	XX	GW801A730	LF	4530	6.3	17.6	112.9	85.59	27.31	207	2		2.3				
10/8/2008	XX	GW801A75C	LF	4090	6.3	17.1	112.9	86	26.9	261	2	60.8	18.6				
4/22/2009	XX	GW801A783	LF	4080	6.7	10.7	112.9	86.48	26.42	43	2		10				
7/22/2009	XX	GW801A7AC	LF	4450	6.7	13.2	112.9	86.35	26.55	229	1		11				
10/21/2009	XX	GW801A7F8	LF	6490	6.6	15.3	112.9	85.35	27.55	207	2	60.88	3.2				
3/30/2010	XX	GW801A7I0	LF	4170	6.4	7.7	112.9	86.8	26.1	287	2		4.1				
7/28/2010	XX	GW801A804	LF	3850	6.4	18.5	112.9	85.25	27.65	111	2		0.2				
10/4/2010	XX	GW801A82C	LF	4520	6.6	12	112.9	85.15	27.75	152	1	60.85	1.6				
4/11/2011	XX	GW801A89F	LF	4240	7	7.9	112.9	86.95	25.95	134	5		2.5				
7/25/2011	XX	GW801A8DB	LF	3610	6.8	15.3	112.9	85.6	27.3	108	3		2.1				
10/17/2011	XX	GW801A8BD	LF	3880	7.2	13.2	112.9	86.05	26.85	151	0.4	60.88	0.6				
10/17/2011	XX	GW801A8G0					112.9										
4/9/2012	XX	GW801A8HI	LF	3730	6.6	11.9	112.9	86.2	26.7	354	1		2.4				
7/9/2012	XX	GW801A901	LF	3630	6.7	14.6	112.9	86.5	26.4	97	1		2.2				
10/3/2012	XX	GW801A923	LF	4020	6.7	11.8	112.9	85.67	27.23	34	0.6	60.76	0				
4/9/2013	XX	GW801A943	LF	3520	6.4	9.4	112.9	86.85	26.05	234	1		4.4				
7/8/2013	XX	GW801A963	LF	3600	6.7	16.1	112.9	86.25	26.65	111	1		1.5				
10/21/2013	XX	GW801A9A2	LF	3390	7	15.6	112.9	85.6	27.3	135	3	60.88	1.2				
4/28/2014	XX	GW801A9C5	LF	3530	6.5	10.7	112.9	87.5	25.4	188	3		1				
7/14/2014	XX	GW801A9E7	LF	3410	6.7	15.8	112.9	86.24	26.66	142	1		2.2				
9/29/2014	XX	GW801A9G6	LF	3330	7	16.8	112.9	85.15	27.75	95	1	60.88	5.4				
4/13/2015	XX	GW801AA20	LF	3271	6.6	11.2	112.9	87.05	25.85	155	1.6		3.4				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW02-801A) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
7/20/2015	XX	GW801AA44	LF	3044	6.8	11.3	112.9	85.65	27.25	168	0.1		0.8				
10/19/2015	XX	GW801AA6A	LF	3027	6.6	11.2	112.9	85.35	27.55	337	0.5	60.78	1.2				
4/25/2016	XX	GW801AA8B	LF	2776	6.8	11.3	112.9	86.98	25.92	145	0.1		1.3				
10/17/2016	XX	GW801AACC	LF	2876	6.6	14	112.9	84.5	28.4	89	0.3	60.88	1.1				
4/24/2017	XX	GW801AAEC	LF	2537	6.7	11.9	112.9	86.75	26.15	152	0.5		1.3				
10/2/2017	XX	GW801AAGA	LF	2558	7.2	15.6	112.9	84.8	28.1	145	2.5	60.88	1.3				
4/9/2018	XX	GW801AAI8	LF	2568	6.8	10.1	112.9	87.07	25.83	233	1.2		1.1				
10/9/2018	XX	GW801AB08	LF	2870	7	14.1	112.9	84.7	28.2	229	0.4	60.88	1.4				
MW02-801B																	
4/30/2008	XX	GW801B70B	LF	1092	7	10.7	112.61	87.11	25.5	151	4		1.2				
7/22/2008	XX	GW801B732	LF	4530	6.3	11.9	112.61	86.21	26.4	163	0.8		1				
10/8/2008	XX	GW801B75E	LF	950	6.6	12.9	112.61	86.01	26.6	385	0.8	32.98	10.1				
4/22/2009	XX	GW801B785	LF	3260	6.7	10.4	112.61	87.01	25.6	262	3		12.1				
7/22/2009	XX	GW801B7AE	LF	4340	6.4	12	112.61	86.86	25.75	216	1		7.6				
10/21/2009	XX	GW801B7FA	LF	5850	6.7	11.8	112.61	85.61	27	247	1	33.01	6.6				
3/30/2010	XX	GW801B7I2	LF	3660	6.3	9.5	112.61	87.51	25.1	167	1		1.9				
7/28/2010	XX	GW801B806	LF	4210	6.5	18.3	112.61	85.66	26.95	205	2		8.2				
10/4/2010	XX	GW801B82E	LF	4400	6.6	12.4	112.61	85.36	27.25	164	2	32.9	7.2				
4/11/2011	XX	GW801B8B1	LF	2210	7	10.8	112.61	87.31	25.3	148	2		8.5				
7/25/2011	XX	GW801B8EH	LF	2970	6.4	11.9	112.61	86.57	26.04	193	4		8.5				
10/17/2011	XX	GW801B8CJ	LF	4110	6.9	11.9	112.61	86.11	26.5	171	1	32.9	0.5				
4/9/2012	XX	GW801B8J4	LF	3520	6.5	10.5	112.61	86.81	25.8	222	0.6		7.6				
7/9/2012	XX	GW801B916	LF	3470	6.7	11.5	112.61	87.22	25.39	-42	0.6		3.2				
10/3/2012	XX	GW801B936	LF	3960	6.7	11.9	112.61	85.72	26.89	111	0.8	32.94	0				
4/9/2013	XX	GW801B959	LF	3490	6.5	9.3	112.61	87.31	25.3	174	0.8		5.1				
7/8/2013	XX	GW801B978	LF	3340	6.8	16.1	112.61	86.98	25.63	188	6		12.2				
10/21/2013	XX	GW801B9B5	LF	3620	6.8	12.3	112.61	86.26	26.35	134	0.6	32.9	3.5				
4/28/2014	XX	GW801B9DB	LF	3510	6.5	10.1	112.61	87.58	25.03	284	4		3.4				
7/14/2014	XX	GW801B9FC	LF	3570	6.8	12.9	112.61	86.71	25.9	122	1		1.8				
9/29/2014	XX	GW801B9H9	LF	3700	6.8	11.9	112.61	85.79	26.82	141	0.4	33.01	2.7				
4/13/2015	XX	GW801BA35	LF	3320	6.7	11.4	112.61	87.1	25.51	152	3.9		8.5				
7/20/2015	XX	GW801BA59	LF	2927	6.9	11.8	112.61	86.51	26.1	165	0.4		1.6				
10/19/2015	XX	GW801BA7D	LF	2320	6.9	11.1	112.61	85.54	27.07	225	0.3	32.9	0.9				
4/25/2016	XX	GW801BA9D	LF	2820	6.9	11.2	112.61	87.89	24.72	129	0.5		1.4				
10/17/2016	XX	GW801BADC	LF	2732	6.7	12.8	112.61	84.91	27.7	149	0.5	32.9	1.3				
4/24/2017	XX	GW801BAFC	LF	2097	6.8	11.2	112.61	87.11	25.5	139	0.5		1.5				
10/2/2017	XX	GW801BAHA	LF	2307	6.9	12.4	112.61	85.46	27.15	239	0.5	32.9	1.5				
4/9/2018	XX	GW801BAJ8	LF	1402	7.1	11.2	112.61	87.16	25.45	185	1.2		1.1				
10/9/2018	XX	GW801BB18	LF	1686	7.1	14.3	112.61	85.17	27.44	320	3.3	32.9	3.5				
MW03-802A																	
4/29/2008	XX	GW802A70A	LF	866	6.6	7.3	120.72	96.17	24.55	126	1		4.1				
7/22/2008	XX	GW802A731	LF	870	6.6	13.9	120.72	95.22	25.5	144	1		2.4				
10/6/2008	XX	GW802A75D	LF	821	6.7	8.4	120.72	95.4	25.32	135	1	54.53	2.8				
4/21/2009	XX	GW802A784	LF	1017	6.7	6.5	120.72	96.02	24.7	190	1		3				
7/21/2009	XX	GW802A7AD	LF	1014	6.5	13.7	120.72	95.82	24.9	117	1		3.2				
10/19/2009	XX	GW802A7F9	LF	952	7.2	8.6	120.72	94.72	26	131	2	54.55	1.7				
3/30/2010	XX	GW802A7I1	LF	890	6.5	7.8	120.72	96.22	24.5	128	1		0.4				
7/26/2010	XX	GW802A805	LF	1042	6.4	18.4	120.72	94.72	26	25	0.8		2.4				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802A) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
10/4/2010	XX	GW802A82D	LF	1007	6.6	10.1	120.72	94.86	25.86	157	2	54.5	0				
4/11/2011	XX	GW802A89G	LF	876	6.8	8.2	120.72	96.72	24	159	0.4		6				
7/26/2011	XX	GW802A8DC	LF	987	6.8	11.6	120.72	95.07	25.65	155	1		1.6				
10/17/2011	XX	GW802A8BE	LF	959	6.9	10.2	120.72	95.92	24.8	136	0.6	54.5	1.8				
4/9/2012	XX	GW802A8HJ	LF	612	5.9	8.6	120.72	95.72	25	27	2		5				
7/9/2012	XX	GW802A902	LF	859	6.3	13.7	120.72	95.73	24.99	-42	1		0				
10/1/2012	XX	GW802A924	LF	866	6.5	11.8	120.72	94.91	25.81	-27	1	54.43	0				
4/8/2013	XX	GW802A944	LF	712	6.4	9.2	120.72	96.02	24.7	245	1		0.8				
7/8/2013	XX	GW802A964	LF	886	6.5	12.9	120.72	95.62	25.1	46	0.8		0.5				
10/21/2013	XX	GW802A9A3	LF	776	6.5	10.3	120.72	94.98	25.74	66	1	54.5	1.2				
4/28/2014	XX	GW802A9C6	LF	773	6.5	9.2	120.72	96.22	24.5	80	2		1.2				
7/14/2014	XX	GW802A9E8	LF	763	6.3	16	120.72	95.52	25.2	159	0.8		0.8				
9/29/2014	XX	GW802A9G7	LF	837	6.5	11.7	120.72	94.72	26	124	0.8	54.5	0.4				
4/13/2015	XX	GW802AA21	LF	611	6.8	11.8	120.72	96.12	24.6	217	3.6		1.3				
7/20/2015	XX	GW802AA45	LF	689	6.7	15	120.72	95.32	25.4	225	1.4		0.8				
10/20/2015	XX	GW802AA6B	LF	716	6.8	10.1	120.72	94.92	25.8	166	1.5	54.5	0.5				
4/25/2016	XX	GW802AA8C	LF	470	7.4	9.8	120.72	95.92	24.8	266	3.6		1.7				
10/17/2016	XX	GW802AACD	LF	491	7.3	13.4	120.72	93.92	26.8	233	0.6	54.5	3.7				
4/24/2017	XX	GW802AAED	LF	762	6.9	12	120.72	96.12	24.6	166	1.1		0.5				
10/2/2017	XX	GW802AAGB	LF	714	7.1	11.4	120.72	94.22	26.5	195	0.5	54.5	1.1				
4/9/2018	XX	GW802AAI9	LF	540	7.3	7.4	120.72	96.52	24.2	268	7		1.2				
10/9/2018	XX	GW802AB09	LF	525	6.6	16.6	120.72	94.52	26.2	258	2.3	54.49	5.2				
MW03-802B																	
4/29/2008	XX	GW802B6JD	LF	1026	6.2	7.4	122.01	94.11	27.9	248	1		2.1				
7/22/2008	XX	GW802B725	LF	1022	6	12.4	122.01	93.61	28.4	227	1		2.8				
10/6/2008	XX	GW802B74G	LF	961	6	9.1	122.01	93.71	28.3	201	1	34.9	0.7				
4/21/2009	XX	GW802B777	LF	1112	6.2	6.1	122.01	94.16	27.85	183	1		1				
7/21/2009	XX	GW802B79H	LF	1050	6.2	13.7	122.01	93.91	28.1	242	1		2				
10/19/2009	XX	GW802B7EC	LF	880	6.3	7.9	122.01	93.66	28.35	97	2	34.88	2.9				
3/30/2010	XX	GW802B7H4	LF	910	6.1	6.9	122.01	94.01	28	206	1		0				
7/26/2010	XX	GW802B7J9	LF	1130	6.1	15.2	122.01	93.71	28.3	157	2		7.3				
10/4/2010	XX	GW802B81G	LF	927	5.8	9.7	122.01	93.49	28.52	264	2	34.8	0				
4/11/2011	XX	GW802B8AE	LF	958	6.2	8.3	122.01	94.51	27.5	193	0.4		0				
7/26/2011	XX	GW802B8EA	LF	1114	6.1	13.6	122.01	93.96	28.05	258	1		1				
10/17/2011	XX	GW802B8CC	LF	990	6.3	10	122.01	94.16	27.85	87	0.4	34.82	1.6				
4/9/2012	XX	GW802B8IH	LF	1101	6.1	8.6	122.01	93.89	28.12	202	1		5.6				
7/9/2012	XX	GW802B90J	LF	1086	6.3	13.9	122.01	94.08	27.93	215	0.6		2.7				
10/1/2012	XX	GW802B92J	LF	1228	5.9	11.5	122.01	93.8	28.21	-11	1	34.75	0				
4/8/2013	XX	GW802B952	LF	1053	6.5	9.2	122.01	94.06	27.95	175	0.4		0.6				
7/8/2013	XX	GW802B971	LF	1173	6.1	11.2	122.01	94.01	28	204	0.4		2.6				
10/21/2013	XX	GW802B9AI	LF	1198	6.2	10.3	122.01	93.81	28.2	66	1	34.82	0.6				
4/28/2014	XX	GW802B9D4	LF	1077	6.6	9	122.01	99.19	27.82	57	0.4		0.9				
7/14/2014	XX	GW802B9F5	LF	1175	6.5	14	122.01	94.01	28	184	0.4		0.9				
9/29/2014	XX	GW802B9H2	LF	1256	6.1	12.2	122.01	93.81	28.2	141	0.6	34.85	1				
4/13/2015	XX	GW802BA2J	LF	1220	6.6	10.9	122.01	94.01	28	178	1.6		0.7				
7/20/2015	XX	GW802BA52	LF	1323	6.4	13.2	122.01	94.01	28	161	1.4		0.8				
10/20/2015	XX	GW802BA76	LF	1286	6.3	10	122.01	93.89	28.12	144	0.7	34.85	0.2				
4/25/2016	XX	GW802BA97	LF	1135	6.6	10.1	122.01	94.31	27.7	114	0.7		0.4				
10/17/2016	XX	GW802BAD6	LF	1587	6.2	12.5	122.01	93.71	28.3	151	3.6	34.85	6.1				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
4/24/2017	XX	GW802BAF6	LF	1241	6.6	12.4	122.01	94.15	27.8	183	3.2		2				
10/2/2017	XX	GW802BAH4	LF	1176	6.3	11.8	122.01	93.61	28.4	181	5.4	34.84	2.9				
4/9/2018	XX	GW802BAJ2	LF	1131	6.8	7.4	122.01	94.31	27.7	223	4.2		3				
10/9/2018	XX	GW802BB12	LF	1500	6.5	15.4	122.01	93.86	28.15	160	2.7	34.84	3.7				
MW03-803A																	
4/29/2008	XX	GW803A6JE	LF	1010	6.7	7.5	125.76	104.78	20.98	161	3		2.4				
7/22/2008	XX	GW803A726	LF	1095	6.5	12.5	125.76	103.81	21.95	149	0.8		1.7				
10/6/2008	XX	GW803A74H	LF	1005	6.4	9.6	125.76	104.86	20.9	36	0.6	43.92	0.5				
4/21/2009	XX	GW803A778	LF	1245	6.5	6.7	125.76	104.86	20.9	281	0.8		4.9				
7/21/2009	XX	GW803A79I	LF	973	6.6	11.4	125.76	104.66	21.1	268	0.8		1.2				
10/19/2009	XX	GW803A7ED	LF	1155	6.4	6.1	125.76	103.76	22	145	1	43.89	0.2				
3/30/2010	XX	GW803A7H5	LF	781	6.7	7.2	125.76	105.46	20.3	242	1		0				
7/26/2010	XX	GW803A7JA	LF	1305	6.2	12.9	125.76	103.51	22.25	194	0.8		0.6				
10/4/2010	XX	GW803A81H	LF	1131	6.4	10.7	125.76	104.01	21.75	301	1	43.9	0				
4/11/2011	XX	GW803A8AF	LF	809	7	8.6	125.76	105.71	20.05	244	0.6		1.3				
7/26/2011	XX	GW803A8EB	LF	1200	6.4	12.7	125.76	103.97	21.79	339	1		0.5				
10/17/2011	XX	GW803A8CD	LF	1222	6.8	11.2	125.76	104.86	20.9	196	0.6	43.89	1.2				
4/9/2012	XX	GW803A8II	LF	1093	6.3	8.9	125.76	104.53	21.23	276	0.6		0				
7/9/2012	XX	GW803A910	LF	1177	6.6	11.4	125.76	104.62	21.14	289	0.4		0				
10/1/2012	XX	GW803A930	LF	1299	6.4	11.2	125.76	104.05	21.71	273	0.6	42.9	0				
4/8/2013	XX	GW803A953	LF	1019	6.7	9.6	125.76	105.06	20.7	271	0.6		0.4				
7/8/2013	XX	GW803A972	LF	1186	6.1	11.4	125.76	104.46	21.3	308	0.6		0.2				
10/21/2013	XX	GW803A9AJ	LF	1149	6.6	10.8	125.76	103.91	21.85	238	0.6	43.9	2.5				
4/28/2014	XX	GW803A9D5	LF	1312	6.8	9.3	125.76	105.11	20.65	326	0.6		2.2				
7/14/2014	XX	GW803A9F6	LF	1264	6.5	12.4	125.76	104.66	21.1	221	0.6		0.5				
9/29/2014	XX	GW803A9H3	LF	1342	6.5	12.4	125.76	103.56	22.2	350	0.6	43.95	0.1				
4/13/2015	XX	GW803AA30	LF	1268	6.7	8.9	125.76	105.41	20.35	281	1.2		1.2				
7/20/2015	XX	GW803AA53	LF	1343	6.5	12.1	125.76	104.11	21.65	292	2.7		0.2				
10/19/2015	XX	GW803AA77	LF	1343	6.4	9.3	125.76	104.11	21.65	266	2.5	43.95	1				
4/25/2016	XX	GW803AA98	LF	1341	6.5	9.2	125.76	106.06	19.7	319	0.7		2.5				
7/27/2016	XX	GW803AABB	LF	1440	6.5	12.2	125.76	103.76	22	273	1.8		3.5				
10/17/2016	XX	GW803AAD7	LF	1455	6.4	10.6	125.76	102.66	23.1	355	1.8	43.89	3.9				
4/24/2017	XX	GW803AAF7	LF	1691	6.7	9.7	125.76	105.31	20.45	229	4.2		0.3				
10/2/2017	XX	GW803AAH5	LF	1527	6.7	10.1	125.76	102.76	23	341	3.3	43.89	1.1				
4/9/2018	XX	GW803AAJ3	LF	1867	6.8	7.4	125.76	105.56	20.2	218	2.8		0.3				
10/9/2018	XX	GW803AB13	LF	1700	6.7	11.9	125.76	103.08	22.68	290	1.2	43.9	2.3				
MW03-803B																	
4/29/2008	XX	GW803B6JF	LF	1158	6.3	7.6	125.41	102.81	22.6	250	1		0.5				
7/22/2008	XX	GW803B727	LF	1183	6.2	11.7	125.41	102.21	23.2	172	0.6		0.7				
10/6/2008	XX	GW803B74I	LF	1013	6.1	10	125.41	103.21	22.2	129	0.4	30.02	0.4				
4/21/2009	XX	GW803B779	LF	1315	6.2	6.6	125.41	102.96	22.45	177	0.6		0.8				
7/21/2009	XX	GW803B79J	LF	1300	6.1	11.4	125.41	102.76	22.65	152	0.6		0.7				
10/19/2009	XX	GW803B7EE	LF	1175	6.1	7.3	125.41	102.21	23.2	159	2	30	1				
3/30/2010	XX	GW803B7H6	LF	996	6.2	7.3	125.41	104.13	21.28	30	1		1.2				
7/26/2010	XX	GW803B7JB	LF	1443	6.1	12.4	125.41	101.91	23.5	136	0.6		0.5				
10/4/2010	XX	GW803B81I	LF	1437	6.2	10.8	125.41	102.23	23.18	190	2	30	0				
4/11/2011	XX	GW803B89H	LF	1242	6.3	8.9	125.41	103.86	21.55	-29	0.3		0.4				
7/26/2011	XX	GW803B8DD	LF	1403	6.1	11.4	125.41	102.14	23.27	249	1		0.4				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU
(MW03-803B)													
10/17/2011	XX	GW803B8G2					125.41						
10/17/2011	XX	GW803B8BF	LF	1367	6.4	10.9	125.41	103.01	22.4	101	0.3	30	1.2
4/9/2012	XX	GW803B8I0	LF	1269	6.1	9	125.41	102.6	22.81	-25	0.4		0
7/9/2012	XX	GW803B903	LF	1391	6.2	10.7	125.41	102.69	22.72	27	0.4		0
10/1/2012	XX	GW803B925	LF	1415	6.3	11.2	125.41	102.22	23.19	225	0.6	30.08	0
4/8/2013	XX	GW803B945	LF	1348	6.3	9.4	125.41	103.43	21.98	191	0.4		3.1
7/8/2013	XX	GW803B965	LF	1377	5.8	10.6	125.41	102.51	22.9	115	0.8		0.4
10/21/2013	XX	GW803B9A4	LF	1335	6.4	10.6	125.41	102.06	23.35	92	0.6	30.06	0.3
4/28/2014	XX	GW803B9C7	LF	1316	6.4	9.3	125.41	103.51	21.9	46	0.4		2.9
7/14/2014	XX	GW803B9E9	LF	1383	6.1	11.3	125.41	102.71	22.7	156	0.3		0.7
9/29/2014	XX	GW803B9G8	LF	1423	6.2	10.7	125.41	101.81	23.6	183	0.6	30.08	0.2
4/13/2015	XX	GW803BA22	LF	1157	6.3	8.6	125.41	104.03	21.38	107	2.9		3.3
7/20/2015	XX	GW803BA46	LF	1352	6.3	11.8	125.41	102.18	23.23	194	1.7		0.7
10/19/2015	XX	GW803BA6C	LF	1352	6.3	9.8	125.41	102.51	22.9	186	3.3	30.08	1
4/25/2016	XX	GW803BA8D	LF	1390	6.4	9.1	125.41	103.33	22.08	155	0.9		0.6
7/27/2016	XX	GW803BAAI	LF	1480	6.3	12.1	125.41	102.09	23.32	199	2.9		5.7
10/17/2016	XX	GW803BACE	LF	1497	6.3	11.2	125.41	101.21	24.2	204	2.1	30	5.2
4/24/2017	XX	GW803BAEE	LF	1358	6.3	9.4	125.41	103.81	21.6	134	1.9		0.7
10/2/2017	XX	GW803BAGC	LF	1465	6.5	10.7	125.41	101.28	24.13	213	4.3	30	0.9
4/9/2018	XX	GW803BAIA	LF	1502	6.4	8.6	125.41	103.96	21.45	9	3.6		0.9
10/9/2018	XX	GW803BB0A	LF	1507	6.5	11.6	125.41	101.76	23.65	228	3	30.09	2.1
MW03-804A													
4/29/2008	XX	GW804A6JG	LF	808	6.5	7.7	137.51	118.51	19	328	1		0.5
7/22/2008	XX	GW804A728	LF	786	6.5	15.3	137.51	117.23	20.28	361	0.8		0.2
10/7/2008	XX	GW804A74J	LF	643	6.5	12.4	137.51	118.51	19	334	1	54.42	0.6
4/21/2009	XX	GW804A77A	LF	823	6.7	6.7	137.51	118.51	19	348	0.6		0
7/21/2009	XX	GW804A7A0	LF	790	6.7	13.7	137.51	119.01	18.5	385	0.6		0
10/19/2009	XX	GW804A7EF	LF	770	6.4	8.2	137.51	117.56	19.95	291	0.4	54.42	0.8
3/30/2010	XX	GW804A7H7	LF	699	6.4	7	137.51	119.33	18.18	256	0.4		0
7/26/2010	XX	GW804A7JC	LF	786	6.4	14.1	137.51	117.48	20.03	263	0.4		0.6
10/4/2010	XX	GW804A81J	LF	797	6.6	12.7	137.51	119.78	17.73	362	1	54.4	0
4/11/2011	XX	GW804A8AG	LF	693	6.7	9.3	137.51	120.81	16.7	298	0.4		0.5
7/25/2011	XX	GW804A8EC	LF	760	6.5	14.4	137.51	117.65	19.86	314	0.6		2
10/17/2011	XX	GW804A8CE	LF	723	7.3	12.3	137.51	119.91	17.6	405	0.8	54.45	1.3
4/9/2012	XX	GW804A8IJ	LF	597	6.3	8.8	137.51	118.71	18.8	318	1		0.7
7/9/2012	XX	GW804A911	LF	737	6.6	13.2	137.51	120.14	17.37	265	0.4		0
10/1/2012	XX	GW804A931	LF	739	6.5	12.9	137.51	118.15	19.36	245	0.4	54.41	0
4/8/2013	XX	GW804A954	LF	674	6.7	9.9	137.51	119.41	18.1	344	1		0.5
7/8/2013	XX	GW804A973	LF	712	6.5	14.1	137.51	120.29	17.22	336	0.8		1.2
10/21/2013	XX	GW804A9B0	LF	683	6.7	12.9	137.51	118.81	18.7	315	0.6	55.44	0.3
4/28/2014	XX	GW804A9D6	LF	682	6.9	8.9	137.51	120.31	17.2	419	1		0.4
7/14/2014	XX	GW804A9F7	LF	699	6.7	14.8	137.51	120.39	17.12	414	0.6		0.9
9/29/2014	XX	GW804A9H4	LF	781	6.7	11.6	137.51	118.01	19.5	334	0.4	54.44	0
4/13/2015	XX	GW804AA31	LF	697	6.7	12.5	137.51	119.96	17.55	272	1.3		0.7
7/20/2015	XX	GW804AA54	LF	845	6.6	14.6	137.51	119.31	18.2	292	1.3		0.1
10/19/2015	XX	GW804AA78	LF	792	6.6	10.1	137.51	118.81	18.7	255	0.9	54.44	0.05 U
4/25/2016	XX	GW804AA99	LF	854	6.7	11	137.51	121.31	16.2	311	0.8		0.3
10/17/2016	XX	GW804AAD8	LF	1070	6.6	14	137.51	116.61	20.9	261	0.9	54.47	1.4
4/24/2017	XX	GW804AAF8	LF	805	6.6	10.6	137.51	121.01	16.5	236	1.6		0.4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-804A) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
10/2/2017	XX	GW804AAH6	LF	1036	6.8	13.5	137.51	117.01	20.5	245	3.3	54.45	0.7				
4/9/2018	XX	GW804AAJ4	LF	900	6.7	7.6	137.51	121.36	16.15	317	3.3		0.3				
10/9/2018	XX	GW804AB14	LF	896	6.8	14.5	137.51	118.21	19.3	258	1.2	54.43	4.8				
MW-906B																	
4/29/2008	XX	GW906B70D	LF	576	6.9	8.7	125	94.4	30.6	273	1		0.5				
7/22/2008	XX	GW906B734	LF	600	6.8	9.4	125	91.2	33.8	290	3		0				
10/6/2008	XX	GW906B75G	LF	513	6.8	10.1	125	92	33	251	1	40.3	2.6				
4/20/2009	XX	GW906B787	LF	554	6.8	10.1	125	93.8	31.2	291	0.6		1.9				
7/22/2009	XX	GW906B7AG	LF	593	6.8	10.9	125	94.3	30.7	378	0.8		5.5				
10/19/2009	XX	GW906B7FC	LF	968	7.4	9.6	125	92.1	32.9	278	2	40.28	0.4				
3/29/2010	XX	GW906B7I4	LF	645	6.7	8.3	125	93.9	31.1	117	2		2.5				
7/26/2010	XX	GW906B808	LF	608	6.8	10.1	125	91.5	33.5	274	0.8		2.5				
10/4/2010	XX	GW906B82G	LF	697	6.6	9.8	125	91.4	33.6	327	0.8	40.25	0				
4/11/2011	XX	GW906B89J	LF	568	6.8	9.3	125	91.9	33.1	250	0.4		4.8				
7/25/2011	XX	GW906B8DF	LF	529	6.5	10.8	125	92.3	32.7	288	1		1.1				
10/17/2011	XX	GW906B8G4					125										
10/17/2011	XX	GW906B8BH	LF	621	7.9	9.6	125	93.2	31.8	282	2	40.25	1.3				
4/9/2012	XX	GW906B8I2	LF	507	6.6	9.3	125	93.85	31.15	328	1		2.8				
7/9/2012	XX	GW906B905	LF	515	6.6	11	125	94	31	-58	0.4		6.5				
10/2/2012	XX	GW906B927	LF	550	6.6	10	125	91.75	33.25	441	0.6	40.25	3.6				
4/8/2013	XX	GW906B947	LF	512	6.8	9.7	125	92.4	32.6	-46	0.3		1				
7/9/2013	XX	GW906B967	LF	500	6.6	11.1	125	93.55	31.45	212	1		2.8				
10/22/2013	XX	GW906B9A6	LF	466	6.9	10.2	125	92.1	32.9	156	2	40.25	6.9				
4/28/2014	XX	GW906B9C9	LF	513	6.3	9.5	125	93.9	31.1	329	1		2.1				
7/15/2014	XX	GW906B9EB	LF	465	7	10.5	125	93.36	31.64	296	1		1.2				
9/30/2014	XX	GW906B9GA	LF	481	6.9	9.8	125	91.95	33.05	399	3	40.3	0.5				
4/14/2015	XX	GW906BA24	LF	474	6.9	9.8	125	93.65	31.35	380	1.8		0.5				
7/21/2015	XX	GW906BA48	LF	457	7	9.8	125	92.79	32.21	364	0.2		0.3				
10/19/2015	XX	GW906BA6E	LF	451	7	9.4	125	91.84	33.16	269	0.2	40.3	0.4				
4/25/2016	XX	GW906BA8F	LF	427	7.2	9.5	125	94.03	30.97	283	0.4		0.6				
10/17/2016	XX	GW906BACG	LF	469	7	10.2	125	91.3	33.7	306	0.3	40.25	0.3				
4/25/2017	XX	GW906BAEG	LF	382	7	9.6	125	92.87	32.13	307	0.2		0.6				
10/2/2017	XX	GW906BAGE	LF	418	7.4	10.2	125	91.45	33.55	341	1.4	40.25	0.5				
4/9/2018	XX	GW906BAIC	LF	382	7.1	9.4	125	92.8	32.2	273	2		0.3				
10/9/2018	XX	GW906BB0C	LF	455	7	10.5	125	91.3	33.7	405	1.1	40.25	2.3				
MW-916																	
4/30/2008	XX	GW916X70H	LF	1160	6.7	7.6	138.96	100.31	38.65	110	0.4		0.8				
7/21/2008	XX	GW916X738	LF	1398	6.3	9.3	138.96	100.31	38.65	-12	1		0				
10/7/2008	XX	GW916X760	LF	646	6	12.2	138.96	100.11	38.85	242	1	45.42	4.2				
4/20/2009	XX	GW916X78B	LF	948	6	8.5	138.96	101.08	37.88	36	0.4		2.2				
7/21/2009	XX	GW916X7B0	LF	672	6.6	10.4	138.96	99.46	39.5	389	6		8.9				
10/20/2009	XX	GW916X7FG	LF	1626	6.5	8.6	138.96	100.86	38.1	157	0.5	45.44	2.3				
3/31/2010	XX	GW916X7I8	LF	225	7.8	7.2	138.96	101.11	37.85	191	5		2.1				
7/27/2010	XX	GW916X80C	LF	612	5.8	13.8	138.96	99.26	39.7	189	2		6.1				
10/5/2010	XX	GW916X830	LF	1297	6.8	9.6	138.96	99.16	39.8	-16	1	45.44	6.3				
4/12/2011	XX	GW916X89A	LF	763	6.9	9.2	138.96	100.97	37.99	225	1		5.1				
7/26/2011	XX	GW916X8D6	LF	511	6.4	9.8	138.96	101.46	37.5	349	2		0				
10/18/2011	XX	GW916X8B8	LF	335	7.2	9.3	138.96	101.21	37.75	326	1	45.44	2.6				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU
(MW-916)													
10/18/2011	XX	GW916X8FF					138.96						
4/10/2012	XX	GW916X8HD	LF	883	6.8	8.4	138.96	101.61	37.35	186	0.8		4.9
7/10/2012	XX	GW916X8JG	LF	500	6.9	11.3	138.96	101.96	37	213	1		5.4
10/2/2012	XX	GW916X91I	LF	716	6.8	10	138.96	100.66	38.3	190	2	45.45	7.4
4/8/2013	XX	GW916X93I	LF	870	6.6	9.3	138.96	101.56	37.4	239	1		3.5
7/9/2013	XX	GW916X95I	LF	780	6.9	9.1	138.96	101.37	37.59	184	1		10.1
10/22/2013	XX	GW916X99H	LF	480	7.5	10	138.96	101.61	37.35	237	3	45.44	3.2
4/29/2014	XX	GW916X9C0	LF	450	6.2	9.7	138.96	101.36	37.6	317	1		2.6
7/15/2014	XX	GW916X9E2	LF	432	7.2	10.5	138.96	101.6	37.36	271	2		3.1
9/30/2014	XX	GW916X9G1	LF	616	7.3	9.7	138.96	101.15	37.81	233	0.6	45.38	4.2
4/29/2015	XX	GW916XA1F	LF	335	8	9.1	138.96	101.51	37.45	325	10		1.6
7/21/2015	XX	GW916XA3J	LF	415	7.5	10.4	138.96	101.71	37.25	202	0.9		0.4
10/20/2015	XX	GW916XA65	LF	257	7.4	9.5	138.96	100.61	38.35	207	0.4	45.44	0.8
4/26/2016	XX	GW916XA86	LF	386	7.8	8.5	138.96	102.05	36.91	233	3.1		0.4
10/18/2016	XX	GW916XAC7	LF	883	7	9.2	138.96	99.06	39.9	148	0.2	45.44	1.1
4/25/2017	XX	GW916XAE7	LF	571	7.2	9.1	138.96	100.48	38.48	263	0.2		0.2
10/3/2017	XX	GW916XAG5	LF	722	7.3	10.6	138.96	99.01	39.95	111	0.2	45.44	1.2
4/10/2018	XX	GW916XAI3	LF	769	7	8.7	138.96	100.56	38.4	206	2.1		0.8
10/10/2018	XX	GW916XB03	LF	1160	7.2	11	138.96	102.55	36.41	103	0.4	45.39	1.8
MW-917													
4/30/2008	XX	GW917X70I	LF	1473	6.8	7.8	137.99	100.57	37.42	-72	0.3		1.2
7/21/2008	XX	GW917X739	LF	1372	6.6	9.4	137.99	100.54	37.45	110	1		0
10/7/2008	XX	GW917X761	LF	1192	6.6	10.8	137.99	99.89	38.1	342	2	63.75	2
4/20/2009	XX	GW917X78C	LF	1282	6.7	8.6	137.99	101.29	36.7	27	0.6		0
7/21/2009	XX	GW917X7B1	LF	1103	6.5	9.2	137.99	100.24	37.75	132	3		7.3
10/20/2009	XX	GW917X7FH	LF	1815	6.8	8.8	137.99	100.09	37.9	139	1	63.73	0
3/31/2010	XX	GW917X7I9	LF	1298	7	6.7	137.99	101.09	36.9	146	4		1.6
7/27/2010	XX	GW917X80D	LF	1120	6.6	9.6	137.99	99.49	38.5	98	1		0
10/5/2010	XX	GW917X831	LF	1219	7	9	137.99	98.89	39.1	-33	0.2	63.68	0
4/12/2011	XX	GW917X89I	LF	1111	7	8.7	137.99	101.01	36.98	137	0.2		0
7/26/2011	XX	GW917X8DE	LF	1045	6.1	9.8	137.99	101.51	36.48	109	1		0
10/18/2011	XX	GW917X8BG	LF	389	7.4	9.1	137.99	101.19	36.8	170	0.2	63.7	0
10/18/2011	XX	GW917X8G3					137.99						
4/10/2012	XX	GW917X8I1	LF	1067	6.9	8.4	137.99	101.67	36.32	102	0.2		1.6
7/10/2012	XX	GW917X904	LF	990	6.8	9.7	137.99	101.99	36	-183	0.2		1.4
10/2/2012	XX	GW917X926	LF	1116	6.9	9	137.99	100.62	37.37	-55	0.2	63.7	2.4
4/8/2013	XX	GW917X946	LF	1071	6.8	8.9	137.99	101.59	36.4	-187	0.2		0.9
7/9/2013	XX	GW917X966	LF	1017	6.8	9.4	137.99	101.45	36.54	-13	0.2		0.7
10/22/2013	XX	GW917X9A5	LF	960	7.2	8.9	137.99	101.92	36.07	16	0.2	63.7	0.4
4/29/2014	XX	GW917X9C8	LF	1007	6.6	9.3	137.99	101.69	36.3	127	0.2		4.5
7/15/2014	XX	GW917X9EA	LF	962	7	9.9	137.99	101.99	36	40	0.2		0.2
9/30/2014	XX	GW917X9G9	LF	938	7.3	9.3	137.99	101.43	36.56	100	0.2	63.72	0.4
4/14/2015	XX	GW917XA23	LF	956	6.9	9.2	137.99	101.89	36.1	110	3.6		0.3
7/21/2015	XX	GW917XA47	LF	912	7.1	9.1	137.99	102.09	35.9	112	0.1		0.5
10/20/2015	XX	GW917XA6D	LF	354	7.1	8.9	137.99	101.01	36.98	119	0.1	63.7	0.2
4/26/2016	XX	GW917XA8E	LF	867	7.2	8.5	137.99	102.44	35.55	92	0.1		0.2
10/18/2016	XX	GW917XACF	LF	906	7	9.1	137.99	100.49	37.5	107	0.1	63.7	0.2
4/25/2017	XX	GW917XAEF	LF	792	7	8.8	137.99	100.87	37.12	305	0.1		0.2
10/3/2017	XX	GW917XAGD	LF	889	7.1	10.4	137.99	100.49	37.5	116	0.1	63.7	0.1

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW-917) Date	Type	Sample ID	Collection Method -	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Water Level Reference Point Feet	Water Level Elevation Feet	Water Level Depth Feet	Eh mV	Dissolved Oxygen mg/L	Well Depth Feet	Turbidity (field) NTU				
4/10/2018	XX	GW917XAIB	LF	903	7.2	8.7	137.99	100.95	37.04	126	0.6		0.3				
10/10/2018	XX	GW917XB0B	LF	1042	7.2	10.3	137.99	100.1	37.89	114	0.1 U	63.7	0.7				
MW97-123																	
4/28/2008	XX	GW123X6JJ	LF	1343	7.2	8.6	125.72	110.52	15.2	71	0.6		2				
7/21/2008	XX	GW123X72A	LF	1162	7.1	11.3	125.72	106.94	18.78	82	0.4		0.6				
10/6/2008	XX	GW123X752	LF	1007	7	9.9	125.72	110.22	15.5	108	0.4	76.05	0.5				
4/20/2009	XX	GW123X77D	LF	1508	7.2	10.1	125.72	110.72	15	20	0.6		2.1				
7/20/2009	XX	GW123X7A2	LF	1542	7	15.3	125.72	110.56	15.16	121	0.4		0.3				
10/19/2009	XX	GW123X7EI	LF	849	7.5	10.4	125.72	108.99	16.73	65	0.4	76.08	0				
3/31/2010	XX	GW123X7HA	LF	1477	6.9	7.1	125.72	111.48	14.24	195	1		0.4				
7/27/2010	XX	GW123X7JE	LF	923	6.9	11.3	125.72	107.91	17.81	56	0.3		1.3				
10/5/2010	XX	GW123X822	LF	1553	6.9	8.8	125.72	109.38	16.34	200	1	76.1	0				
4/12/2011	XX	GW123X898	LF	1826	7.1	7.5	125.72	111.12	14.6	196	0.3		4.2				
7/26/2011	XX	GW123X8D4	LF	1777	7.2	10.8	125.72	108.45	17.27	154	0.3		0.5				
10/18/2011	XX	GW123X8B6	LF	1697	7.4	10.6	125.72	110.42	15.3	70	0.4	76.08	1.3				
10/18/2011	XX	GW123X8FD					125.72										
4/10/2012	XX	GW123X8HB	LF	1691	7.2	7.2	125.72	110.11	15.61	-7	1		2.7				
7/11/2012	XX	GW123X8JE	LF	1671	7.1	9.8	125.72	109.98	15.74	277	0.2		0				
10/2/2012	XX	GW123X91G	LF	1581	7	10.9	125.72	109.52	16.2	15	0.2	76.08	0				
4/10/2013	XX	GW123X93G	LF	1509	6.8	8.3	125.72	110.71	15.01	142	0.3		7.7				
7/9/2013	XX	GW123X95G	LF	1592	6.8	9.9	125.72	109.85	15.87	7	0.4		2.5				
10/23/2013	XX	GW123X99F	LF	1350	7.4	9.1	125.72	109.17	16.55	94	1	178.6	1				
4/30/2014	XX	GW123X9BI	LF	1414	7	6.3	125.72	110.82	14.9	238	1		4.8				
7/16/2014	XX	GW123X9E0	LF	1356	7.1	10.4	125.72	110.32	15.4	88	0.4		2.2				
10/1/2014	XX	GW123X9FJ	LF	1350	7.3	9.3	125.72	108.6	17.12	124	0.3	178.6	2.5				
4/15/2015	XX	GW123XA1D	LF	867	7.9	7.4	125.72	111.37	14.35	-27	0.1		2.1				
7/22/2015	XX	GW123XA3H	LF	886	7.7	9.5	125.72	109.1	16.62	-62	0.1 U		4.8				
10/21/2015	XX	GW123XA63	LF	1190	7.3	9.2	125.72	109.87	15.85	195	0.3	178.6	1.2				
4/27/2016	XX	GW123XA84	LF	1382	7.2	5.5	125.72	110.77	14.95	155	0.4		5.3				
10/19/2016	XX	GW123XAC5	LF	780	7.2	11.5	125.72	107.82	17.9	113	0.3	178.6	0.2				
4/26/2017	XX	GW123XAE5	LF	1226	7.1	7.6	125.72	110.92	14.8	157	0.6		0.2				
10/4/2017	XX	GW123XAG3	LF	949	7.3	8.9	125.72	108.07	17.65	134	0.2	178.6	0.3				
4/11/2018	XX	GW123XAJH	LF	1363	7.3	6.9	125.72	111.22	14.5	176	1.4		0.3				
10/8/2018	XX	GW123XB01	LF	969	7.3	7.9	125.72	108.32	17.4	124	0.3	178.57	2.4				
MW98-601A																	
4/28/2008	XX	GW601A702	LF	2300	6.5	9.5	118.81	112.48	6.33	253	3		0				
7/21/2008	XX	GW601A72D	LF	2490	6.3	14.5	118.81	110.18	8.63	284	0.4		0				
10/6/2008	XX	GW601A755	LF	1817	6.3	13.4	118.81	111.5	7.31	178	0.4	28.55	0.2				
4/20/2009	XX	GW601A77G	LF	2740	6.5	9.9	118.81	112.66	6.15	299	0.8		0.5				
7/20/2009	XX	GW601A7A5	LF	2780	6.3	15.4	118.81	112.41	6.4	317	0.4		0.2				
10/19/2009	XX	GW601A7F1	LF	2590	6.9	11.9	118.81	110.16	8.65	221	0.4	28.58	0				
3/29/2010	XX	GW601A7HD	LF	2430	6.4	8.7	118.81	112.49	6.32	227	0.6		0.2				
7/27/2010	XX	GW601A7JH	LF	2420	6.3	18.8	118.81	108.37	10.44	351	0.6		0.3				
8/31/2010	XX	GW601A86B	LF	2410	6.3	14.8	118.81	107.78	11.03								
10/5/2010	XX	GW601A825	LF	2370	6.4	13.6	118.81	110.7	8.11	301	0.8	28.49	0				
4/12/2011	XX	GW601A8A9	LF	2490	6.6	10.4	118.81	112.84	5.97	228	0.6		0.2				
7/25/2011	XX	GW601A8E5	LF	2620	6.4	16	118.81	109.11	9.7	318	0.4		0.4				
4/10/2012	XX	GW601A8IC	LF	2400	6.6	10.4	118.81	111.75	7.06	268	0.6		0				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)				
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU				
(MW98-601A)																	
7/10/2012	XX	GW601A90E	LF	2510	6.5	13.2	118.81	111.84	6.97	284	0.3		0				
4/8/2013	XX	GW601A94H	LF	2460	6.6	11.1	118.81	112.51	6.3	273	0.4		0.5				
7/9/2013	XX	GW601A96G	LF	2880	6.4	15.2	118.81	111.21	7.6	280	0.6		0.3				
4/28/2014	XX	GW601A9CJ	LF	2290	6.8	9.7	118.81	112.76	6.05	275	0.8		1.3				
7/15/2014	XX	GW601A9F0	LF	2270	6.5	16.3	118.81	111.91	6.9	171	0.3		0.7				
4/14/2015	XX	GW601AA2E	LF	2225	6.5	12.3	118.81	113.01	5.8	246	3.8		1				
7/21/2015	XX	GW601AA4H	LF	2518	6.5	14	118.81	110.01	8.8	222	4.1		0.9				
4/26/2016	XX	GW601AAA4	LF	2330	6.6	8.8	118.81	112.66	6.15	232	1.4		1				
10/18/2016	XX	GW601AADJ	LF	2371	6.5	13.5	118.81	108.53	10.28	231	2.9	28.58	4				
4/25/2017	XX	GW601AAFJ	LF	2158	6.6	11	118.81	112.81	6	234	2.6		0.7				
10/3/2017	XX	GW601AAHH	LF	2303	6.7	15.7	118.81	109.04	9.77	227	4.6	28.58	0.8				
4/10/2018	XX	GW601AAJF	LF	2174	6.6	8.6	118.81	112.96	5.85	266	5.1		0.5				
10/8/2018	XX	GW601AB1F	LF	2248	6.7	12.9	118.81	109.36	9.45	211	2.6	28.59	1.9				
MW98-601B																	
4/28/2008	XX	GW601B703	LF	1374	6.5	9	118.79	112.47	6.32	85	0.4		0				
7/21/2008	XX	GW601B72E	LF	1490	6.2	15.5	118.79	110.1	8.69	70	0.3		0.7				
10/6/2008	XX	GW601B756	LF	1151	6.1	15	118.79	111.5	7.29	61	0.3	15.02	0.3				
4/20/2009	XX	GW601B77H	LF	1583	6.5	9.6	118.79	112.64	6.15	64	0.2		1.8				
7/20/2009	XX	GW601B7A6	LF	1730	6.4	15.7	118.79	112.44	6.35	60	0.3		0.8				
10/19/2009	XX	GW601B7F2	LF	1557	6.7	12.7	118.79	110.09	8.7	28	0.3	15	0				
3/29/2010	XX	GW601B7HE	LF	1264	6.5	8	118.79	112.49	6.3	-38	0.3		0.3				
7/27/2010	XX	GW601B7JI	LF	1779	6.3	19	118.79	108.35	10.44	158	0.3		0.2				
8/31/2010	XX	GW601B86C	LF	1485	6.2	17.4	118.79	107.82	10.97								
10/5/2010	XX	GW601B826	LF	1645	6.1	15.4	118.79	110.79	8	251	1	15	0				
4/12/2011	XX	GW601B8AA	LF	1591	6.6	9.3	118.79	112.84	5.95	103	0.2		0.5				
7/25/2011	XX	GW601B8E6	LF	1814	6.4	17.8	118.79	109.03	9.76	159	0.3		1.1				
4/10/2012	XX	GW601B8ID	LF	1761	6.6	9.7	118.79	111.77	7.02	65	0		0.5				
7/10/2012	XX	GW601B90F	LF	1506	6.4	14.5	118.79	111.82	6.97	31	0.3		0				
4/8/2013	XX	GW601B94I	LF	1667	6.5	11	118.79	112.59	6.2	117	0.2		2.6				
7/9/2013	XX	GW601B96H	LF	1843	6.3	17.2	118.79	111.36	7.43	400	0.2		0.4				
4/28/2014	XX	GW601B9D0	LF	1488	6.2	9	118.79	112.84	5.95	123	1		0.9				
7/15/2014	XX	GW601B9F1	LF	1333	6.4	17	118.79	111.97	6.82	109	0.2		0.8				
4/14/2015	XX	GW601BA2F	LF	1176	6.5	11	118.79	113.19	5.6	109	3.7		0.4				
7/21/2015	XX	GW601BA4I	LF	1730	6.4	15.9	118.79	110.19	8.6	114	4		0.3				
4/26/2016	XX	GW601BAA2	LF	1354	6.5	8.2	118.79	112.79	6	108	2.4		0.5				
10/18/2016	XX	GW601BADH	LF	1696	6.4	14.7	118.79	108.54	10.25	170	3.1	15.07	3.8				
4/25/2017	XX	GW601BAFH	LF	1419	6.4	11.1	118.79	112.89	5.9	99	4.5		0.8				
10/3/2017	XX	GW601BAHF	LF	1487	6.6	16.5	118.79	108.97	9.82	154	5.5	15.07	0.7				
4/10/2018	XX	GW601BAJD	LF	1500	6.5	8.3	118.79	113.14	5.65	134	6.3		1.6				
10/8/2018	XX	GW601BB1D	LF	1369	6.4	14.3	118.79	109.29	9.5	262	2.9	15.09	1.6				
P-911B																	
8/31/2010	XX	GW911B865		1249	7.1	10.2	105.67										
4/12/2011	XX	GW911B8AD	LF	1207	6.9	8.9	105.67	103.64	2.03	96	0.3		2.4				
7/27/2011	XX	GW911B8E9	LF	1042	6.5	13.1	105.67	100.89	4.78	130	0.6		0.8				
10/19/2011	XX	GW911B8CB	LF	1174	6.7	11.9	105.67	100.77	4.9	104	0.6	22.51	2.8				
4/10/2012	XX	GW911B8IG	LF	1098	6.9	7.4	105.67	102.83	2.84	117	0.3		9.6				
7/10/2012	XX	GW911B90I	LF	1097	6.9	11.1	105.67	102.16	3.51	182	0.2		0				
10/2/2012	XX	GW911B92I	LF	1048	6.8	11.9	105.67	101.7	3.97	73	0.3	22.44	0				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)				
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU				
(P-911B)																	
4/8/2013	XX	GW911B951	LF	993	6.8	7.7	105.67	103.02	2.65	196	0.3		12.2				
7/8/2013	XX	GW911B970	LF	1070	6.6	12.5	105.67	102.47	3.2	106	0.4		6.1				
10/23/2013	XX	GW911B9AH	LF	1086	7.5	9.6	105.67	101.79	3.88	91	0.3	22.53	4.2				
4/30/2014	XX	GW911B9D3	LF	768	7.3	7.1	105.67	103.09	2.58	126	0.4		6.2				
7/16/2014	XX	GW911B9F4	LF	944	6.8	10.4	105.67	102.42	3.25	129	0.3		11.4				
10/1/2014	XX	GW911B9H1	LF	904	7.2	10	105.67	100.87	4.8	157	0.2	22.52	4.1				
4/15/2015	XX	GW911BA2I	LF	959	6.8	7.6	105.67	103.79	1.88	137	0.1		1.1				
7/22/2015	XX	GW911BA51	LF	911	6.9	10.1	105.67	101.58	4.09	118	0.1		8.1				
10/21/2015	XX	GW911BA75	LF	861	7.4	9.2	105.67	101.77	3.9	161	0.6	22.53	2.1				
4/26/2016	XX	GW911BA96	LF	941	7	6.7	105.67	102.74	2.93	129	0.5		2.5				
10/19/2016	XX	GW911BAD5	LF	918	6.8	11.1	105.67	99.85	5.82	127	0.2	22.48	1.5				
4/24/2017	XX	GW911BAF5	LF	884	6.9	7.9	105.67	103.24	2.43	143	0.1		1.2				
10/4/2017	XX	GW911BAH3	LF	887	7.2	10.4	105.67	100.02	5.65	150	0.2	22.48	1.3				
4/11/2018	XX	GW911BAJ1	LF	933	7.1	7	105.67	100.24	5.43	188	2.2		1.5				
10/11/2018	XX	GW911BB11	LF	935	7.1	9.6	105.67	100.59	5.08	301	0.1	22.48	2.1				
P-914A																	
4/28/2008	XX	GW914A70F	LF	775	6.7	9.2	122.51	115.27	7.24	-13	0.8		0				
7/21/2008	XX	GW914A736	LF	750	6.5	11	122.51	114.01	8.5	-64	0.4		0.4				
10/7/2008	XX	GW914A75I	LF	683	6.6	9	122.51	115.13	7.38	-10	0.4	42	0.5				
4/20/2009	XX	GW914A789	LF	819	6.8	9.2	122.51	115.16	7.35	-79	0.8		0.5				
7/20/2009	XX	GW914A7AI	LF	806	6.7	13.1	122.51	115.01	7.5	-70	0.8		0.9				
10/19/2009	XX	GW914A7FE	LF	715	7.3	10.1	122.51	113.66	8.85	-48	0.4	42	0				
3/29/2010	XX	GW914A7I6	LF	689	6.7	8.1	122.51	115.51	7	-48	0.6		0				
7/28/2010	XX	GW914A80A	LF	750	6.8	10.7	122.51	112.96	9.55	-35	0.4		0				
10/5/2010	XX	GW914A82I	LF	728	6.7	11.9	122.51	113.89	8.62	136	0.8	41.95	0				
4/13/2011	XX	GW914A8A0	LF	745	6.7	7.3	122.51	115.58	6.93	49	0.4		0				
7/26/2011	XX	GW914A8DG	LF	726	6.8	10.4	122.51	113.75	8.76	72	0.3		0.2				
10/18/2011	XX	GW914A8BI	LF	730	7	11.1	122.51	115.01	7.5	-39	0.3	42	1.4				
10/18/2011	XX	GW914A8G5					122.51										
4/11/2012	XX	GW914A8I3	LF	737	6.9	7.6	122.51	115.2	7.31	-102	0.4		0				
7/10/2012	XX	GW914A906	LF	769	6.8	9.9	122.51	114.72	7.79	-59	0.3		0				
10/2/2012	XX	GW914A928	LF	722	6.6	9.9	122.51	114.24	8.27	-105	0.4	11.02 M	0				
4/10/2013	XX	GW914A948	LF	730	6.6	8	122.51	115.48	7.03	54	0.3		0.3				
7/8/2013	XX	GW914A968	LF	791	6.6	11.3	122.51	114.88	7.63	-23	0.6		0				
10/22/2013	XX	GW914A9A7	LF	691	6.8	10.5	122.51	114.46	8.05	-49	0.6	12.98	0.1				
4/28/2014	XX	GW914A9CA	LF	747	7.1	7.4	122.51	115.59	6.92	-29	0.4		0.5				
7/14/2014	XX	GW914A9EC	LF	770	6.9	10.7	122.51	115.01	7.5	65	0.3		0.3				
9/29/2014	XX	GW914A9GB	LF	769	6.9	10.9	122.51	113.51	9	45	0.4	13.21	0				
4/13/2015	XX	GW914AA25	LF	683	6.9	10.3	122.51	115.79	6.72	105	0.7		0.7				
7/20/2015	XX	GW914AA49	LF	783	6.8	11.5	122.51	113.85	8.66	169	0.3		0.6				
10/19/2015	XX	GW914AA6F	LF	735	6.8	9.3	122.51	114.23	8.28	167	0.7	13.25	0.05 U				
4/25/2016	XX	GW914AA8G	LF	828	6.9	8	122.51	115.38	7.13	128	0.4		0.1				
10/17/2016	XX	GW914AACH	LF	847	6.8	11	122.51	112.51	10	138	0.4	Q	2.7				
4/24/2017	XX	GW914AAEH	LF	850	6.8	7.9	122.51	115.73	6.78	119	1.2		0.4				
10/2/2017	XX	GW914AAGF	LF	816	6.9	10.4	122.51	112.46	10.05	128	1.8	42.5	5.5				
4/9/2018	XX	GW914AAID	LF	949	6.9	6.1	122.51	115.86	6.65	122	2.9		0.6				
10/11/2018	XX	GW914AB0D	LF	925	6.9	9.3	122.51	113.69	8.82	301	0.1	42.5	0.6				
P-914B																	

SUMMARY REPORT

Groundwater Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(P-914B)

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Well Depth	Turbidity (field)				
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	Feet	NTU				
4/28/2008	XX	GW914B70G	LF	669	6.8	9.9	122.55	115.04	7.51	59	1		3.2				
7/21/2008	XX	GW914B737	LF	599	6.5	14.1	122.55	114.42	8.13	118	1		5.4				
10/7/2008	XX	GW914B75J	LF	584	6.5	9.6	122.55	115.02	7.53	91	1	18.28	4.4				
4/20/2009	XX	GW914B78A	LF	698	6.6	9.6	122.55	115.03	7.52	187	1		3.7				
7/20/2009	XX	GW914B7AJ	LF	655	6.5	11.6	122.55	114.95	7.6	39	1		3.8				
10/19/2009	XX	GW914B7FF	LF	575	7.2	10.8	122.55	113.89	8.66	98	1	18.3	7.4				
3/29/2010	XX	GW914B7I7	LF	572	6.5	7.8	122.55	115.25	7.3	171	1		6.1				
7/28/2010	XX	GW914B80B	LF	616	6.7	13.9	122.55	113.35	9.2	214	1		8.7				
10/5/2010	XX	GW914B82J	LF	622	6.7	11.8	122.55	114.5	8.05	240	1	18.3	26				
4/13/2011	XX	GW914B8AH	LF	599	6.6	6.6	122.55	115.17	7.38	150	1		1.5				
7/26/2011	XX	GW914B8ED	LF	579	6.6	11.1	122.55	113.15	9.4	145	1		1.2				
10/18/2011	XX	GW914B8CF	LF	604	7	12.5	122.55	114.55	8	315	1	18.3	6				
4/11/2012	XX	GW914B8J0	LF	599	6.6	7.3	122.55	114.98	7.57	-41	1		0				
7/10/2012	XX	GW914B912	LF	652	6.7	11.4	122.55	114.81	7.74	291	0.3		1.4				
10/2/2012	XX	GW914B932	LF	606	6.3	10.3	122.55	114.71	7.84	220	0.8	18.29	0				
4/10/2013	XX	GW914B955	LF	595	6.4	9.3	122.55	115.2	7.35	15	2		2.6				
7/8/2013	XX	GW914B974	LF	674	6.3	10.9	122.55	114.84	7.71	109	0.8		0.5				
10/22/2013	XX	GW914B9B1	LF	594	6.7	11.3	122.55	114.68	7.87	93	0.8	18.3	0.9				
4/28/2014	XX	GW914B9D7	LF	633	6.7	6.9	122.55	115.25	7.3	171	0.6		0.6				
7/14/2014	XX	GW914B9F8	LF	654	6.6	10.9	122.55	114.85	7.7	293	0.6		1				
9/29/2014	XX	GW914B9H5	LF	637	6.6	12.2	122.55	114.05	8.5	314	0.6	18.3	2.5				
4/13/2015	XX	GW914BA32	LF	589	6.5	9.2	122.55	115.45	7.1	200	0.7		1.6				
7/20/2015	XX	GW914BA55	LF	691	6.8	12.3	122.55	114.67	7.88	218	0.8		2.1				
10/19/2015	XX	GW914BA79	LF	646	6.6	9.6	122.55	114.62	7.93	226	0.6	18.3	3				
4/25/2016	XX	GW914BA9A	LF	747	6.7	8	122.55	115.11	7.44	211	1		1.4				
10/17/2016	XX	GW914BAD9	LF	772	6.6	11.9	122.55	113.4	9.15	233	0.6	18.3	5.4				
4/24/2017	XX	GW914BAF9	LF	776	6.5	7.6	122.55	115.35	7.2	315	0.5		1.7				
10/2/2017	XX	GW914BAH7	LF	750	6.7	11.5	122.55	113.2	9.35	270	0.7	18.3	1.7				
4/9/2018	XX	GW914BAJ5	LF	918	6.6	5.8	122.55	116.32	6.23	260	3.2		1.4				
10/11/2018	XX	GW914BB15	LF	880	6.9	10.3	122.55	113.91	8.64	447	0.7	18.3	3.5				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

M - Results are missing or not reliable due to a meter malfunction.
Q - An obstruction prevented the collection of data.
U - Not Detected above the laboratory reporting limit.

Sample collection notes:

LF - Low flow sample method used to collect the sample.

SUMMARY REPORT

Groundwater Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(200)

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
200																	
4/30/2008	XX	GW200X700		96.2	236	3.8	122										
4/30/2008	XD	GWDP1X6J0		99.7	234	3.3	126										
7/22/2008	XX	GW200X72B		85.6	205	3.9	60.3										
7/22/2008	XD	GWDP1X71C		88.5	206	4.3	62										
10/7/2008	XX	GW200X753		70.8	220	5.6	44										
10/7/2008	XD	GWDP1X743		74.2	223	2.9	46.3										
4/21/2009	XX	GW200X77E		32.2	271	2.5	23.2										
4/21/2009	XD	GWDP1X76E		29.6	275	2.8	22.5										
7/22/2009	XX	GW200X7A3		40	280	3.8	15.2										
7/22/2009	XD	GWDP1X794		41.8	280	3.7	16.6										
10/20/2009	XX	GW200X7EJ		48.2	277	4.2	39.6										
10/20/2009	XD	GWDP1X7DJ		46.6	275	4.4	40.5										
3/31/2010	XX	GW200X7HB		36.7	260	4	11.1										
3/31/2010	XD	GWDP1X7GB		37.5	259	3.8	11.1										
7/27/2010	XX	GW200X7JF		41.5	226	4.3	19.8										
7/27/2010	XD	GWDP1X7IG		42.3	229	4.3	18.3										
10/5/2010	XX	GW200X823		62.3	272	4.4	27.4										
10/5/2010	XD	GWDP1X813		58.3	274	4.4	28										
4/12/2011	XX	GW200X89B	364	22.1	259	2.7	8.6										
7/27/2011	XX	GW200X8D7	339	27.2	232	4	23.1										
10/17/2011	XX	GW200X8B9	386	32.6	251	5.4	20										
10/17/2011	XD	GWDP1X8BB	400	33.6	251	5.5	20.4										
4/11/2012	XX	GW200X8HE	408	68.7	212	5.7	35.8										
7/11/2012	XX	GW200X8JH	370	36.6	253	4.4	12.3										
10/3/2012	XX	GW200X91J	407	38.3	257	6.2	23.9										
10/3/2012	XD	GWDP1X921	406	32.6	256	6	30.6										
4/10/2013	XX	GW200X93J	284	27.8	203	3.2	4.1										
7/10/2013	XX	GW200X95J	317	26.8	243	4	3.3										
10/23/2013	XX	GW200X99I	304	19.6	237	4.7	3.1										
10/23/2013	XD	GWDP1X9A0	309	18.2	239	4.8	3.7										
4/30/2014	XX	GW200X9C1	236	17.3	186	2.5	6.3										
4/30/2014	XD	GWDP4X9DE	233	22.3	184	2.5	8.6										
7/16/2014	XX	GW200X9E3	296	18.9	225	3.7	6.8										
10/1/2014	XX	GW200X9G2	292	15.4	238	3.9	8.4										
10/1/2014	XD	GWDP1X9G4	294	15	235	4	8.2										
4/15/2015	XX	GW200XA1G	283	14.3	221	2.7	11.1										
4/15/2015	XD	GWDP4XA38	296	12.4	223	2.9	11										
7/22/2015	XX	GW200XA40	295	17.4	235	3.2	9.1										
10/21/2015	XX	GW200XA66	454	32.5	302	3.9	37.5										
10/21/2015	XD	GWDP1XA68	450	32.7	305	4.1	38.3										
4/27/2016	XD	GWDP1XA89	258	12.4	200	2.7	9.4										
4/27/2016	XX	GW200XA87	259	12.5	196	2.4	9.3										
10/19/2016	XX	GW200XAC8	506	20.7	257	4.5	25.2										
4/26/2017	XD	GWDP1XAEA	229	8.3	190	2.3	7.1										
4/26/2017	XX	GW200XAE8	231	8.4	190	2.5	6.9										
10/4/2017	XX	GW200XAG6	323	17	220	3.7	17										
4/11/2018	XD	GWDP1XAI6	232	8.4	190	2.7	6.3										
4/11/2018	XX	GW200XAI4	225	8.3	190	2.6	6.2										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(200) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
10/11/2018	XX	GW200XB04	355	20	260	4	19										
509B																	
8/31/2010	XX	GW509B86F			285		124										
4/11/2011	XX	GW509B899	554	58.2	282	3.9	82.4										
7/27/2011	XX	GW509B8D5	396	30.4	253	0.7 U	13.1										
10/18/2011	XX	GW509B8B7	568	41.6	314	4.6	84.9										
4/10/2012	XX	GW509B8HC	452	41.1	247	3.2	81.2										
7/10/2012	XX	GW509B8JF	468	5	272	3.6	13.8										
10/2/2012	XX	GW509B91H	700	18.6	312	4	172										
4/9/2013	XX	GW509B93H	437	18.3	257	3.3	79.8										
7/9/2013	XX	GW509B95H	435	14	278	3.9	61										
10/22/2013	XX	GW509B99G	516	10.8	297	4.3	68.1										
4/29/2014	XX	GW509B9BJ	482	25	255	2.7	93										
7/15/2014	XX	GW509B9E1	618	16.2	324	3.8	122										
9/30/2014	XX	GW509B9G0	684	11.8	355	3.8	127										
4/14/2015	XX	GW509BA1E	601	23.3	337	3.1	104										
7/21/2015	XX	GW509BA3I	640	15.1	318	3.6	134										
10/20/2015	XX	GW509BA64	601	18.1	317	3.3	121										
4/26/2016	XX	GW509BA85	531	12.9	307	3.4	123										
10/18/2016	XX	GW509BAC6	709	15.8	292	2.5	171										
4/25/2017	XX	GW509BAE6	523	13	310	3.3	110										
10/3/2017	XX	GW509BAG4	632	13	330	3.1	120										
4/10/2018	XX	GW509BAI2	491	6 U	290	3.4	79										
10/11/2018	XX	GW509BB02	682	17	290	2.5	160										
516B-B																	
4/30/2008	XX	GW516B701		35.8	292	2.6	188										
7/22/2008	XX	GW516B72C		28.3	298	3	145										
10/7/2008	XX	GW516B754		28.6	282	1.4 J	152										
4/22/2009	XX	GW516B77F		42.8	278	1.6 J	135										
7/21/2009	XX	GW516B7A4		46.7	275	2.5	153										
10/20/2009	XX	GW516B7F0		31.6	280	1.9 J	156										
3/31/2010	XX	GW516B7HC		32.7	288	2.3	146										
7/28/2010	XX	GW516B7JG		18.9	290	1.6 J	127										
10/5/2010	XX	GW516B824		18.4	287	1.2 J	143										
4/12/2011	XX	GW516B897	599	12.5	291	1.4 J	137										
7/26/2011	XX	GW516B8D3	606	28.6	285	1.2 J	152										
10/17/2011	XX	GW516B8B5	591	15.9	292	1.8 J	125										
4/11/2012	XX	GW516B8HA	587	30.7	289	1.5 J	126										
7/11/2012	XX	GW516B8JD	639	23.6	285	2 U	157										
10/2/2012	XX	GW516B91F	600	5.3	292	2 U	24.5										
4/9/2013	XX	GW516B93F	604	21.7	290	2 U	141										
7/9/2013	XX	GW516B95F	617	24.1	291	2 U	135										
10/22/2013	XX	GW516B99E	608	21.1	298	2 U	128										
4/30/2014	XX	GW516B9BH	588	22.1	326	2 U	144										
7/15/2014	XX	GW516B9DJ	641	20	304	2 U	136										
9/30/2014	XX	GW516B9FI	612	15.9	310	2 U	138										
4/14/2015	XX	GW516BA1C	640	13.7	337	12.3	152										
7/20/2015	XX	GW516BA3G	624	6.7	332	2.3	137										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
(516B-B)																	
10/20/2015	XX	GW516BA62	615	9.8	324	2 U	171										
4/26/2016	XX	GW516BA83	602	14	316	2 U	168										
10/18/2016	XX	GW516BAC4	607	17.4	305	2 U	140										
4/25/2017	XX	GW516BAE4	617	24	320	2 U	170										
10/3/2017	XX	GW516BAG2	617	25	290	2 U	170										
4/10/2018	XX	GW516BAJG	601	10 U	300	2 U	140										
10/8/2018	XX	GW516BB00	617	25	310	2 U	150										
641																	
4/29/2008	XX	GW641X708	1140	129	541	13.4	225										
7/21/2008	XX	GW641X72J	1316	108	662	22.6	262										
10/7/2008	XX	GW641X75B	1219	98.5	680	32.9	273										
4/20/2009	XX	GW641X782	1793	181	551	36.8	581										
7/20/2009	XX	GW641X7AB	1680	213	445	26	604										
10/20/2009	XX	GW641X7F7	1603	103	723	50.9	540										
3/29/2010	XX	GW641X7HJ	1215	100	584	29.4	368										
7/27/2010	XX	GW641X803	925	53.7	560	8.8	144										
10/5/2010	XX	GW641X82B	926	65	523	8.3	154										
4/13/2011	XX	GW641X89C	1018	73.3	610	15.8	211										
7/26/2011	XX	GW641X8D8	912	73.8	516	6	172										
10/19/2011	XX	GW641X8BA	840	60.3	482	9.3	158										
4/10/2012	XX	GW641X8HF	611	73.4	346	7.5	97.8										
7/10/2012	XX	GW641X8JI	529	57.6	306	5.7	62.2										
10/1/2012	XX	GW641X920	2113	26.7	1240	121	502										
11/7/2012	XX	GW641X93E	952	46.3	560	22.8	189										
4/9/2013	XX	GW641X940	714	52.8	403	12.6	137										
7/9/2013	XX	GW641X960	458	39.8	313	5	38.3										
10/21/2013	XX	GW641X99J	723	33.1	520	7.7	42										
4/30/2014	XX	GW641X9C2	675	27.2	464	13.6	85.5										
7/16/2014	XX	GW641X9E4	581	22.5	426	8.1	48.6										
10/1/2014	XX	GW641X9G3	537	38.4	379	5.4	46.6										
4/15/2015	XX	GW641XA1H	660	44.4	402	6.4	112										
7/22/2015	XX	GW641XA41	534	30.6	323	9.8	76.2										
10/20/2015	XX	GW641XA67	510	46.3	306	6.1	85										
4/26/2016	XX	GW641XA88	475	33.5	305	6.1	73										
10/19/2016	XX	GW641XAC9	477	41.5	290	4	70.8										
4/25/2017	XX	GW641XAE9	451	34	310	5.4	64										
10/3/2017	XX	GW641XAG7	496	43	290	3.8	63										
4/10/2018	XX	GW641XAI5	572	33	390	6.2	67										
10/8/2018	XX	GW641XB05	571	42	390	3.3	60										
MW02-801A																	
4/30/2008	XX	GW801A709	2455	16 J	1050	82.8	1420										
4/30/2008	XD	GWDP4X6JI	2507	15.5 J	1047	54.3	1414										
7/22/2008	XX	GW801A730	2645	24.4 J	1090	58.9	1360										
7/22/2008	XD	GWDP2X71D	2513	24.7 J	1050	60.4	1340										
10/8/2008	XX	GW801A75C	2659	11.9 J	1120	66.3	996										
10/8/2008	XD	GWDP4X751	2653	12.1 J	1090	70.5	993										
4/22/2009	XX	GW801A783	2570	9.8 J	1068	58.4	972										
4/22/2009	XD	GWDP4X77C	2559	9.1	1060	58.4	1030										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW02-801A) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
7/22/2009	XX	GW801A7AC	2572	17.9 J	1091	64.2	1270										
7/22/2009	XD	GWDP2X795	2615	17.9 J	1098	64.9	1270										
10/21/2009	XX	GW801A7F8	2542	21 J	1060	50.1	1210										
10/21/2009	XD	GWDP4X7EH	2582	20.4 J	1056	48.9	1220										
3/30/2010	XX	GW801A7I0	2354	11.5 J	1060	56.9	1010										
3/30/2010	XD	GWDP4X7H9	2362	10.8 J	1074	57.8	1030										
7/28/2010	XX	GW801A804	2326	6 U	1094	64.5	1020										
7/28/2010	XD	GWDP2X7IH	2368	6 U	1071	64.5	1180										
10/4/2010	XX	GW801A82C	2465	9 U	1072	52.6	1060										
10/4/2010	XD	GWDP4X821	2387	9 U	1053	52	1060										
4/11/2011	XX	GW801A89F	2168	15.9 J	1036	60.1	1060										
7/25/2011	XX	GW801A8DB	1898	8.8 J	890	33.5	511										
10/17/2011	XX	GW801A8BD	2004	6.8 J	966	51.7	809										
4/9/2012	XX	GW801A8HI	1985	6.7	970	57.8	785										
7/9/2012	XX	GW801A901	2050	14.4	931	46.8	648										
10/3/2012	XX	GW801A923	2054	33.1	925	51.5	880										
4/9/2013	XX	GW801A943	1877	15.6	884	45.5	694										
7/8/2013	XX	GW801A963	1933	20 U	914	46.2	633										
10/21/2013	XX	GW801A9A2	1835	10.1	927	46.5	595										
4/28/2014	XX	GW801A9C5	1780	20 U	918	42.5	605										
7/14/2014	XX	GW801A9E7	1827	30 U	920	45.2	557										
9/29/2014	XX	GW801A9G6	1783	20 U	946	46.5	590										
4/13/2015	XX	GW801AA20	1633	138	888	37.2	454										
7/20/2015	XX	GW801AA44	1609	11.6	854	33.6	475										
10/19/2015	XX	GW801AA6A	1648	40 U	899	36.3	552										
4/25/2016	XX	GW801AA8B	1287	20 U	790	27.7	461										
10/17/2016	XX	GW801AACC	1475	20 U	790	29.4	437										
4/24/2017	XX	GW801AAEC	1369	40 U	840	29	400										
10/2/2017	XX	GW801AAGA	1419	20 U	820	28	470										
4/9/2018	XX	GW801AAI8	1268	20 U	800	22	300										
10/9/2018	XX	GW801AB08	1379	20 U	820	28	380										
MW03-802A																	
4/29/2008	XX	GW802A70A		18.7	405	4.3	66.7										
7/22/2008	XX	GW802A731		15.6	434	2.7	56.8										
10/6/2008	XX	GW802A75D		14.7	419	3.2	58.1										
4/21/2009	XX	GW802A784		14.4	449	2	50.7										
7/21/2009	XX	GW802A7AD		20.3	462	3.8	68.9										
10/19/2009	XX	GW802A7F9		13.8	447	2	57.1										
3/30/2010	XX	GW802A7I1		16.2	438	4	56.6										
7/26/2010	XX	GW802A805		12.4	439	1.8 J	50.4										
10/4/2010	XX	GW802A82D		11	433	2	47.8										
4/11/2011	XX	GW802A89G	447	20.8	361	7.5	24.9										
4/11/2011	XD	GWDP1X89D	362	21.1	284	7.6	12.1										
7/26/2011	XX	GW802A8DC	529	20.7	410	2.7	32.8										
10/17/2011	XX	GW802A8BE	519	15.7	417	2.5	29.9										
4/9/2012	XX	GW802A8HJ	422	15.5	332	2.4	22.1										
4/9/2012	XD	GWDP1X8HG	492	20.7	385	2.3	33.9										
7/9/2012	XX	GW802A902	496	11.7	412	4.2	16.1										
10/1/2012	XX	GW802A924	502	5.3	407	3.7	24.5										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802A) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
4/8/2013	XX	GW802A944	482	8.4	387	2.9	14										
4/8/2013	XD	GWDP1X941	426	16.3	326	3.4	20.8										
7/8/2013	XX	GW802A964	488	11.2	362	2.6	34.8										
7/8/2013	XD	GWDP4X97B	477	11.3	366	2.6	34.5										
10/21/2013	XX	GW802A9A3	474	8	362	2.5	27.2										
4/28/2014	XX	GW802A9C6	330	12.4	278	2.4	9.9										
4/28/2014	XD	GWDP1X9C3	323	11.8	262	2.5	7.2										
7/14/2014	XX	GW802A9E8	454	9.8	373	2.6	11.5										
7/14/2014	XD	GWDP4X9FF	472	10.6	379	2.4	11.7										
9/29/2014	XX	GW802A9G7	479	8.1	394	2.6	24.7										
4/13/2015	XX	GW802AA21	409	12.6	301	3.9	38.1										
4/13/2015	XD	GWDP1XA1I	398	14	267	3.8	41										
7/20/2015	XX	GW802AA45	411	10.3	310	3.2	41										
7/20/2015	XD	GWDP4XA5C	384	11.9	274	3.4	32.3										
10/20/2015	XX	GW802AA6B	443	14	335	2.6	40.1										
4/25/2016	XX	GW802AA8C	268	13.2	196	3.2	14.4										
10/17/2016	XX	GW802AACD	254	10.2	182	2.8	13										
4/24/2017	XX	GW802AAED	422	16	350	3.5	33										
10/2/2017	XX	GW802AAGB	400	15	310	3.9	35										
4/9/2018	XX	GW802AAI9	270	52	220	3.4	17										
10/9/2018	XX	GW802AB09	302	7.8	240	3.9	11										
MW03-802B																	
4/29/2008	XX	GW802B6JD		18	454	4.3	87.3										
7/22/2008	XX	GW802B725		16.2	548	2	62.7										
10/6/2008	XX	GW802B74G		13.1	610	0.9 J	41.8										
4/21/2009	XX	GW802B777		15.6	439	0.9 J	86.5										
7/21/2009	XX	GW802B79H		17.7	405	1.6 J	101										
10/19/2009	XX	GW802B7EC		10.2	452	1.3 J	39.5										
3/30/2010	XX	GW802B7H4		19.6	415	2.1	78.9										
7/26/2010	XX	GW802B7J9		11.5	573	1.2 J	28.6										
10/4/2010	XX	GW802B81G		15	417	3.4	31.5										
4/25/2016	XX	GW802BA97	670	21.2	467	2.2	77.2										
10/17/2016	XX	GW802BAD6	877	5.6	575	8.7	113										
4/24/2017	XX	GW802BAF6	693	22	440	2.3	140										
10/2/2017	XX	GW802BAH4	779	5.9	520	6.4	92										
10/9/2018	XX	GW802BB12	822	20 U	540	7.4	130										
MW03-803A																	
4/29/2008	XX	GW803A6JE		17.6	462	2.5	75.3										
7/22/2008	XX	GW803A726		12.6	380	1.5 J	31.6										
10/6/2008	XX	GW803A74H		13.1	359	3.5	32.4										
4/21/2009	XX	GW803A778		11	333	1.3 J	40.6										
7/21/2009	XX	GW803A79I		13.2	325	1.9 J	45.4										
10/19/2009	XX	GW803A7ED		17	630	3.1	64.7										
3/30/2010	XX	GW803A7H5		11.1	280	1.5 J	71.5										
7/26/2010	XX	GW803A7JA		11.1	485	2	40.7										
10/4/2010	XX	GW803A81H		9.9	443	0.8 J	51.5										
4/25/2016	XX	GW803AA98	950	20 U	254	2 U	365										
7/27/2016	XX	GW803AABB	839	14.5	491	2 U	177										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-803A) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
10/17/2016	XX	GW803AAD7	936	20 U	472	2 U	224										
4/24/2017	XX	GW803AAF7	1178	12	250	2 U	450										
10/2/2017	XX	GW803AAH5	1079	12	460	2 U	240										
10/9/2018	XX	GW803AB13	939	20 U	470	2 U	280										
MW03-803B																	
4/29/2008	XX	GW803B6JF		26.9	580	4	60.9										
7/22/2008	XX	GW803B727		18.7	705	3.3	49.4										
10/6/2008	XX	GW803B74I		20.1	618	5	56.1										
10/6/2008	XD	GWDP2X744		20.1	615	4.1	55.8										
4/21/2009	XX	GW803B779		18	621	2.3	54.3										
7/21/2009	XX	GW803B79J		25.3	640	3.6	57.8										
10/19/2009	XX	GW803B7EE		18.7	637	2.2	44.5										
3/30/2010	XX	GW803B7H6		20.3	490	3.2	31.8										
7/26/2010	XX	GW803B7JB		14.7	736	2.1	44.1										
10/4/2010	XX	GW803B81I		12.6	666	2.9	39.1										
4/11/2011	XX	GW803B89H	801	15.8	618	2.5	50.5										
7/26/2011	XX	GW803B8DD	868	3.5	690	2	61										
10/17/2011	XX	GW803B8BF	881	11.9	703	3.9	44.2										
4/9/2012	XX	GW803B8I0	834	18.8	650	2.7	61.5										
7/9/2012	XX	GW803B903	858	22.8	660	3	62.6										
10/1/2012	XX	GW803B925	927	10.2	691	2.2	63.9										
4/8/2013	XX	GW803B945	912	13.6	682	2.9	44.8										
7/8/2013	XX	GW803B965	830	6.1	640	3.7	42.7										
10/21/2013	XX	GW803B9A4	922	13	683	2.2	59.7										
4/28/2014	XX	GW803B9C7	867	19.8	644	3.2	46.3										
7/14/2014	XX	GW803B9E9	877	21.5	639	3.1	54.2										
9/29/2014	XX	GW803B9G8	917	15.9	668	2.1	60.3										
4/13/2015	XX	GW803BA22	788	18.3	564	2.3	91.7										
7/20/2015	XX	GW803BA46	834	15.7	583	2.6	76.8										
10/19/2015	XX	GW803BA6C	871	18.3	631	2 U	22.5										
4/25/2016	XX	GW803BA8D	908	16.6	536	2.1	130										
7/27/2016	XX	GW803BAAI	839	14.9	614	2.8	94.5										
10/17/2016	XD	GWDP1XACA	855	13.7	629	2 U	84.4										
10/17/2016	XX	GW803BACE	858	13.6	628	2 U	87.9										
4/24/2017	XX	GW803BAEE	825	14	590	2.9	120										
10/2/2017	XD	GWDP1XAG8	917	16	620	2 U	110										
10/2/2017	XX	GW803BAGC	907	4 U	620	2	88										
4/9/2018	XX	GW803BAIA	821	10	530	2.3	84										
10/9/2018	XD	GWDP1XB06	907	13	650	2 U	100										
10/9/2018	XX	GW803BB0A	894	15	650	2.2	41										
MW-906B																	
4/29/2008	XX	GW906B70D	316	41.2	149	2.6	92.1										
7/22/2008	XX	GW906B734	346	20.9	148	3	83.3										
10/6/2008	XX	GW906B75G	295	19.6	140	5.9	75.3										
4/20/2009	XX	GW906B787	360	17.2	150	1.9 J	102										
7/22/2009	XX	GW906B7AG	363	22	154	2	101										
10/19/2009	XX	GW906B7FC	365	19	148	3	118										
3/29/2010	XX	GW906B7I4	353	16.3	161	2.6	92.1										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
(MW-906B)																	
7/26/2010	XX	GW906B808	395	17.2	147	1.4 J	11.3										
10/4/2010	XX	GW906B82G	366	16	132	1.5 J	105										
4/11/2011	XX	GW906B89J	317	12	164	1.7 J	74.8										
7/25/2011	XX	GW906B8DF	326	16.8	151	1.4 J	76.6										
10/17/2011	XX	GW906B8BH	298	10.7	161	1.9 J	48.9										
4/9/2012	XX	GW906B8I2	300	13.9	162	1.2 J	64.4										
7/9/2012	XX	GW906B905	303	12.1	153	2 U	61.5										
10/2/2012	XX	GW906B927	312	11.4	139	2 U	73.2										
4/8/2013	XX	GW906B947	300	11.3	164	2 U	60.2										
7/9/2013	XX	GW906B967	281	9.7	161	2 U	51.5										
10/22/2013	XX	GW906B9A6	290	9.9	160	2 U	48.7										
4/28/2014	XX	GW906B9C9	286	11.6	167	2 U	56										
7/15/2014	XX	GW906B9EB	270	29.5	154	2.2	72.8										
9/30/2014	XX	GW906B9GA	290	10.2	141	2 U	62										
4/14/2015	XX	GW906BA24	281	13.6	160	2 U	41.9										
7/21/2015	XX	GW906BA48	261	9	150	2 U	45.1										
10/19/2015	XX	GW906BA6E	275	13.4	146	2 U	58.3										
4/25/2016	XX	GW906BA8F	238	9.3	152	2 U	41.4										
10/17/2016	XX	GW906BACG	270	11.1	143	2 U	50.8										
4/25/2017	XX	GW906BAEG	223	8.7	150	2.1	42										
10/2/2017	XX	GW906BAGE	241	9.5	140	2 U	52										
4/9/2018	XX	GW906BAIC	211	4 U	140	2.3	27										
10/9/2018	XX	GW906BB0C	231	11	140	2 U	51										
MW-916																	
4/30/2008	XX	GW916X70H		17.5	719	11.2	3.6										
7/21/2008	XX	GW916X738		17.4	868	2.9	7.9										
10/7/2008	XX	GW916X760		17.2	390	7.8	2.1										
4/20/2009	XX	GW916X78B		12.2	604	2.3	2										
7/21/2009	XX	GW916X7B0		9.5	358	7.8	0.9 J										
10/20/2009	XX	GW916X7FG		8.7	583	5.8	1.8										
3/31/2010	XX	GW916X7I8		3.6	121	6.3	0.9 J										
3/31/2010	XD	GWDP2X7GC		3.8	138	5.9	0.9 J										
7/27/2010	XX	GW916X80C		10.6	500	3.9	4										
10/5/2010	XX	GW916X830		9.7	665	1.6 J	4.1										
4/12/2011	XX	GW916X89A	537	14	487	3	1.9										
7/26/2011	XX	GW916X8D6	533	12.5	487	4	2.6										
10/18/2011	XX	GW916X8B8	387	9.1	335	4.8	0.7 J										
4/10/2012	XX	GW916X8HD	600	24.9	548	2.7	3										
7/10/2012	XX	GW916X8JG	419	14.9	385	3.5	2.4										
10/2/2012	XX	GW916X91I	521	22.8	446	4.8	3										
4/8/2013	XX	GW916X93I	563	39.1	498	2.1	3.1										
7/9/2013	XX	GW916X95I	551	51.2	464	2.2	2.7										
10/22/2013	XX	GW916X99H	484	36.5	394	2.8	2.6										
4/29/2014	XX	GW916X9C0	539	45.7	455	3.2	3.7										
7/15/2014	XX	GW916X9E2	463	27.5	394	3.3	3.3										
9/30/2014	XX	GW916X9G1	560	30.6	477	2.2	3.3										
4/29/2015	XX	GW916XA1F	215	7.1	188	5.1	2.4										
7/21/2015	XX	GW916XA3J	478	39	391	2.4	2.5										
10/20/2015	XX	GW916XA65	439	44.7	331	4.7	5.9										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
(MW-916)																	
4/26/2016	XX	GW916XA86	366	27.5	308	3.2	5.9										
10/18/2016	XX	GW916XAC7	283	24.9	229	2.2	2.3										
4/25/2017	XX	GW916XAE7	320	12	300	2.9	1.8										
10/3/2017	XX	GW916XAG5	408	17	350	2.1	2.5										
4/10/2018	XX	GW916XAI3	155	17	130	9.6	1 U										
10/10/2018	XX	GW916XB03	381	72	350	5.6	8.3										
MW-917																	
4/30/2008	XX	GW917X70I	902	21.4	905	14.2	4.4										
7/21/2008	XX	GW917X739	799	12.8	852	2.4	5.6										
10/7/2008	XX	GW917X761	805	12.4	783	3.4	5.2										
4/20/2009	XX	GW917X78C	814	9.7	810	0.7 U	3.7										
7/21/2009	XX	GW917X7B1	715	11	692	2.1	4.3										
10/20/2009	XX	GW917X7FH	742	19.9	725	0.9 J	6										
3/31/2010	XX	GW917X7I9	697	9.3	672	2.2	5										
7/27/2010	XX	GW917X80D	642	5.8	635	0.7 U	5.9										
10/5/2010	XX	GW917X831	631	6.4	617	0.7 U	4.7										
4/12/2011	XX	GW917X89I	641	14	635	0.7 U	5.2										
7/26/2011	XX	GW917X8DE	674	34.9	601	0.7 U	6.7										
10/18/2011	XX	GW917X8BG	716	33.2	637	0.9 J	4.3										
4/10/2012	XX	GW917X8I1	688	45.9	604	0.8 J	5.8										
7/10/2012	XX	GW917X904	655	25.8	584	2 U	6.4										
10/2/2012	XX	GW917X926	685	42.4	591	2 U	5.7										
4/8/2013	XX	GW917X946	669	41.5	591	2 U	5.1										
7/9/2013	XX	GW917X966	606	37.3	535	2 U	4.8										
10/22/2013	XX	GW917X9A5	629	35.4	534	2 U	4.9										
4/29/2014	XX	GW917X9C8	607	47.3	519	2 U	5.7										
7/15/2014	XX	GW917X9EA	589	34.1	504	2 U	5.8										
9/30/2014	XX	GW917X9G9	570	33.8	504	2 U	6.1										
4/14/2015	XX	GW917XA23	554	39.1	491	2 U	9.6										
7/21/2015	XX	GW917XA47	555	35.9	485	2 U	8.5										
10/20/2015	XX	GW917XA6D	529	36	466	2 U	8.9										
4/26/2016	XX	GW917XA8E	498	31.9	432	2 U	9.5										
10/18/2016	XX	GW917XACF	542	38.5	442	2 U	8.6										
4/25/2017	XX	GW917XAEF	488	33	440	2 U	11										
10/3/2017	XX	GW917XAGD	559	58	430	2 U	8.9										
4/10/2018	XX	GW917XAIB	513	11	450	2 U	6.1										
10/10/2018	XX	GW917XB0B	583	71	470	2 U	5.1										
MW97-123																	
4/28/2008	XX	GW123X6JJ	885	281	383	5.5	478										
7/21/2008	XX	GW123X72A	814	99.6	366	5.4	149										
10/6/2008	XX	GW123X752	792	112	348	9.7	157										
4/20/2009	XX	GW123X77D	933	121	398	4.8	226										
7/20/2009	XX	GW123X7A2	989	144	409	6.3	255										
10/19/2009	XX	GW123X7EI	555	62.1	305	3.1	81										
3/31/2010	XX	GW123X7HA	1033	134	428	6.1	257										
7/27/2010	XX	GW123X7JE	591	65	285	4.2	75.9										
10/5/2010	XX	GW123X822	889	89.3	380	4.3	192										
4/12/2011	XX	GW123X898	1070	105	437	6.2	280										

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW97-123) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
7/26/2011	XX	GW123X8D4	1083	163	458	5.7	311										
7/26/2011	XD	GWDP1X8D9	1129	157	465	5.7	301										
10/18/2011	XX	GW123X8B6	1037	73.3	450	6.3	169										
4/10/2012	XX	GW123X8HB	1016	135	448	6.3	255										
7/11/2012	XX	GW123X8JE	1030	138	440	5.7	242										
7/11/2012	XD	GWDP1X8JJ	1025	133	437	5.7	246										
10/2/2012	XX	GW123X91G	1030	98.9	427	5.6	220										
4/10/2013	XX	GW123X93G	966	132	424	5.8	160										
7/9/2013	XX	GW123X95G	929	119	427	5.7	175										
7/9/2013	XD	GWDP1X961	915	119	421	5.8	175										
10/23/2013	XX	GW123X99F	924	131	425	5.5	167										
4/30/2014	XX	GW123X9BI	883	129	411	5.6	195										
7/16/2014	XX	GW123X9E0	889	115	404	5.5	153										
7/16/2014	XD	GWDP1X9E5	897	113	400	5.3	138										
10/1/2014	XX	GW123X9FJ	884	76.2	409	5.2	157										
4/15/2015	XX	GW123XA1D	449	10 U	100	3.1	203										
7/22/2015	XX	GW123XA3H	488	10 U	128	4	205										
7/22/2015	XD	GWDP1XA42	471	10 U	126	3.9	238										
10/21/2015	XX	GW123XA63	796	102	375	4.7	169										
4/27/2016	XX	GW123XA84	814	84.5	390	5	189										
10/19/2016	XX	GW123XAC5	471	27.4	265	3.3	75.7										
4/26/2017	XX	GW123XAE5	823	72	400	5.3	210										
10/4/2017	XX	GW123XAG3	593	42	300	3.8	120										
4/11/2018	XX	GW123XAJH	793	67	390	5.6	170										
10/8/2018	XX	GW123XB01	553	41	320	3.9	96										
P-914A																	
4/28/2008	XX	GW914A70F	466	33.2	313	1.4 J	71.6										
7/21/2008	XX	GW914A736	463	28	299	1.8 J	66.4										
10/7/2008	XX	GW914A75I	488	30.5	296	2	70.8										
4/20/2009	XX	GW914A789	464	25.9	297	0.9 J	58.2										
7/20/2009	XX	GW914A7AI	469	31.5	307	3.3	58.9										
10/19/2009	XX	GW914A7FE	419	26.2	272	0.7 J	62										
3/29/2010	XX	GW914A7I6	453	29	288	2.3	53										
7/28/2010	XX	GW914A80A	433	17.1	265	0.8 J	49.4										
10/5/2010	XX	GW914A82I	417	21.9	242	0.7 U	47.7										
4/13/2011	XX	GW914A8A0	429	27.4	280	0.7 U	49.2										
7/26/2011	XX	GW914A8DG	433	36.2	270	0.7 U	55.5										
10/18/2011	XX	GW914A8BI	437	25.8	272	0.8 J	44.4										
4/11/2012	XX	GW914A8I3	441	37.2	268	0.8 J	49.7										
7/10/2012	XX	GW914A906	429	34.5	275	2 U	59.6										
10/2/2012	XX	GW914A928	450	38.7	244	2 U	57.6										
4/10/2013	XX	GW914A948	448	41.2	265	2 U	57.7										
7/8/2013	XX	GW914A968	439	40.6	267	2 U	53.6										
10/22/2013	XX	GW914A9A7	444	46.2	259	2 U	47.8										
4/28/2014	XX	GW914A9CA	436	51.6	260	2 U	57.1										
7/14/2014	XX	GW914A9EC	460	45.5	260	2 U	54.1										
9/29/2014	XX	GW914A9GB	440	37.1	254	2.2	58										
4/13/2015	XX	GW914AA25	447	62.5	258	2 U	52.1										
7/20/2015	XX	GW914AA49	462	55	252	2 U	68.7										

SUMMARY REPORT

Groundwater Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(P-914A)

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
10/19/2015	XX	GW914AA6F	452	60.9	233	2 U	66.3										
4/25/2016	XX	GW914AA8G	495	61	259	2 U	84.5										
10/17/2016	XX	GW914AACH	463	67.5	210	2 U	81										
4/24/2017	XX	GW914AAEH	503	69	260	2 U	90										
10/2/2017	XX	GW914AAGF	497	74	210	2 U	88										
4/9/2018	XX	GW914AAID	498	130	260	2 U	72										
10/11/2018	XX	GW914AB0D	521	77	200	2 U	110										

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Groundwater Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(200)

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
200																	
4/30/2008	XX	GW200X700	UF LF		105.8		3.45		21.3	2.8		6.8	57.4				
4/30/2008	XD	GWDP1X6J0	UF LF		106		4.05		22	2.93		7.4	61.4				
7/22/2008	XX	GW200X72B	UF LF	0.023	82.9		6.11	0.009	13.9	2.2		7.7	49.2				
7/22/2008	XD	GWDP1X71C	UF LF	0.024	83.9		6.21	0.01	14.3	2.21		7.8	49.2				
10/7/2008	XX	GW200X753	UF LF		80.9		4.23		14.3	1.79		7.3	35.9				
10/7/2008	XD	GWDP1X743	UF LF		83.6		4.36		14.5	1.8		7.6	36.2				
4/21/2009	XX	GW200X77E	UF LF		91.3		3.14		16.4	2.15		4	15.2				
4/21/2009	XD	GWDP1X76E	UF LF		87.3		2.67		16.3	1.85		3.9	14.1				
7/22/2009	XX	GW200X7A3	UF LF	0.031	90.1		3.71	0.002 J	14.4	2.26		4.6	15.8				
7/22/2009	XD	GWDP1X794	UF LF	0.028	86.3		3.8	0.001 U	13.8	2.22		4.5	15.1				
10/20/2009	XX	GW200X7EJ	UF LF		109		4.26		17.1	2.48		5.9	23				
10/20/2009	XD	GWDP1X7DJ	UF LF		105		3.97		16.1	2.36		5.5	22				
3/31/2010	XX	GW200X7HB	UF LF		85.9		1.15		14.3	2.3		3	11.8				
3/31/2010	XD	GWDP1X7GB	UF LF		86.1		1.12		14.3	2.32		3.1	11.9				
7/27/2010	XX	GW200X7JF	UF LF	0.039	82.7		4.75	0.001 U	13.6	2.18		4.6	18.2				
7/27/2010	XD	GWDP1X7IG	UF LF	0.041	79.9		5.67	0.001 U	13.5	2.16		4.7	18.1				
10/5/2010	XX	GW200X823	UF LF		97.1		4.52		15.5	1.63		4.8	20.9				
10/5/2010	XD	GWDP1X813	UF LF		94.9		4.44		15	1.57		4.6	20.2				
4/12/2011	XX	GW200X89B	UF LF		83.5		0.53		14.9			3.1	10.3				
7/27/2011	XX	GW200X8D7	UF LF	0.048	73.2		5.75	0.002 J	12.5	1.81	0.002 U	4.5	13				
10/17/2011	XX	GW200X8B9	UF LF	0.045	86		4.92		12.9			4.5	14.7				
10/17/2011	XX	GW200X8FG	UF LF			0.003 U											
10/17/2011	XD	GWDP1X8BB	UF LF	0.046	87.6		5.14		12.5			4.7	15.1				
10/17/2011	XD	GWDP1X8FI	UF LF			0.003 U											
4/11/2012	XX	GW200X8HE	UF LF	0.028	83.8		3.81		13.9			3.6	20.9				
7/11/2012	XX	GW200X8JH	UF LF	0.027	92.8	0.01 U	2.7	0.003 U	14	1.41	0.005 U	3.6	19.6				
10/3/2012	XX	GW200X91J	UF LF	0.041	96.7		4.91		14			4.4	20.9				
10/3/2012	XD	GWDP1X921	UF LF	0.047	97.6		4.67		14.1			4.4	20.7				
4/10/2013	XX	GW200X93J	UF LF	0.033	69.2		3.12		11.4			3.7	9.9				
7/10/2013	XX	GW200X95J	UF LF	0.043	73.1	0.01 U	4.18	0.003 U	13	1.99	0.005 U	4.3	10.2				
10/23/2013	XX	GW200X99I	UF LF	0.052	73.8		4.8		12.3			4.7	9.9				
10/23/2013	XD	GWDP1X9A0	UF LF	0.05	76		4.87		12.5			4.4	10.8				
4/30/2014	XX	GW200X9C1	UF LF	0.038	60.9		5.26		8.2			3.1	5				
4/30/2014	XD	GWDP4X9DE	UF LF	0.037	63.8		5.48		8.6			3.3	5.5				
7/16/2014	XX	GW200X9E3	UF LF	0.061	70.8	0.01 U	7.29	0.004	10.3	1.46	0.005 U	4.3	9.9				
10/1/2014	XX	GW200X9G2	UF LF	0.058	77.3		6.18		10.2			4.1	7.8				
10/1/2014	XD	GWDP1X9G4	UF LF	0.061	78.3		6.47		10.2			4	7.9				
4/15/2015	XX	GW200XA1G	UF LF	0.05	71.7		9.46		9.4			3.3	9.3				
4/15/2015	XD	GWDP4XA38	UF LF	0.053	71.3		9.24		9.2			3.3	9.2				
7/22/2015	XX	GW200XA40	UF LF	0.042	78.3	0.01 U	5.7	0.003 U	9.3	1.54	0.005 U	3.7	8.5				
10/21/2015	XX	GW200XA66	UF LF	0.061	120		7.84		13			4.5	13.8				
10/21/2015	XD	GWDP1XA68	UF LF	0.061	112		7.77		13			4.5	14				
4/27/2016	XD	GWDP1XA89	UF LF	0.056	63.6		5.22		7.7			3.2	9.6				
4/27/2016	XX	GW200XA87	UF LF	0.057	61		4.93		7.8			3.1	9.6				
10/19/2016	XX	GW200XAC8	UF LF	0.035	90.1	0.01 U	6.96	0.003 U	11.4	1.5	0.005 U	4.7	18.1				
4/26/2017	XD	GWDP1XAEA	UF LF	0.029	52		6.3		7.2			3	5.8				
4/26/2017	XX	GW200XAE8	UF LF	0.025	54		5.2		7.3			3	6				
10/4/2017	XX	GW200XAG6	UF LF	0.043	82	0.01 U	6.6	0.003 U	9.2	1.5	0.005 U	3.9	9				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(200)			Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium				
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Date	Type	Sample ID															
4/11/2018	XD	GWDP1XAI6	UF LF	0.032	70		7.1		7.1			3.2	5.7				
4/11/2018	XX	GW200XAI4	UF LF	0.029	66		8		6.5			3.6	6.1				
10/11/2018	XX	GW200XB04	UF LF	0.043	85	0.01 U	6	0.003 U	8.8	1.5	0.005 U	4.2	9.2				
509B																	
4/11/2011	XX	GW509B899	UF LF		102		0.08		21.2			5.9	38.8				
7/27/2011	XX	GW509B8D5	UF LF	0.021	82.3		0.09	0.001 U	11.3	0.02 U	0.002 U	1.7	22.9				
10/18/2011	XX	GW509B8FE	UF LF			0.008 J											
10/18/2011	XX	GW509B8B7	UF LF	0.024	114		0.04 J		21.3			6.5	40.4				
4/10/2012	XX	GW509B8HC	UF LF	0.013	81.7		0.04 J		18.6			4.9	35.1				
7/10/2012	XX	GW509B8JF	UF LF	0.009	84.5	0.01 U	0.05 U	0.003 U	21.9	6.5	0.005 U	6.7	41				
10/2/2012	XX	GW509B91H	UF LF	0.013	141		0.06		27.2			7.1	52.8				
4/9/2013	XX	GW509B93H	UF LF	0.013	79.2		0.09		20.7			5.3	43.3				
7/9/2013	XX	GW509B95H	UF LF	0.02	80.6	0.01 U	0.18	0.003 U	20.6	6.19	0.005 U	5.7	37.7				
10/22/2013	XX	GW509B99G	UF LF	0.022	99.6		0.11		22.5			6	43.4				
4/29/2014	XX	GW509B9BJ	UF LF	0.021	91.2		0.17		19.8			4.4	38.7				
7/15/2014	XX	GW509B9E1	UF LF	0.023	114	0.01 U	0.28	0.006	23.9	8.45	0.005 U	5.9	53.1				
9/30/2014	XX	GW509B9G0	UF LF	0.031	125		0.22		26.3			6.5	59.7				
4/14/2015	XX	GW509BA1E	UF LF	0.025	110		0.48		25			5.2	53.2				
7/21/2015	XX	GW509BA3I	UF LF	0.033	123	0.01 U	0.43	0.003 U	27.3	8.97	0.005 U	6.4	62.3				
10/20/2015	XX	GW509BA64	UF LF	0.029	94.8		0.2		22.5			5.7	55.6				
4/26/2016	XX	GW509BA85	UF LF	0.063	100		0.85		23.5			4.8	44.4				
10/18/2016	XX	GW509BAC6	UF LF	0.005 U	139	0.01 U	0.58	0.003 U	30.9	10.8	0.005 U	6.7	58.1				
4/25/2017	XX	GW509BAE6	UF LF	0.006	100		1.1		25			4.6	44				
10/3/2017	XX	GW509BAG4	UF LF	0.006	120	0.01 U	0.91	0.003 U	27	10	0.005 U	5.1	44				
4/10/2018	XX	GW509BAI2	UF LF	0.005	99		1.6		22			4.3	43				
10/11/2018	XX	GW509BB02	UF LF	0.005	110	0.01 U	2.2	0.003 U	26	10	0.005 U	4.8	40				
516B-B																	
4/30/2008	XX	GW516B701	UF LF		128.6		0.1		24.5	0.44		3.9	73.3				
7/22/2008	XX	GW516B72C	UF LF	0.002 U	122.9		0.03 J	0.002 J	22.6	0.03 J		2.7	59.1				
10/7/2008	XX	GW516B754	UF LF		119.1		0.07		22.9	0.08		2.4	60.7				
4/22/2009	XX	GW516B77F	UF LF		106.8		0.02 J		22.3	0.45		2.3	65.5				
7/21/2009	XX	GW516B7A4	UF LF	0.004 J	114.3		0.07	0.003	23.1	0.22		2.3	70.6				
10/20/2009	XX	GW516B7F0	UF LF		116		0.03 J		21.7	0.25		2.4	64.9				
3/31/2010	XX	GW516B7HC	UF LF		114		0.02 U		20.7	0.26		2.3	59.7				
7/28/2010	XX	GW516B7JG	UF LF	0.019	108		0.02 U	0.001 U	20.1	0.03 J		2.4	55.5				
10/5/2010	XX	GW516B824	UF LF		108		0.02 U		21.3	0.1		2.2	50.4				
4/12/2011	XX	GW516B897	UF LF		112		0.02 J		22.1			2.5	56.3				
7/26/2011	XX	GW516B8D3	UF LF	0.025	136		0.02 U	0.001 U	27.1	0.06	0.002 U	3	69.1				
10/17/2011	XX	GW516B8B5	UF LF	0.019	115		0.05		20.4			2.4	52.1				
10/17/2011	XX	GW516B8FC	UF LF			0.003 U											
4/11/2012	XX	GW516B8HA	UF LF	0.012	110		0.05 U		21.5			2.6	59.4				
7/11/2012	XX	GW516B8JD	UF LF	0.008	119	0.01 U	0.05 U	0.003 U	23.8	0.05	0.005 U	2.5	57.6				
10/2/2012	XX	GW516B91F	UF LF	0.01	125		0.05 U		22.6			2.3	56.7				
4/9/2013	XX	GW516B93F	UF LF	0.008	109		0.09		24.3			3	65.5				
7/9/2013	XX	GW516B95F	UF LF	0.024	112	0.01 U	0.53	0.003 U	24.2	0.61	0.005	2.9	62.5				
10/22/2013	XX	GW516B99E	UF LF	0.021	125		0.33		23.5			2.5	56.8				
4/30/2014	XX	GW516B9BH	UF LF	0.031	122		1.09		21.7			2.7	84.2				
7/15/2014	XX	GW516B9DJ	UF LF	0.033	118	0.01 U	1.11	0.003 U	21.2	2.16	0.005 U	2.5	61.9				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(516B-B)																	
9/30/2014	XX	GW516B9FI	UF LF	0.033	120		1.21		21.8			2.4	58.1				
4/14/2015	XX	GW516BA1C	UF LF	0.038	125		1.66		22.7			3.1	63.2				
7/20/2015	XX	GW516BA3G	UF LF	0.035	131	0.01 U	0.56	0.003 U	25	2.49	0.005 U	3.2	77.2				
10/20/2015	XX	GW516BA62	UF LF	0.037	126		1.16		21.1			2.6	56.1				
4/26/2016	XX	GW516BA83	UF LF	0.062	122		1.18		22.3			2.7	62.8				
10/18/2016	XX	GW516BAC4	UF LF	0.015	125	0.01 U	1.83	0.003 U	23.5	1.94	0.005 U	3	70.8				
4/25/2017	XX	GW516BAE4	UF LF	0.016	120		2		24			2.6	66				
10/3/2017	XX	GW516BAG2	UF LF	0.01	110	0.01 U	2.9	0.003 U	21	1.4	0.005 U	2.2	66				
4/10/2018	XX	GW516BAJG	UF LF	0.005 U	130		0.51		22			2.8	73				
10/8/2018	XX	GW516BB00	UF LF	0.011	120	0.01 U	3.1	0.003 U	22	1.7	0.005 U	2.4	71				
641																	
4/29/2008	XX	GW641X708	UF LF	0.005 J	181.4	0.119	1.71		46.5	8.46	0.153	41	146.8				
7/21/2008	XX	GW641X72J	UF LF	0.05	186.8	0.066	11.28	0.003 J	46.8	7.57	0.095	36.4	149.9				
10/7/2008	XX	GW641X75B	UF LF	0.049	167	0.006 J	22.56		44	4.7	0.03	44.6	171				
4/20/2009	XX	GW641X782	UF LF	0.103	217	0.007 J	21.51		49.8	4.17	0.03	40.3	213				
7/20/2009	XX	GW641X7AB	UF LF	0.031	234	0.015	21.65	0.003	52.5	4.67	0.032	39	214				
10/20/2009	XX	GW641X7F7	UF LF	0.082	251	0.01	17.3		55.7	3.76	0.055	57.5	336				
3/29/2010	XX	GW641X7HJ	UF LF	0.041	148	0.005 J	12.5		52.7	2.62	0.036	39.2	184				
7/27/2010	XX	GW641X803	UF LF	0.056	155	0.011	9.72	0.001 U	39.7	4.81	0.016	25.6	86.1				
10/5/2010	XX	GW641X82B	UF LF	0.077	175	0.017	11.5		37.1	4.97	0.02	24.5	77.2				
4/13/2011	XX	GW641X89C	UF LF		128		14.3		48.3			34.6	132				
7/26/2011	XX	GW641X8D8	UF LF	0.026	179		15.8	0.001 J	43.9	5.74	0.013	21.9	71.8				
10/19/2011	XX	GW641X8BA	UF LF	0.102	147		13.2		34.2			20.4	62.8				
10/19/2011	XX	GW641X8FH	UF LF			0.006 J											
4/10/2012	XX	GW641X8HF	UF LF	0.022	106		3.19		29.5			16.5	56.2				
7/10/2012	XX	GW641X8JI	UF LF	0.038	89.2	0.01 U	4.58	0.003 U	28.2	1.94	0.005 U	17.1	51.7				
10/1/2012	XX	GW641X920	UF LF	0.052	218		17.8		57.4			61.5	402				
11/7/2012	XX	GW641X93E	UF LF	0.062	126		10.8		48.6			32.3	164				
4/9/2013	XX	GW641X940	UF LF	0.053	92.2		10.7		60.1			32.5	159				
7/9/2013	XX	GW641X960	UF LF	0.044	82.5	0.019	2.16	0.003 U	22.7	2.41	0.012	13.3	37				
10/21/2013	XX	GW641X99J	UF LF	0.07	161		13.4		34.3			16.1	51.2				
4/30/2014	XX	GW641X9C2	UF LF	0.032	141		5.45		26.2			10.7	61.5				
7/16/2014	XX	GW641X9E4	UF LF	0.062	114	0.01 U	7.83	0.004	23.2	3.93	0.005 U	12.3	45.7				
10/1/2014	XX	GW641X9G3	UF LF	0.072	113		9.61		22			10	36				
4/15/2015	XX	GW641XA1H	UF LF	0.054	86.4		5.19		30			14.9	67.5				
7/22/2015	XX	GW641XA41	UF LF	0.036	94.9	0.013	1.59	0.003 U	18.5	1.38	0.019	11	56.3				
10/20/2015	XX	GW641XA67	UF LF	0.043	91.3		2.34		16.8			11.9	53.7				
4/26/2016	XX	GW641XA88	UF LF	0.067	89		3.11		26.2			12.9	53.1				
10/19/2016	XX	GW641XAC9	UF LF	0.013	101	0.01 U	5.42	0.003 U	18.4	1.74	0.005 U	8.7	32.5				
4/25/2017	XX	GW641XAE9	UF LF	0.021	85		3.6		28			12	46				
10/3/2017	XX	GW641XAG7	UF LF	0.013	110	0.01 U	5.4	0.003 U	18	1.9	0.005 U	7.2	27				
4/10/2018	XX	GW641XAI5	UF LF	0.035	99		6.1		36			16	70				
10/8/2018	XX	GW641XB05	UF LF	0.013	140	0.01 U	5	0.003 U	22	2.6	0.005 U	7.8	35				
MW02-801A																	
4/30/2008	XX	GW801A709	UF LF	0.06	252	0.028	11.4		133	9.7	0.185	98	464				
4/30/2008	XD	GWDP4X6JI	UF LF	0.056	238	0.027	10.7		126	9.2	0.177	90.3	438				
7/22/2008	XX	GW801A730	UF LF	0.053	240	0.03	10.3	0.024	128.8	8.44	0.194	92.8	409				
7/22/2008	XD	GWDP2X71D	UF LF	0.064	222	0.029	11.26	0.025	132.1	7.55	0.211	99.5	427				

SUMMARY REPORT
Groundwater Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(MW02-801A)																	
10/8/2008	XX	GW801A75C	UF LF	0.051	206	0.021	9.9		127	7.2	0.198	94	450				
10/8/2008	XD	GWDP4X751	UF LF	0.054	232	0.023	9.3		128.9	7.3	0.201	89	434				
4/22/2009	XX	GW801A783	UF LF	0.063	263	0.023	9.83		120.9	7.5	0.183	90.3	546				
4/22/2009	XD	GWDP4X77C	UF LF	0.064	240	0.022	10.25		121.4	6.55	0.185	96.3	571				
7/22/2009	XX	GW801A7AC	UF LF	0.073	191	0.02	7.21	0.002 J	110.1	6.87	0.183	82.6	321				
7/22/2009	XD	GWDP2X795	UF LF	0.078	199	0.02	7.73	0.001 J	115.3	7.11	0.181	88.9	332				
10/21/2009	XX	GW801A7F8	UF LF	0.105	238	0.025	11.2		130	7.12	0.203	106	515				
10/21/2009	XD	GWDP4X7EH	UF LF	0.108	257	0.026	10.7		125	7.72	0.192	95.1	500				
3/30/2010	XX	GW801A7I0	UF LF	0.133	172	0.021	6.31		101	5.83	0.183	78.7	360				
3/30/2010	XD	GWDP4X7H9	UF LF	0.13	172	0.021	8.71		105	5.94	0.184	83.6	366				
7/28/2010	XX	GW801A804	UF LF	0.118	163	0.022	6.43	0.005	97.9	4.96	0.192	80.3	366				
7/28/2010	XD	GWDP2X7IH	UF LF	0.12	172	0.023	6.81	0.004	104	5.44	0.194	83.9	365				
10/4/2010	XX	GW801A82C	UF LF	0.174	179	0.024	12.5		119	5.82	0.21	99.1	412				
10/4/2010	XD	GWDP4X821	UF LF	0.168	178	0.022	12.9		124	6.68	0.198	97.1	387				
4/11/2011	XX	GW801A89F	UF LF		152		4.17		96			87.4	399				
7/25/2011	XX	GW801A8DB	UF LF	0.052	133		6.61	0.008	89.7	3.93	0.152	90.2	300				
10/17/2011	XX	GW801A8BD	UF LF	0.154	135		11.2		88			91.9	361				
10/17/2011	XX	GW801A8G0	UF LF			0.016											
4/9/2012	XX	GW801A8HI	UF LF	0.069	126		7.69		94.2			97.4	379				
7/9/2012	XX	GW801A901	UF LF	0.082	122	0.05 U	8.6	0.015 U	100	3.3	0.153	97	443				
10/3/2012	XX	GW801A923	UF LF	0.122	151		8.74		98.2			97.5	385				
4/9/2013	XX	GW801A943	UF LF	0.076	146		8.53		114			124	453				
7/8/2013	XX	GW801A963	UF LF	0.141	123	0.018	4.76	0.016	90.9	3.65	0.149	91	366				
10/21/2013	XX	GW801A9A2	UF LF	0.126	126		5.37		94.9			98.5	380				
4/28/2014	XX	GW801A9C5	UF LF	0.089	133		7.61		81.4			82.6	345				
7/14/2014	XX	GW801A9E7	UF LF	0.164	113	0.015	8.66	0.019	70.8	2.9	0.161	81	353				
9/29/2014	XX	GW801A9G6	UF LF	0.205	103		8.56		74.6			80.2	351				
4/13/2015	XX	GW801AA20	UF LF	0.17	107		7.71		64			77.8	350				
7/20/2015	XX	GW801AA44	UF LF	0.183	119	0.011	9.58	0.004	77	2.86	0.119	89.9	304				
10/19/2015	XX	GW801AA6A	UF LF	0.159	101		7.69		68.4			73.2	290				
4/25/2016	XX	GW801AA8B	UF LF	0.256	96.4		8.44		62.2			72.6	237				
10/17/2016	XX	GW801AACC	UF LF	0.034	108	0.01 U	5.15	0.003 U	71.8	2.59	0.114	77.1	265				
4/24/2017	XX	GW801AAEC	UF LF	0.11	97		8		72			86	270				
10/2/2017	XX	GW801AAGA	UF LF	0.075	100	0.01 U	7.8	0.003 U	70	2.6	0.11	78	240				
4/9/2018	XX	GW801AAI8	UF LF	0.088	99		8		64			68	250				
10/9/2018	XX	GW801AB08	UF LF	0.055	100	0.01 U	8.3	0.003 U	65	2.3	0.1	68	220				
MW03-802A																	
4/29/2008	XX	GW802A70A	UF LF		87.6		8.8		50.8	1.25		4.3	38.2				
7/22/2008	XX	GW802A731	UF LF	0.013	93.7		8.88	0.013	50.5	1.23		4.6	37.4				
10/6/2008	XX	GW802A75D	UF LF		93.9		7.3		54.5	1.06		4.7	38				
4/21/2009	XX	GW802A784	UF LF		94.4		7.08		56.9	1.43		4	34.9				
7/21/2009	XX	GW802A7AD	UF LF	0.002 U	102.4		9.51	0.003	49.9	1.6		4.6	40.9				
10/19/2009	XX	GW802A7F9	UF LF		102		8.4		53	1.45		5.1	38.5				
3/30/2010	XX	GW802A7I1	UF LF		93.2		5.91		52.8	1.31		4.2	31.7				
7/26/2010	XX	GW802A805	UF LF	0.042	90.7		6.09	0.003	54	1.34		4.2	32.3				
10/4/2010	XX	GW802A82D	UF LF		99		7.7		56.6	1.33		5	36.1				
4/11/2011	XX	GW802A89G	UF LF		82.1		7.91		48.6			4.2	28.6				
4/11/2011	XD	GWDP1X89D	UF LF		81.6		9.12		39.5			4.1	23				
7/26/2011	XX	GW802A8DC	UF LF		105		5.2		40.9			3.8	23.6				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802A)			Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium				
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Date	Type	Sample ID															
10/17/2011	XX	GW802A8BE	UF LF	0.033	101		3.39		38.1			3.3	24.2				
4/9/2012	XX	GW802A8HJ	UF LF	0.029	84.5		4.26		42.8			3.9	26.5				
4/9/2012	XD	GWDP1X8HG	UF LF	0.03	83.8		4.28		43			3.9	26.2				
7/9/2012	XX	GW802A902	UF LF	0.029	102		8.41		42.5			4.5	24.5				
10/1/2012	XX	GW802A924	UF LF	0.031	106		12		34.9			3.9	19.8				
4/8/2013	XX	GW802A944	UF LF	0.03	73.9		18.4		27.3			3	24.7				
4/8/2013	XD	GWDP1X941	UF LF	0.03	82.4		17.7		29.8			3	27.4				
7/8/2013	XX	GW802A964	UF LF	0.061	85.9		14.7		40.3			3.4	30.8				
7/8/2013	XD	GWDP4X97B	UF LF	0.065	89.4		16.4		35			3.8	27				
10/21/2013	XX	GW802A9A3	UF LF	0.046	90.6		12.1		42.2			3.4	28.9				
4/28/2014	XX	GW802A9C6	UF LF	0.05	90.6		12.3		28.7			2.9	21.6				
4/28/2014	XD	GWDP1X9C3	UF LF	0.051	91.8		10.4		26.3			2.9	19.5				
7/14/2014	XX	GW802A9E8	UF LF	0.042	105		7.93		21.5			1.9	15.3				
7/14/2014	XD	GWDP4X9FF	UF LF	0.038	107		7.89		21.8			2	15.1				
9/29/2014	XX	GW802A9G7	UF LF	0.056	104		9.74		29.9			2.8	21.3				
4/13/2015	XX	GW802AA21	UF LF	0.024	97.9		0.4		14.5			1.3	10.5				
4/13/2015	XD	GWDP1XA1I	UF LF	0.023	105		0.44		14.2			1.3	10				
7/20/2015	XX	GW802AA45	UF LF	0.034	104		0.62		17.1			1.7	11.5				
7/20/2015	XD	GWDP4XA5C	UF LF	0.033	121		1.29		20.6			2.1	13.5				
10/20/2015	XX	GW802AA6B	UF LF	0.038	108		2.25		22			1.9	15				
4/25/2016	XX	GW802AA8C	UF LF	0.034	69.8		0.05		10.7			1.2	10.8				
10/17/2016	XX	GW802AACD	UF LF	0.005 U	66.9	0.01 U	0.05 U	0.003 U	9.2	0.05 U	0.005 U	0.9	12.3				
4/24/2017	XX	GW802AAED	UF LF	0.01	99		0.46		25			2.8	25				
10/2/2017	XX	GW802AAGB	UF LF	0.01	90	0.01 U	1.4	0.003 U	24	0.66	0.005 U	2.6	24				
4/9/2018	XX	GW802AAI9	UF LF	0.005 U	72		0.05 U		9			0.6	11				
10/9/2018	XX	GW802AB09	UF LF	0.005 U	81	0.01 U	0.24	0.003 U	13	0.32	0.005 U	2	12				
MW03-802B																	
4/29/2008	XX	GW802B6JD	UF LF		149		2.28		43.8	27.2		2.2	23.9				
7/22/2008	XX	GW802B725	UF LF	0.006	189.4		4.29	0.008	41.7	35.68		2.1	24				
10/6/2008	XX	GW802B74G	UF LF		171.7		3.24		40.3	27.93		1.8	15.4				
4/21/2009	XX	GW802B777	UF LF		134		1.67		44.6	23.75		1.9	22.2				
7/21/2009	XX	GW802B79H	UF LF	0.002 U	118		1.54	0.003	48.6	14.2		2.1	21.3				
10/19/2009	XX	GW802B7EC	UF LF		120		4.88		31.1	47.1		1.9	22				
3/30/2010	XX	GW802B7H4	UF LF		103		1.62		42.9	14.5		1.9	21.2				
7/26/2010	XX	GW802B7J9	UF LF	0.058	149		9.28	0.009	36.7	36.3		6	21.7				
10/4/2010	XX	GW802B81G	UF LF		107		5.79		34	39.1		1.9	30.3				
7/14/2014	XX	GW802B9F5	UF LF														
4/25/2016	XX	GW802BA97	UF LF	0.146	111	0.023	25.1	0.009	48.7	22.3	0.005 U	2	23				
10/17/2016	XX	GW802BAD6	UF LF	0.058	138	0.01 U	23.6	0.003 U	51.1	8.87	0.029	13.1	71.3				
4/24/2017	XX	GW802BAF6	UF LF	0.006	140	0.019	1.7	0.003 U	57	5	0.005 U	3.1	41				
10/2/2017	XX	GW802BAH4	UF LF	0.029	130	0.01 U	26	0.003 U	45	8.2	0.005 U	9	55				
10/9/2018	XX	GW802BB12	UF LF	0.057	130	0.01 U	32	0.003 U	47	7.2	0.019	11	65				
MW03-803A																	
4/29/2008	XX	GW803A6JE	UF LF		149.2		0.18		37.5	6.4		2.5	12.8				
7/22/2008	XX	GW803A726	UF LF	0.009	113.4		0.03 J	0.001 U	29	1.4		2	9.2				
10/6/2008	XX	GW803A74H	UF LF		136.2		0.09		32.8	6.58		2.3	11.5				
4/21/2009	XX	GW803A778	UF LF		151.4		0.13		38.3	9.5		2	12.2				
7/21/2009	XX	GW803A79I	UF LF	0.002 U	102.6		0.08	0.003	32.3	2.05		1.8	10.1				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(MW03-803A)																	
10/19/2009	XX	GW803A7ED	UF LF		225		0.05		50.7	21.1		2.9	18.1				
3/30/2010	XX	GW803A7H5	UF LF		97		0.02 U		28.8	2.4		1.9	10.4				
7/26/2010	XX	GW803A7JA	UF LF	0.047	169		0.03 J	0.002 J	36.2	6.15		2	11.7				
10/4/2010	XX	GW803A81H	UF LF		174		0.02 U		40.5	4.72		2.2	13.3				
4/25/2016	XX	GW803AA98	UF LF	0.031	151	0.014	0.05	0.003 U	60.8	1.65	0.017	2.9	29.7				
7/27/2016	XX	GW803AABB	UF LF	0.048	172	0.025	0.05 U	0.003 U	49.8	3.13	0.009	2.5	19.2				
10/17/2016	XX	GW803AAD7	UF LF	0.009	222	0.011	0.05 U	0.003 U	58.1	2.29	0.009	2.7	22				
4/24/2017	XX	GW803AAF7	UF LF	0.011	180	0.02	0.05 U	0.003 U	75	2	0.02	3.3	42				
10/2/2017	XX	GW803AAH5	UF LF	0.005 U	200	0.017	0.05 U	0.003 U	59	2.7	0.005 U	2.5	24				
10/9/2018	XX	GW803AB13	UF LF	0.005 U	200	0.01 U	0.13	0.003 U	62	1.4	0.007	2.9	29				
MW03-803B																	
4/29/2008	XX	GW803B6JF	UF LF		206		1.17		27.6	31		1.6	24.6				
7/22/2008	XX	GW803B727	UF LF	0.002 U	230		0.38	0.004	35.7	28.42		1.8	18.7				
10/6/2008	XX	GW803B74I	UF LF		195.5		3.71		27.7	37.34		1.6	23.1				
10/6/2008	XD	GWDP2X744	UF LF		196.7		3.65		27.2	36.5		1.5	22.5				
4/21/2009	XX	GW803B779	UF LF		264		0.48		28.4	48.4		1.2	22.6				
7/21/2009	XX	GW803B79J	UF LF	0.026	186		1.76	0.004	29	37.7		1.4	25.2				
10/19/2009	XX	GW803B7EE	UF LF		261		0.85		36.4	37.8		2.1	20.9				
3/30/2010	XX	GW803B7H6	UF LF		147		4.83		17.9	47.5		1.2	18.4				
7/26/2010	XX	GW803B7JB	UF LF	0.055	227		0.61	0.005	34.9	33.5		1.6	18.8				
10/4/2010	XX	GW803B81I	UF LF		211		4.52		35.6	51.8		1.7	19.7				
4/11/2011	XX	GW803B89H	UF LF		172		1.76		27.8			1.4	18.9				
7/26/2011	XX	GW803B8DD	UF LF	0.118	197		1.39	0.001 U	32.1	43	0.045	1.4	18.5				
10/17/2011	XX	GW803B8BF	UF LF	0.109	199		6.98		28.3			1.5	19.7				
10/17/2011	XX	GW803B8G2	UF LF			0.12											
4/9/2012	XX	GW803B8I0	UF LF	0.062	168		5.72		29.2			1.3	19.8				
7/9/2012	XX	GW803B903	UF LF	0.062	178	0.122	8.4	0.009	33.9	61	0.034	1.5	20.1				
10/1/2012	XX	GW803B925	UF LF	0.055	224		1.04		35.6			1.6	17.7				
4/8/2013	XX	GW803B945	UF LF	0.077	197		9.95		32.3			1.4	21.8				
7/8/2013	XX	GW803B965	UF LF	0.113	176	0.147	16.2	0.014	33.9	70.4	0.022	1.5	18.5				
10/21/2013	XX	GW803B9A4	UF LF	0.082	220		2.21		42.2			1.9	19.4				
4/28/2014	XX	GW803B9C7	UF LF	0.107	172		22.1		30.9			1.4	18.6				
7/14/2014	XX	GW803B9E9	UF LF	0.121	196	0.104	11	0.02	33.7	48.4	0.02	1.4	19.3				
9/29/2014	XX	GW803B9G8	UF LF	0.088	238		1.58		39.7			1.9	18.9				
4/13/2015	XX	GW803BA22	UF LF	0.077	180		8.01		34.8			1.6	18				
7/20/2015	XX	GW803BA46	UF LF	0.087	181	0.077	0.93	0.004	37.6	34.1	0.016	1.7	18.2				
10/19/2015	XX	GW803BA6C	UF LF	0.068	204		2.53		39.6			1.9	16.7				
4/25/2016	XX	GW803BA8D	UF LF	0.181	172		10.1		36.8			1.5	18.6				
7/27/2016	XX	GW803BAAI	UF LF	0.092	204		3.12		37.9			1.6	17.4				
10/17/2016	XD	GWDP1XACA	UF LF	0.005	216	0.056	1.2	0.003 U	46.6	22.4	0.014	2	18.7				
10/17/2016	XX	GW803BACE	UF LF	0.007	223	0.057	1.26	0.003 U	46.9	22.8	0.016	2	18.7				
4/24/2017	XX	GW803BAEE	UF LF	0.051	180		15		42			1.7	23				
10/2/2017	XD	GWDP1XAG8	UF LF	0.012	210	0.055	2.9	0.003 U	46	22	0.005 U	1.9	18				
10/2/2017	XX	GW803BAGC	UF LF	0.015	200	0.058	3	0.003 U	45	22	0.005	1.8	18				
4/9/2018	XX	GW803BAIA	UF LF	0.017	200		6.5		48			1.9	22				
10/9/2018	XD	GWDP1XB06	UF LF	0.01	210	0.062	1.8	0.003 U	48	24	0.008	2	19				
10/9/2018	XX	GW803BB0A	UF LF	0.009	200	0.059	1.8	0.003 U	47	24	0.008	1.9	19				
MW-906B																	

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW-906B)			Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium				
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Date	Type	Sample ID															
4/29/2008	XX	GW906B70D	UF LF	0.003 U	59	0.003 U	0.12		7.7	1.24	0.003 U	1.8	61.9				
7/22/2008	XX	GW906B734	UF LF	0.002 U	55.1	0.003 U	0.18	0.001 J	7.2	1.37	0.002 U	1.3	55.4				
10/6/2008	XX	GW906B75G	UF LF	0.002 U	51.6	0.003 U	0.08		6.9	1.29	0.002 J	1.5	52.9				
4/20/2009	XX	GW906B787	UF LF	0.002 U	59.6	0.003 U	0.06		7.9	1.49	0.002 U	1.2	48				
7/22/2009	XX	GW906B7AG	UF LF	0.003 J	52.5	0.003 U	0.14	0.002 J	7	1.51	0.002 U	1	43.4				
10/19/2009	XX	GW906B7FC	UF LF	0.004 J	59.9	0.003 U	0.1		8	1.34	0.002 J	1.3	59.7				
3/29/2010	XX	GW906B7I4	UF LF	0.007	59	0.003 U	0.05		7.6	1.37	0.002 U	1.2	45.8				
7/26/2010	XX	GW906B808	UF LF	0.014	57.5	0.005 J	1.46	0.002 J	7.6	1.84	0.002 J	1.2	62				
10/4/2010	XX	GW906B82G	UF LF	0.017	51	0.003 U	0.14		7.8	0.82	0.002 U	1.3	75				
4/11/2011	XX	GW906B89J	UF LF		56		0.06		7.5			1.2	41.3				
7/25/2011	XX	GW906B8DF	UF LF	0.016	50.7		0.05	0.003	7.3	1.17	0.002 U	1.2	45.2				
10/17/2011	XX	GW906B8G4	UF LF			0.003 U											
10/17/2011	XX	GW906B8BH	UF LF	0.004 J	51.6		0.06		6.5			1.1	38.5				
4/9/2012	XX	GW906B8I2	UF LF	0.009	47.4		0.02 J		7.1			1.1	39.3				
7/9/2012	XX	GW906B905	UF LF	0.005 U	53.2	0.01 U	0.05 U	0.003 U	8.4	1.98	0.005 U	1.3	45.6				
10/2/2012	XX	GW906B927	UF LF	0.006	45.4		0.05 U		6.3			1.1	48.2				
4/8/2013	XX	GW906B947	UF LF	0.007	54.9		0.05 U		8.1			1.3	42.6				
7/9/2013	XX	GW906B967	UF LF	0.016	47.8	0.01 U	0.05 U	0.003 U	8	1.83	0.005 U	1.3	37.8				
10/22/2013	XX	GW906B9A6	UF LF	0.005 U	57.6		0.22		8.3			1.2	38				
4/28/2014	XX	GW906B9C9	UF LF	0.005 U	55.8		0.1		7.5			1.2	35.8				
7/15/2014	XX	GW906B9EB	UF LF	0.012	49.8	0.01 U	0.05 U	0.003 U	6.8	1.26	0.005 U	1.1	34.3				
9/30/2014	XX	GW906B9GA	UF LF	0.005	43.7		0.18		6.5			1.1	43.3				
4/14/2015	XX	GW906BA24	UF LF	0.005	57.5		0.23		8.1			1.3	36.5				
7/21/2015	XX	GW906BA48	UF LF	0.023	56.5	0.01 U	0.05 U	0.003 U	7.7	0.86	0.005 U	1.2	34.5				
10/19/2015	XX	GW906BA6E	UF LF	0.007	44.1		0.2		6.5			1.3	42.2				
4/25/2016	XX	GW906BA8F	UF LF	0.026	46.9		0.05 U		6.5			1	27.1				
10/17/2016	XX	GW906BACG	UF LF	0.005 U	43.7	0.01 U	0.05 U	0.003 U	6.8	0.55	0.005 U	1.1	39.5				
4/25/2017	XX	GW906BAEG	UF LF	0.008	45		0.05 U		6.9			1	27				
10/2/2017	XX	GW906BAGE	UF LF	0.005 U	47	0.01 U	0.14	0.003 U	6.6	4.2	0.005 U	1	30				
4/9/2018	XX	GW906BAIC	UF LF	0.005 U	44		0.05 U		6.3			0.9	24				
10/9/2018	XX	GW906BB0C	UF LF	0.005 U	42	0.01 U	0.16	0.003 U	6.4	2.9	0.005 U	1	31				
MW-916																	
4/30/2008	XX	GW916X70H	UF LF		167.8		29.3		86.3	4.91		2.6	9.8				
7/21/2008	XX	GW916X738	UF LF	0.072	184.5		32.61	0.005 J	71.7	4.88		2.1	7.6				
10/7/2008	XX	GW916X760	UF LF		114.5		6.37		26.7	2.62		1.4	4.8				
4/20/2009	XX	GW916X78B	UF LF		151.4		24.83		50.2	4.76		2	5.8				
7/21/2009	XX	GW916X7B0	UF LF	0.006	87.4		9.27	0.009	23.5	1.42		2.6	3.4				
10/20/2009	XX	GW916X7FG	UF LF		173		17.4		46.5	3.01		3.2	7.8				
3/31/2010	XX	GW916X7I8	UF LF		31.4		1.1		8.2	0.06		1.3	1.5				
3/31/2010	XD	GWDP2X7GC	UF LF		33.3		1.45		8.8	0.08		1.4	1.6				
7/27/2010	XX	GW916X80C	UF LF	0.04	105		6.63	0.001 J	42.3	1.82		2	6.4				
10/5/2010	XX	GW916X830	UF LF		152		18.6		93.4	3.89		2.4	8.7				
4/12/2011	XX	GW916X89A	UF LF		122		2.86		51.5			2.7	5.7				
7/26/2011	XX	GW916X8D6	UF LF	0.031	118		5.15	0.001 U	47.9	2.73	0.016	2	6.1				
10/18/2011	XX	GW916X8B8	UF LF	0.023	80		0.64		25.4			2.2	3.8				
10/18/2011	XX	GW916X8FF	UF LF			0.003 J											
4/10/2012	XX	GW916X8HD	UF LF	0.021	131		4.16		59.1			2.4	7.4				
7/10/2012	XX	GW916X8JG	UF LF	0.012	84.8	0.01 U	0.33	0.003 U	35.5	0.52	0.005 U	1.9	5.4				
10/2/2012	XX	GW916X91I	UF LF	0.036	106		1.5		49.9			1.9	5.6				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(MW-916)																	
4/8/2013	XX	GW916X93I	UF LF	0.035	111		1.44		66.8			2.5	7.2				
7/9/2013	XX	GW916X95I	UF LF	0.05	105	0.011	1.87	0.004	61.7	1.85	0.005 U	2.5	6.8				
10/22/2013	XX	GW916X99H	UF LF	0.007	93.2		5.31		44.6			2.4	8.8				
4/29/2014	XX	GW916X9C0	UF LF	0.033	84.5		0.96		35.8			2.1	5				
7/15/2014	XX	GW916X9E2	UF LF	0.053	105	0.01 U	1.35	0.006	45.3	1.52	0.006	2.2	6.6				
9/30/2014	XX	GW916X9G1	UF LF	0.016	106		3.44		49.6			2.4	7.4				
4/29/2015	XX	GW916XA1F	UF LF	0.005 U	43		0.87		14.9			1.3	2.5				
7/21/2015	XX	GW916XA3J	UF LF	0.032	97.9	0.01 U	2.15	0.003 U	44.6	1.01	0.005 U	2.5	7.6				
10/20/2015	XX	GW916XA65	UF LF	0.011	70.4		1.06		32.5			7.7	4.7				
4/26/2016	XX	GW916XA86	UF LF	0.008	73.3		2.25		29			3.3	5.2				
10/18/2016	XX	GW916XAC7	UF LF	0.005 U	83.4	0.01 U	0.83	0.003 U	35.5	0.24	0.005 U	3.5	5.8				
4/25/2017	XX	GW916XAE7	UF LF	0.01	76		0.85		27			1.6	4.4				
10/3/2017	XX	GW916XAG5	UF LF	0.005 U	85	0.01 U	0.08	0.003 U	25	0.05	0.005 U	1.6	4				
4/10/2018	XX	GW916XAI3	UF LF	0.005 U	26		1.5		9.2			3.1	1.8				
10/10/2018	XX	GW916XB03	UF LF	0.005 U	79	0.01 U	3.4	0.003 U	22	0.65	0.005 U	2.9	3.4				
MW-917																	
4/30/2008	XX	GW917X70I	UF LF	0.117	169.6	0.008 J	26.6		129	1.68	0.003 U	3.5	11.7				
7/21/2008	XX	GW917X739	UF LF	0.142	173.3	0.022	38.29	0.005 J	114.9	1.64	0.003 U	3.1	10.8				
10/7/2008	XX	GW917X761	UF LF	0.116	142	0.013	31.4		97.8	1.32	0.002 J	2.9	9.5				
4/20/2009	XX	GW917X78C	UF LF	0.184	153.2	0.015	42.12		100.7	1.29	0.004 J	2.7	9.1				
7/21/2009	XX	GW917X7B1	UF LF	0.101	144.2	0.008 J	31.54	0.002 J	89.8	1.27	0.002 J	2.9	9.8				
10/20/2009	XX	GW917X7FH	UF LF	0.182	151	0.011	38.4		100	1.1	0.002 J	3	9.7				
3/31/2010	XX	GW917X7I9	UF LF	0.093	135	0.013	29		94.5	0.98	0.002 U	2.7	9.5				
7/27/2010	XX	GW917X80D	UF LF	0.175	120	0.009 J	24.7	0.002 J	80.5	0.79	0.002 U	2.6	8.7				
10/5/2010	XX	GW917X831	UF LF	0.189	128	0.006 J	25.6		81.7	0.73	0.002 U	2.6	9.2				
4/12/2011	XX	GW917X89I	UF LF		111		20.3		80.4			2.7	8.8				
7/26/2011	XX	GW917X8DE	UF LF	0.092	109		14.7	0.001 U	81.9	0.6	0.004 J	2.6	9.6				
10/18/2011	XX	GW917X8BG	UF LF	0.173	127		18.1		81.1			2.8	8.9				
10/18/2011	XX	GW917X8G3	UF LF			0.003 U											
4/10/2012	XX	GW917X8I1	UF LF	0.16	121		14.9		80.1			2.7	8.9				
7/10/2012	XX	GW917X904	UF LF	0.11	112	0.01 U	15.9	0.003 U	85.8	0.67	0.005 U	3	9.5				
10/2/2012	XX	GW917X926	UF LF	0.161	127		14.2		81.6			2.6	8.7				
4/8/2013	XX	GW917X946	UF LF	0.13	106		14.3		87.1			3.2	10.8				
7/9/2013	XX	GW917X966	UF LF	0.142	100	0.01 U	11.5	0.007	79.4	0.85	0.005 U	2.8	8.8				
10/22/2013	XX	GW917X9A5	UF LF	0.157	113		11.1		75.7			2.5	8.5				
4/29/2014	XX	GW917X9C8	UF LF	0.164	109		9.87		68.6			2.5	8.2				
7/15/2014	XX	GW917X9EA	UF LF	0.162	103	0.01 U	10	0.004	65.1	0.82	0.005 U	2.7	11.8				
9/30/2014	XX	GW917X9G9	UF LF	0.147	103		8.97		64			2.4	8.1				
4/14/2015	XX	GW917XA23	UF LF	0.143	102		8.21		62.2			2.5	8.3				
7/21/2015	XX	GW917XA47	UF LF	0.153	106	0.01 U	8.96	0.003 U	64.2	0.79	0.005 U	2.7	8.4				
10/20/2015	XX	GW917XA6D	UF LF	0.129	94.8		7.81		58.1			2.3	7.5				
4/26/2016	XX	GW917XA8E	UF LF	0.185	91.3		7.12		56.8			2.4	7.5				
10/18/2016	XX	GW917XACF	UF LF	0.104	111	0.01 U	7.75	0.003 U	68.4	0.91	0.005 U	2.9	8.8				
4/25/2017	XX	GW917XAEF	UF LF	0.1	93		7.7		58			2.4	8.2				
10/3/2017	XX	GW917XAGD	UF LF	0.096	110	0.01 U	7.4	0.003 U	62	0.78	0.005 U	2.3	7.5				
4/10/2018	XX	GW917XAIB	UF LF	0.086	100		7.5		57			2.5	8.5				
10/10/2018	XX	GW917XB0B	UF LF	0.11	110	0.01 U	8.1	0.003 U	66	0.95	0.005 U	2.4	8				
MW97-123																	

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(MW97-123)																	
4/28/2008	XX	GW123X6JJ	UF LF	0.004 J	169	0.003 U	1.29		43.2	2.33	0.005 J	3.6	77.1				
7/21/2008	XX	GW123X72A	UF LF	0.004 J	145.5	0.003 U	2.55	0.003 U	37.1	2.17	0.007 J	3.7	64.5				
10/6/2008	XX	GW123X752	UF LF	0.01	150.2	0.003 J	2.89		43.6	1.71	0.01	5.9	66.8				
4/20/2009	XX	GW123X77D	UF LF	0.004 J	174.7	0.003 U	0.45		42.7	2.21	0.013	3.3	74.8				
7/20/2009	XX	GW123X7A2	UF LF	0.002 U	177.4	0.003 U	1.25	0.001 U	44.7	2.28	0.012	3.6	78.9				
10/19/2009	XX	GW123X7EI	UF LF	0.017	108	0.003 U	2.45		27.1	1.81	0.007	4.3	43.5				
3/31/2010	XX	GW123X7HA	UF LF	0.004 J	180	0.003 U	0.16		47.9	2.49	0.011	3.5	79.9				
7/27/2010	XX	GW123X7JE	UF LF	0.026	100	0.003 U	1.77	0.001 U	27.3	1.75	0.004 J	3.6	38.1				
10/5/2010	XX	GW123X822	UF LF	0.029	174	0.003 U	0.47		45.5	2.18	0.007	3.8	75.6				
4/12/2011	XX	GW123X898	UF LF		180		0.22		55.8			4.4	96.3				
7/26/2011	XX	GW123X8D4	UF LF	0.046	181		0.98	0.001 U	58.9	2.81	0.01	4.4	98				
7/26/2011	XD	GWDP1X8D9	UF LF	0.042	177		1.05	0.002 J	59.1	2.82	0.012	4.4	98.8				
10/18/2011	XX	GW123X8B6	UF LF	0.025	192		0.21		52.7			4.1	93.5				
10/18/2011	XX	GW123X8FD	UF LF			0.003 U											
4/10/2012	XX	GW123X8HB	UF LF	0.012	168		0.18		54.4			4.4	102				
7/11/2012	XX	GW123X8JE	UF LF	0.015	177	0.01 U	1.2	0.004	56.6	3.24	0.007	4.3	105				
7/11/2012	XD	GWDP1X8JJ	UF LF	0.016	180	0.01 U	1.23	0.003 U	57.3	3.19	0.006	4.4	107				
10/2/2012	XX	GW123X91G	UF LF	0.024	186		0.39		54.3			4.3	95.5				
4/10/2013	XX	GW123X93G	UF LF	0.024	161		0.95		52.9			4.6	105				
7/9/2013	XX	GW123X95G	UF LF	0.008	158	0.01 U	4.96	0.003	59	3.31	0.013	5	109				
7/9/2013	XD	GWDP1X961	UF LF	0.008	150	0.01 U	4.6	0.003 U	57.4	3.3	0.014	5.5	108				
10/23/2013	XX	GW123X99F	UF LF	0.03	158		0.53		53.1			4.9	102				
4/30/2014	XX	GW123X9BI	UF LF	0.019	149		1.35		44.9			3.8	115				
7/16/2014	XX	GW123X9E0	UF LF	0.032	139	0.01 U	3.35	0.004	42.2	2.65	0.006	4.1	90.7				
7/16/2014	XD	GWDP1X9E5	UF LF	0.034	130	0.01 U	3.14	0.003	40.2	2.47	0.006	3.9	84.2				
10/1/2014	XX	GW123X9FJ	UF LF	0.033	152		1.56		45.3			3.8	84				
4/15/2015	XX	GW123XA1D	UF LF	0.009	35.3		9.38		29.9			3.5	66.1				
7/22/2015	XX	GW123XA3H	UF LF	0.008	44.2	0.01 U	9.13	0.003 U	30.6	0.71	0.005 U	3.2	67.6				
7/22/2015	XD	GWDP1XA42	UF LF	0.009	42.7	0.01 U	9.37	0.003 U	30.8	0.71	0.005 U	3.4	69.1				
10/21/2015	XX	GW123XA63	UF LF	0.032	137		2.21		35.8			3.3	71.7				
4/27/2016	XX	GW123XA84	UF LF	0.078	130		0.78		41.9			3.8	84.1				
10/19/2016	XX	GW123XAC5	UF LF	0.007	88.9	0.01 U	1.84	0.003 U	26.3	1.87	0.005 U	3.5	37.3				
4/26/2017	XX	GW123XAE5	UF LF	0.011	130		1.1		44			4.1	90				
10/4/2017	XX	GW123XAG3	UF LF	0.005	100	0.01 U	2.1	0.003 U	30	1.9	0.005 U	3.3	55				
4/11/2018	XX	GW123XAJH	UF LF	0.005	130		0.98		42			4	92				
10/8/2018	XX	GW123XB01	UF LF	0.005 U	98	0.01 U	1.9	0.003 U	29	2	0.005 U	3.4	57				
P-914A																	
4/28/2008	XX	GW914A70F	UF LF	0.003 J	110.8	0.003 J	0.06		27.4	1.95	0.003 U	1.7	22.9				
7/21/2008	XX	GW914A736	UF LF	0.003 U	103.4	0.003 J	0.06	0.003 U	26.5	2.04	0.003 U	1.5	22.2				
10/7/2008	XX	GW914A75I	UF LF	0.005	101.8	0.003 J	0.12		23.6	1.91	0.004 J	1.5	22.7				
4/20/2009	XX	GW914A789	UF LF	0.004 J	107.5	0.003 U	0.05		25	2.06	0.004 J	1.3	21.4				
7/20/2009	XX	GW914A7AI	UF LF	0.002 U	101	0.003 J	0.2	0.001 U	25.7	1.65	0.004 J	1.4	21				
10/19/2009	XX	GW914A7FE	UF LF	0.013	98.5	0.003 U	0.1		23.7	1.8	0.003 J	1.4	21.9				
3/29/2010	XX	GW914A7I6	UF LF	0.016	96.9	0.003 U	0.04 J		23.7	1.54	0.002 U	1.3	20.1				
7/28/2010	XX	GW914A80A	UF LF	0.019	86.1	0.003 U	0.02 U	0.003	22.5	1.5	0.002 U	1.2	20.4				
10/5/2010	XX	GW914A82I	UF LF	0.014	79.1	0.003 J	0.02 U		21.6	1.49	0.002 U	1.2	20.6				
4/13/2011	XX	GW914A8A0	UF LF		86.4		0.02 U		24.8			1.4	20.1				
7/26/2011	XX	GW914A8DG	UF LF	0.026	86		0.02 U	0.001 U	22.5	1.21	0.002 J	1.2	19.6				
10/18/2011	XX	GW914A8BI	UF LF	0.016	96.4		0.02 J		22.9			1.3	19.8				

SUMMARY REPORT

Groundwater Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(P-914A)

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
10/18/2011	XX	GW914A8G5	UF LF			0.003 J											
4/11/2012	XX	GW914A8I3	UF LF	0.008	91.2		0.05 U		24.1			1.3	21.2				
7/10/2012	XX	GW914A906	UF LF	0.01	95.7	0.01 U	0.05 U	0.003 U	27.5	1.31	0.005 U	1.5	23.4				
10/2/2012	XX	GW914A928	UF LF	0.014	96.4		0.05 U		23			1.3	22.7				
4/10/2013	XX	GW914A948	UF LF	0.013	94.4		0.05 U		24.5			1.4	23.1				
7/8/2013	XX	GW914A968	UF LF	0.025	90.2	0.01 U	0.05 U	0.003 U	27.1	1.38	0.006	2	22.4				
10/22/2013	XX	GW914A9A7	UF LF	0.023	93.4		0.05 U		25.8			1.4	23.5				
4/28/2014	XX	GW914A9CA	UF LF	0.02	96.4		0.05 U		23.3			1.3	21.7				
7/14/2014	XX	GW914A9EC	UF LF	0.027	96	0.01 U	0.05 U	0.003 U	23.8	1.52	0.007	1.3	23.2				
9/29/2014	XX	GW914A9GB	UF LF	0.018	91.9		0.05 U		23			1.3	23				
4/13/2015	XX	GW914AA25	UF LF	0.016	97.8		0.05 U		22.9			1.3	22.7				
7/20/2015	XX	GW914AA49	UF LF	0.021	102	0.01 U	0.05 U	0.003 U	25.4	1.67	0.005 U	1.4	24				
10/19/2015	XX	GW914AA6F	UF LF	0.023	88.7		0.05 U		22.7			1.3	23.6				
4/25/2016	XX	GW914AA8G	UF LF	0.05	104		0.05 U		25.7			1.4	22.8				
10/17/2016	XX	GW914AACH	UF LF	0.005 U	91.6	0.01 U	0.05 U	0.003 U	23.2	2.04	0.005 U	1.4	27.7				
4/24/2017	XX	GW914AAEH	UF LF	0.005 U	92		0.05 U		28			1.4	26				
10/2/2017	XX	GW914AAGF	UF LF	0.005 U	96	0.01 U	0.05 U	0.003 U	24	2	0.005 U	1.3	27				
4/9/2018	XX	GW914AAID	UF LF	0.005 U	110		0.05 U		28			1.4	29				
10/11/2018	XX	GW914AB0D	UF LF	0.005 U	95	0.01 U	0.05 U	0.003 U	23	2.2	0.005 U	1.2	31				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Groundwater VOAs Part 1 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(641) Date	Type	Sample ID	Analytical Method (VOA) -	Chloromethane ug/L	Bromomethane ug/L	Vinyl Chloride ug/L	Chloroethane ug/L	Methylene Chloride ug/L	Acetone ug/L	Carbon Disulfide ug/L	1,1-Dichloroethene ug/L	1,1-Dichloroethane ug/L	trans-1,2-Dichloroethene ug/L	Chloroform ug/L	1,2-Dichloroethane ug/L	Methyl Ethyl Ketone ug/L	1,1,1-Trichloroethane ug/L
641																	
7/21/2008	XX	GW641X72J	EPA 8260	2 U	2 U	1 J	1 J	5 U	10 U	2 U	2 U	1 J	2 U	2 U	2 U	10 U	2 U
7/20/2009	XX	GW641X7AB	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/27/2010	XX	GW641X803	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.97 J	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/26/2011	XX	GW641X8D8	EPA 8260	0.5 U	1 U	0.89 J	0.5 U	5 U	10 U	0.5 U	0.5 U	0.8 J	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/10/2012	XX	GW641X8JI	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/9/2013	XX	GW641X960	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/16/2014	XX	GW641X9E4	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/22/2015	XX	GW641XA41	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/19/2016	XX	GW641XAC9	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/3/2017	XX	GW641XAG7	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/8/2018	XX	GW641XB05	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
MW02-801A																	
7/22/2008	XX	GW801A730	EPA 8260	2 U	2 U	2 U	5	5 U	10 U	2 U	2 U	1 J	2 U	2 U	2 U	10 U	2 U
7/22/2008	XD	GWDP2X71D	EPA 8260	2 U	2 U	2 U	5	5 U	13	2 U	2 U	1 J	2 U	2 U	2 U	10 U	2 U
7/22/2009	XX	GW801A7AC	EPA 8260	1 U	1 U	1 U	2.6	5 U	10 U	1 U	1 U	0.8 J	1 U	1 U	1 U	10 U	1 U
7/22/2009	XD	GWDP2X795	EPA 8260	1 U	1 U	1 U	2.6	5 U	10 U	1 U	1 U	0.8 J	1 U	1 U	1 U	10 U	1 U
7/28/2010	XX	GW801A804	EPA 8260	0.5 U	1 U	0.5 U	2.6	5 U	10 U	0.5 U	0.5 U	0.58 J	0.5 U	0.5 U	0.5 U	11	0.5 U
7/28/2010	XD	GWDP2X7IH	EPA 8260	0.5 U	1 U	0.5 U	2.8	5 U	10 U	0.5 U	0.5 U	0.59 J	0.5 U	0.5 U	0.5 U	10	0.5 U
7/25/2011	XX	GW801A8DB	EPA 8260	0.5 U	1 U	1.5	3.4	5 U	10 U	0.5 U	0.5 U	2.6	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/9/2012	XX	GW801A901	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/8/2013	XX	GW801A963	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/14/2014	XX	GW801A9E7	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2015	XX	GW801AA44	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	GW801AACC	EPA 8260	2 U	2 U	0.4	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/2/2017	XX	GW801AAGA	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	GW801AB08	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
MW03-802A																	
7/22/2008	XX	GW802A731	EPA 8260	2 U	2 U	2 U	2	5 U	10 U	2 U	2 U	3	2 U	2 U	2 U	10 U	2 U
7/21/2009	XX	GW802A7AD	EPA 8260	1 U	1 U	1 U	1.4	5 U	10 U	1 U	1 U	2.1	1 U	1 U	1 U	10 U	1 U
7/26/2010	XX	GW802A805	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/26/2011	XX	GW802A8DC	EPA 8260	0.5 U	1 U	0.82 J	0.5 U	5 U	10 U	0.5 U	0.5 U	0.81 J	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/9/2012	XX	GW802A902	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/8/2013	XX	GW802A964	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/8/2013	XD	GWDP4X97B	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/14/2014	XX	GW802A9E8	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/14/2014	XD	GWDP4X9FF	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2015	XX	GW802AA45	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2015	XD	GWDP4XA5C	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	GW802AACD	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/2/2017	XX	GW802AAGB	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	GW802AB09	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
MW03-802B																	
7/22/2008	XX	GW802B725	EPA 8260	2 U	2 U	2 U	4	5 U	10 U	2 U	2 U	6	2 U	2 U	4	10 U	2 U
7/21/2009	XX	GW802B79H	EPA 8260	1 U	1 U	0.5 J	1.2	5 U	10 U	1 U	1 U	2.1	1 U	1 U	1.2	10 U	1 U
7/26/2010	XX	GW802B7J9	EPA 8260	0.5 U	1 U	1.2	1.9	5 U	10 U	0.5 U	0.5 U	4.3	0.5 U	0.5 U	2.7	5 U	0.5 U
4/25/2016	XX	GW802BA97	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B) Date	Type	Sample ID	Analytical Method (VOA) -	Chloromethane ug/L	Bromomethane ug/L	Vinyl Chloride ug/L	Chloroethane ug/L	Methylene Chloride ug/L	Acetone ug/L	Carbon Disulfide ug/L	1,1-Dichloroethene ug/L	1,1-Dichloroethane ug/L	trans-1,2-Dichloroethene ug/L	Chloroform ug/L	1,2-Dichloroethane ug/L	Methyl Ethyl Ketone ug/L	1,1,1-Trichloroethane ug/L
10/17/2016	XX	GW802BAD6	EPA 8260	2 U	2 U	1.5	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/24/2017	XX	GW802BAF6	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2017	XX	GW802BAH4	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	GW802BB12	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1.1	1 U	1 U	1 U	10 U	1 U
MW03-803A																	
7/22/2008	XX	GW803A726	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	6	2 U	2 U	2 U	10 U	2 U
7/21/2009	XX	GW803A79I	EPA 8260	1 U	1 U	0.5 J	1 U	5 U	10 U	1 U	1 U	4.6	1 U	1 U	1 U	10 U	1 U
7/26/2010	XX	GW803A7JA	EPA 8260	0.5 U	1 U	0.5 U	0.91 J	5 U	10 U	0.5 U	0.5 U	8.1	0.5 U	0.5 U	0.72 J	5 U	0.5 U
4/25/2016	XX	GW803AA98	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	GW803AAD7	EPA 8260	2 U	2 U	0.3	5 U	5 U	10 U	5 U	1 U	4	2 U	2 U	2 U	10 U	2 U
4/24/2017	XX	GW803AAF7	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	2	1 U	1 U	1 U	10 U	1 U
10/2/2017	XX	GW803AAH5	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	4	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	GW803AB13	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	2.9	1 U	1 U	1 U	10 U	1 U
MW03-803B																	
7/22/2008	XX	GW803B727	EPA 8260	2 U	2 U	4	2	5 U	10 U	2 U	2 U	24	2 U	2 U	1 J	10 U	2 U
7/21/2009	XX	GW803B79J	EPA 8260	1 U	1 U	6.1	1.7	5 U	10 U	1 U	1 U	20	0.9 J	1 U	1.6	10 U	1 U
7/26/2010	XX	GW803B7JB	EPA 8260	0.5 U	1 U	3.4	1.4	5 U	10 U	0.5 U	0.5 U	15	0.54 J	0.5 U	1.3	5 U	0.5 U
7/26/2011	XX	GW803B8DD	EPA 8260	0.5 U	1 U	3.7	1	5 U	10 U	0.5 U	0.5 U	14	0.75 J	0.5 U	0.5 U	5 U	0.5 U
7/9/2012	XX	GW803B903	EPA 8260	1 U	2 U	2.5	1	5 U	10 U	1 U	1 U	9	1 U	1 U	1 U	10 U	1 U
7/8/2013	XX	GW803B965	EPA 8260	2.5 U	1 U	4.3	1.3	3 U	5 U	5 U	0.5 U	8.2	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/14/2014	XX	GW803B9E9	EPA 8260	2 U	2 U	7	5 U	5 U	10 U	5 U	1 U	9	2 U	2 U	2 U	10 U	2 U
7/20/2015	XX	GW803BA46	EPA 8260	2 U	2 U	3	5 U	5 U	10 U	5 U	1 U	6	2 U	2 U	2 U	10 U	2 U
10/17/2016	XD	GWDP1XACA	EPA 8260	2 U	2 U	1.6	5 U	5 U	10 U	5 U	1 U	5	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	GW803BACE	EPA 8260	2 U	2 U	1.5	5 U	5 U	10 U	5 U	1 U	5	2 U	2 U	2 U	10 U	2 U
10/2/2017	XD	GWDP1XAG8	SW8260C	2 U	2 U	4	5 U	5 U	10 U	2 U	1 U	5	1 U	1 U	1 U	10 U	1 U
10/2/2017	XX	GW803BAGC	SW8260C	2 U	2 U	4	5 U	5 U	10 U	2 U	1 U	5	1 U	1 U	1 U	10 U	1 U
10/9/2018	XD	GWDP1XB06	SW8260C	2 U	2 U	3.2	5 U	5 U	10 U	2 U	1 U	4.3	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	GW803BB0A	SW8260C	2 U	2 U	2.9	5 U	5 U	10 U	2 U	1 U	4.6	1 U	1 U	1 U	10 U	1 U
MW-916																	
7/21/2008	XX	GW916X738	EPA 8260	2 U	2 U	3	3	5 U	10 U	2 U	2 U	3	2 U	2 U	2 U	10 U	2 U
7/21/2009	XX	GW916X7B0	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/27/2010	XX	GW916X80C	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/26/2011	XX	GW916X8D6	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/10/2012	XX	GW916X8JG	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/9/2013	XX	GW916X95I	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/15/2014	XX	GW916X9E2	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/21/2015	XX	GW916XA3J	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/18/2016	XX	GW916XAC7	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/3/2017	XX	GW916XAG5	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/10/2018	XX	GW916XB03	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
MW-917																	
7/21/2008	XX	GW917X739	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/21/2009	XX	GW917X7B1	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/27/2010	XX	GW917X80D	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
QCBT																	
5/21/2008	XX	BTXXXX71B	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U

SUMMARY REPORT

Groundwater VOAs Part 1 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT) Date	Type	Sample ID	Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	trans-1,2-Dichloroethene	Chloroform	1,2-Dichloroethane	Methyl Ethyl Ketone	1,1,1-Trichloroethane
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/21/2008	XX	BTXXXX72G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/22/2008	XX	BTXXXX72H	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/23/2008	XX	BTXXXX73G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2009	XX	BTXXXX7A8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/21/2009	XX	BTXXXX7A9	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/22/2009	XX	BTXXXX7B8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/26/2010	XX	BTXXXX800	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/27/2010	XX	BTXXXX801	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/28/2010	XX	BTXXXX810	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/9/2012	XX	BTXXXX918	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/10/2012	XX	BTXXXX91D	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2012	XX	BTXXXXHG8	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2012	XX	BTXXXX938	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
4/8/2013	XX	BTXXXX95B	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/8/2013	XX	BTXXXX97A	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/10/2013	XX	BTXXXX97C	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
10/22/2013	XX	BTXXXX9B9	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/22/2013	XX	BTXXXX9BD	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/28/2014	XX	BTXXXX9DD	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/14/2014	XX	BTXXXX9FE	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
9/30/2014	XX	BTXXXX9HC	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/1/2014	XX	BTXXXX9HF	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/15/2015	XX	BTXXXXA37	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2015	XX	BTXXXXA5B	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/22/2015	XX	BTXXXXA5D	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/20/2015	XX	BTXXXXA7G	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/25/2016	XX	BTXXXXA9F	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	BTXXXXADE	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/18/2016	XX	BTXXXXADF	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/19/2016	XX	BTXXXXADG	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/24/2017	XX	BTXXXXAFE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2017	XX	BTXXXXAHC	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/3/2017	XX	BTXXXXAHD	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/4/2017	XX	BTXXXXAHE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/18/2018	XX	BTXXXXAA6	E624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/8/2018	XX	BTXXXXB1B	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/10/2018	XX	BTXXXXB1C	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U

SUMMARY REPORT

Groundwater VOAs Part 1 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)			Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	trans-1,2-Dichloroethene	Chloroform	1,2-Dichloroethane	Methyl Ethyl Ketone	1,1,1-Trichloroethane
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date	Type	Sample ID															

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Groundwater VOAs Part 2 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(641) Date	Type	Sample ID	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L	Benzene ug/L	trans-1,3-Dichloro propene ug/L	Bromoform ug/L	4-Methyl-2-Pentanone ug/L	2-Hexanone ug/L	Tetrachloro ethene ug/L	1,1,2,2-Tetrachloro ethane ug/L
641																	
7/21/2008	XX	GW641X72J	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2009	XX	GW641X7AB	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U	1 U	10 U	10 U	1 U	1 U
7/27/2010	XX	GW641X803	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.1	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	GW641X8D8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.1	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/10/2012	XX	GW641X8JI	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/9/2013	XX	GW641X960	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/16/2014	XX	GW641X9E4	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2015	XX	GW641XA41	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/19/2016	XX	GW641XAC9	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/3/2017	XX	GW641XAG7	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/8/2018	XX	GW641XB05	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
MW02-801A																	
7/22/2008	XX	GW801A730	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	5	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2008	XD	GWDP2X71D	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	5	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2009	XX	GW801A7AC	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.7	1 U	1 U	10 U	10 U	1 U	1 U
7/22/2009	XD	GWDP2X795	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.7	1 U	1 U	10 U	10 U	1 U	1 U
7/28/2010	XX	GW801A804	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.2	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/28/2010	XD	GWDP2X7IH	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.1	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/25/2011	XX	GW801A8DB	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/9/2012	XX	GW801A901	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.8	1 U	1 U	10 U	10 U	1 U	1 U
7/8/2013	XX	GW801A963	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	3	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/14/2014	XX	GW801A9E7	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	4	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XX	GW801AA44	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	3	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	GW801AACC	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	3	2 U	2 U	10 U	10 U	2 U	2 U
10/2/2017	XX	GW801AAGA	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	3	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	GW801AB08	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1.7	0.5 U	2 U	10 U	10 U	1 U	1 U
MW03-802A																	
7/22/2008	XX	GW802A731	2 U	15 U	2 U	2 U	2 U	2	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW802A7AD	1 U	1 U	1 U	1 U	1 U	1.7	1 U	1 U	1 U	1 U	1 U	10 U	10 U	0.6 J	1 U
7/26/2010	XX	GW802A805	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	GW802A8DC	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.93 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/9/2012	XX	GW802A902	1 U	1 U	1 U	1 U	1 U	1.2	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/8/2013	XX	GW802A964	0.5 U	5 U	0.5 U	1.8 U	0.5 U	1.3	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/8/2013	XD	GWDP4X97B	0.5 U	5 U	0.5 U	1.8 U	0.5 U	1.5	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/14/2014	XX	GW802A9E8	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/14/2014	XD	GWDP4X9FF	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XX	GW802AA45	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XD	GWDP4XA5C	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	GW802AACD	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/2/2017	XX	GW802AAGB	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	GW802AB09	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
MW03-802B																	
7/22/2008	XX	GW802B725	2 U	15 U	2 U	2	2 U	6	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW802B79H	1 U	1 U	1 U	0.6 J	1 U	2.4	1 U	1 U	0.6 J	1 U	1 U	10 U	10 U	0.6 J	1 U
7/26/2010	XX	GW802B7J9	0.5 U	0.5 U	0.5 U	1.4	0.5 U	2.4	0.5 U	0.5 U	1.2	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/25/2016	XX	GW802BA97	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B) Date	Type	Sample ID	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L	Benzene ug/L	trans-1,3-Dichloro propene ug/L	Bromoform ug/L	4-Methyl-2-Pentanone ug/L	2-Hexanone ug/L	Tetrachloro ethene ug/L	1,1,2,2-Tetrachloro ethane ug/L
10/17/2016	XX	GW802BAD6	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	2	2 U	2 U	10 U	10 U	2 U	2 U
4/24/2017	XX	GW802BAF6	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/2/2017	XX	GW802BAH4	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	2	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	GW802BB12	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1.8	0.5 U	2 U	10 U	10 U	1 U	1 U
MW03-803A																	
7/22/2008	XX	GW803A726	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW803A79I	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/26/2010	XX	GW803A7JA	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/25/2016	XX	GW803AA98	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	GW803AAD7	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/24/2017	XX	GW803AAF7	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/2/2017	XX	GW803AAH5	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	GW803AB13	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
MW03-803B																	
7/22/2008	XX	GW803B727	2 U	15 U	2 U	5	2 U	1 J	2 U	2 U	1 J	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW803B79J	1 U	1 U	1 U	6.1	1 U	2.1	1 U	1 U	1.9	1 U	1 U	10 U	10 U	1 U	1 U
7/26/2010	XX	GW803B7JB	0.5 U	0.5 U	0.5 U	4.5	0.5 U	0.5 U	0.5 U	0.5 U	2.1	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	GW803B8DD	0.5 U	0.5 U	0.5 U	4.5	0.5 U	0.95 J	0.5 U	0.5 U	1.6	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/9/2012	XX	GW803B903	1 U	1 U	1 U	3.4	1 U	1 U	1 U	1 U	1.4	1 U	1 U	10 U	10 U	1 U	1 U
7/8/2013	XX	GW803B965	0.5 U	5 U	0.5 U	1.8 U	0.5 U	1.1	0.5 U	0.75 U	1.9	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/14/2014	XX	GW803B9E9	2 U	10 U	0.5 U	3	2 U	2 U	2 U	2 U	2	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XX	GW803BA46	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XD	GWDP1XACA	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	GW803BACE	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/2/2017	XD	GWDP1XAG8	1 U	10 U	0.5 U	2	0.5 U	1 U	1 U	1 U	1	0.5 U	2 U	10 U	10 U	1 U	1 U
10/2/2017	XX	GW803BAGC	1 U	10 U	0.5 U	2	0.5 U	1 U	1 U	1 U	1	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XD	GWDP1XB06	1 U	10 U	0.5 U	1.6	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	GW803BB0A	1 U	10 U	0.5 U	1.6	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
MW-916																	
7/21/2008	XX	GW916X738	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW916X7B0	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/27/2010	XX	GW916X80C	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	GW916X8D6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/10/2012	XX	GW916X8JG	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/9/2013	XX	GW916X95I	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/15/2014	XX	GW916X9E2	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2015	XX	GW916XA3J	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/18/2016	XX	GW916XAC7	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/3/2017	XX	GW916XAG5	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/10/2018	XX	GW916XB03	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
MW-917																	
7/21/2008	XX	GW917X739	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2009	XX	GW917X7B1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/27/2010	XX	GW917X80D	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U

SUMMARY REPORT

Groundwater VOAs Part 2 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT) Date	Type	Sample ID	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L	Benzene ug/L	trans-1,3-Dichloro propene ug/L	Bromoform ug/L	4-Methyl-2-Pentanone ug/L	2-Hexanone ug/L	Tetrachloro ethene ug/L	1,1,2,2-Tetrachloro ethane ug/L
7/21/2008	XX	BTXXXX72G	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/8/2013	XX	BTXXXX97A	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/10/2013	XX	BTXXXX97C	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
10/22/2013	XX	BTXXXX9B9	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/22/2013	XX	BTXXXX9BD	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/28/2014	XX	BTXXXX9DD	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/14/2014	XX	BTXXXX9FE	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
9/30/2014	XX	BTXXXX9HC	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/1/2014	XX	BTXXXX9HF	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/15/2015	XX	BTXXXXA37	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XX	BTXXXXA5B	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2015	XX	BTXXXXA5D	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/20/2015	XX	BTXXXXA7G	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/25/2016	XX	BTXXXXA9F	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	BTXXXXADE	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/18/2016	XX	BTXXXXADF	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/19/2016	XX	BTXXXXADG	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/24/2017	XX	BTXXXXAFE	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/2/2017	XX	BTXXXXAHC	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/3/2017	XX	BTXXXXAHD	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/4/2017	XX	BTXXXXAHE	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
7/18/2018	XX	BTXXXXAA6	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/8/2018	XX	BTXXXXB1B	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/10/2018	XX	BTXXXXB1C	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U

SUMMARY REPORT

Groundwater VOAs Part 2 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)			Carbon Tetrachloride	Vinyl Acetate	Bromo dichloro methane	1,2-Dichloro propane	cis-1,3-Dichloro propene	Trichloroethene	Dibromo chloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloro propene	Bromoform	4-Methyl-2-Pentanone	2-Hexanone	Tetrachloro ethene	1,1,2,2-Tetrachloro ethane
Date	Type	Sample ID	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Groundwater VOAs Part 3 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(641) Date	Type	Sample ID	Toluene ug/L	Chlorobenzene ug/L	Ethylbenzene ug/L	Styrene ug/L	o-Xylene ug/L	m,p-Xylene ug/L	Tetra hydrofuran ug/L	Trichloro fluoromethane ug/L	cis-1,2-Dichloroethene ug/L	Bromochloro methane ug/L	Dibromo methane ug/L	1,2-Dibromoethane ug/L	1,1,1,2-Tetrachloro ethane ug/L	1,2,3-Trichloro propane ug/L	1,2-Dibromo-3-Chloropropane ug/L
641																	
7/21/2008	XX	GW641X72J	2 U	1 J	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2009	XX	GW641X7AB	1 U	0.6 J	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/27/2010	XX	GW641X803	0.5 U	0.75 J	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.86 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	GW641X8D8	0.5 U	1	1.6	0.5 U	1	0.5 U		0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/10/2012	XX	GW641X8JI	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/9/2013	XX	GW641X960	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/16/2014	XX	GW641X9E4	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2015	XX	GW641XA41	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/19/2016	XX	GW641XAC9	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/19/2016	XX	GW641XAC9SIM												0.05 U		0.05 U	0.05 U
10/3/2017	XX	GW641XAG7	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/8/2018	XX	GW641XB05	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
MW02-801A																	
7/22/2008	XX	GW801A730	2 U	2	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2008	XD	GWDP2X71D	2 U	2	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2009	XX	GW801A7AC	1 U	1.9	1 U	1 U	1 U	1 U		1 U	0.5 J	1 U	1 U	1 U	1 U	1 U	1 U
7/22/2009	XD	GWDP2X795	1 U	1.9	1 U	1 U	1 U	1 U		1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U
7/28/2010	XX	GW801A804	0.5 U	1.7	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/28/2010	XD	GWDP2X7IH	0.5 U	1.6	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/25/2011	XX	GW801A8DB	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	3.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/9/2012	XX	GW801A901	1 U	1.2	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/8/2013	XX	GW801A963	0.75 U	1.4	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/14/2014	XX	GW801A9E7	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XX	GW801AA44	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW801AACCSIM												0.05 U		0.05 U	0.05 U
10/17/2016	XX	GW801AACC	1 U	2 U	1 U	1 U	1 U	1 U	10	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/2/2017	XX	GW801AAGA	1 U	2	1 U	1 U	1 U	1 U	20	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	GW801AB08	1 U	1.4	1 U	1 U	1 U	1 U	14	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
MW03-802A																	
7/22/2008	XX	GW802A731	2 U	2 U	2 U	2 U	2 U	2 U		2 U	5	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2009	XX	GW802A7AD	1 U	1 U	1 U	1 U	1 U	1 U		1 U	3.9	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	GW802A805	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	2.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	GW802A8DC	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/9/2012	XX	GW802A902	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/8/2013	XX	GW802A964	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	1.2	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/8/2013	XD	GWDP4X97B	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	1.4	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/14/2014	XX	GW802A9E8	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/14/2014	XD	GWDP4X9FF	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XX	GW802AA45	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XD	GWDP4XA5C	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW802AACD	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW802AACDSIM												0.05 U		0.05 U	0.05 U
10/2/2017	XX	GW802AAGB	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	GW802AB09	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
MW03-802B																	
7/22/2008	XX	GW802B725	2 U	2 U	2 U	2 U	2 U	2 U		2 U	18	2 U	2 U	2 U	2 U	2 U	2 U

SUMMARY REPORT

Groundwater VOAs Part 3 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B) Date	Type	Sample ID	Toluene ug/L	Chlorobenzene ug/L	Ethylbenzene ug/L	Styrene ug/L	o-Xylene ug/L	m,p-Xylene ug/L	Tetra hydrofuran ug/L	Trichloro fluoromethane ug/L	cis-1,2-Dichloroethene ug/L	Bromochloro methane ug/L	Dibromo methane ug/L	1,2-Dibromoethane ug/L	1,1,1,2-Tetrachloro ethane ug/L	1,2,3-Trichloro propane ug/L	1,2-Dibromo-3-Chloropropane ug/L
7/21/2009	XX	GW802B79H	1 U	1 U	1 U	1 U	1 U	1 U		1 U	6.9	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	GW802B7J9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/25/2016	XX	GW802BA97	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW802BAD6	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	4	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW802BAD6SIM												0.05 U		0.05 U	0.05 U
4/24/2017	XX	GW802BAF6	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/2/2017	XX	GW802BAH4	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	4	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	GW802BB12	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	3.4	1 U	1 U	2 U	1 U	0.5 U	2 U
MW03-803A																	
7/22/2008	XX	GW803A726	2 U	2 U	2 U	2 U	2 U	2 U		2 U	1 J	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2009	XX	GW803A79I	1 U	1 U	1 U	1 U	1 U	1 U		1 U	2.6	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	GW803A7JA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	2.4	0.5 U	0.5 U	0.5 U	0.5 U	0.57 J	0.5 U
4/25/2016	XX	GW803AA98	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW803AAD7	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW803AAD7SIM												0.05 U		0.05 U	0.05 U
4/24/2017	XX	GW803AAF7	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/2/2017	XX	GW803AAH5	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	2	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	GW803AB13	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1.4	1 U	1 U	2 U	1 U	0.5 U	2 U
MW03-803B																	
7/22/2008	XX	GW803B727	2 U	2 U	2 U	2 U	2 U	2 U		2 U	9	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2009	XX	GW803B79J	1 U	1 U	1 U	1 U	1 U	1 U		1 U	11	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	GW803B7JB	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	7.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	GW803B8DD	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	9.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/9/2012	XX	GW803B903	1 U	1 U	1 U	1 U	1 U	1 U		1 U	8.5	1 U	1 U	1 U	1 U	1 U	1 U
7/8/2013	XX	GW803B965	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	7	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/14/2014	XX	GW803B9E9	1 U	2 U	1 U	1 U	1 U	1 U		5 U	7	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XX	GW803BA46	1 U	2 U	1 U	1 U	1 U	1 U		5 U	4	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XD	GWDP1XACASIM												0.05 U		0.05 U	0.05 U
10/17/2016	XD	GWDP1XACA	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	4	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW803BACE	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	4	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	GW803BACESIM												0.05 U		0.05 U	0.05 U
10/2/2017	XD	GWDP1XAG8	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	5	1 U	1 U	2 U	1 U	0.5 U	2 U
10/2/2017	XX	GW803BAGC	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	5	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XD	GWDP1XB06	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	4.1	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	GW803BB0A	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	4.2	1 U	1 U	2 U	1 U	0.5 U	2 U
MW-916																	
7/21/2008	XX	GW916X738	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2009	XX	GW916X7B0	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/27/2010	XX	GW916X80C	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	GW916X8D6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/10/2012	XX	GW916X8JG	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/9/2013	XX	GW916X95I	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/15/2014	XX	GW916X9E2	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2015	XX	GW916XA3J	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	GW916XAC7	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	GW916XAC7SIM												0.05 U		0.05 U	0.05 U
10/3/2017	XX	GW916XAG5	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/10/2018	XX	GW916XB03	1.7	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW-917)			Toluene	Chlorobenzene	Ethylbenzene	Styrene	o-Xylene	m,p-Xylene	Tetra hydrofuran	Trichloro fluoromethane	cis-1,2-Dichloroethene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane
Date	Type	Sample ID	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-917																	
7/21/2008	XX	GW917X739	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2009	XX	GW917X7B1	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/27/2010	XX	GW917X80D	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/8/2013	XX	BTXXXX97A	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/10/2013	XX	BTXXXX97C	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
10/22/2013	XX	BTXXXX9B9	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/22/2013	XX	BTXXXX9BD	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
4/28/2014	XX	BTXXXX9DD	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/14/2014	XX	BTXXXX9FE	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
9/30/2014	XX	BTXXXX9HC	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/1/2014	XX	BTXXXX9HF	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
4/15/2015	XX	BTXXXXA37	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XX	BTXXXXA5B	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2015	XX	BTXXXXA5D	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/20/2015	XX	BTXXXXA7G	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4/25/2016	XX	BTXXXXA9F	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	BTXXXXADE	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	BTXXXXADESIM												0.05 U		0.05 U	0.05 U
10/18/2016	XX	BTXXXXADF	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	BTXXXXADFSIM												0.05 U		0.05 U	0.05 U
10/19/2016	XX	BTXXXXADG	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/19/2016	XX	BTXXXXADGSIM												0.05 U		0.05 U	0.05 U
4/24/2017	XX	BTXXXXAFE	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/2/2017	XX	BTXXXXAHC	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/3/2017	XX	BTXXXXAHD	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U

SUMMARY REPORT

Groundwater VOAs Part 3 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Toluene	Chlorobenzene	Ethylbenzene	Styrene	o-Xylene	m,p-Xylene	Tetra hydrofuran	Trichloro fluoromethane	cis-1,2-Dichloroethene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
10/4/2017	XX	BTXXXXAHE	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
7/18/2018	XX	BTXXXXAA6	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
10/8/2018	XX	BTXXXXB1B	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/10/2018	XX	BTXXXXB1C	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Groundwater VOAs Part 4 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(641) Date	Type	Sample ID	1,4-Dichloro benzene ug/L	1,2-Dichloro benzene ug/L	Acrylonitrile ug/L	Diethyl ether ug/L	trans-1,4-Dichloro-2-butene ug/L	Iodomethane ug/L
641								
7/21/2008	XX	GW641X72J	2 U	2 U	2 U		2 U	2 U
7/20/2009	XX	GW641X7AB	1 U	1 U	1 U		1 U	1 U
7/27/2010	XX	GW641X803	0.55 J	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	GW641X8D8	0.76 J	0.5 U	0.5 U		0.5 U	0.5 U
7/10/2012	XX	GW641X8JI	1 U	1 U	1 U		1 U	1 U
7/9/2013	XX	GW641X960	2.5 U	2.5 U	5 U		2.5 U	
7/16/2014	XX	GW641X9E4	1 U	1 U	20 U		5 U	5 U
7/22/2015	XX	GW641XA41	1 U	1 U	20 U		5 U	5 U
10/19/2016	XX	GW641XAC9	1 U	1 U	20 U	5 U	5 U	5 U
10/19/2016	XX	GW641XAC9SIM			0.25 U			
10/3/2017	XX	GW641XAG7	1 U	1 U	20 U	5 U	5 U	5 U
10/8/2018	XX	GW641XB05	1 U	1 U	20 U	5 U	5 U	5 U
MW02-801A								
7/22/2008	XX	GW801A730	3	2 U	2 U		2 U	2 U
7/22/2008	XD	GWDP2X71D	3	2 U	2 U		2 U	2 U
7/22/2009	XX	GW801A7AC	3.7	1.2	1 U		1 U	1 U
7/22/2009	XD	GWDP2X795	3.8	1.2	1 U		1 U	1 U
7/28/2010	XX	GW801A804	2.9	0.96 J	0.5 U		0.5 U	0.5 U
7/28/2010	XD	GWDP2X7IH	3	1	0.5 U		0.5 U	0.5 U
7/25/2011	XX	GW801A8DB	2.3	0.73 J	0.5 U		0.5 U	0.5 U
7/9/2012	XX	GW801A901	2.9	1 U	1 U		1 U	1 U
7/8/2013	XX	GW801A963	2.9	2.5 U	5 U		2.5 U	
7/14/2014	XX	GW801A9E7	4	1	20 U		5 U	5 U
7/20/2015	XX	GW801AA44	4	1	20 U		5 U	5 U
10/17/2016	XX	GW801AACCSIM			0.25 U			
10/17/2016	XX	GW801AACC	4	1	20 U	34	5 U	5 U
10/2/2017	XX	GW801AAGA	4	1	20 U	31	5 U	5 U
10/9/2018	XX	GW801AB08	4	1	20 U	26	5 U	5 U
MW03-802A								
7/22/2008	XX	GW802A731	2 U	2 U	2 U		2 U	2 U
7/21/2009	XX	GW802A7AD	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	GW802A805	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	GW802A8DC	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/9/2012	XX	GW802A902	1 U	1 U	1 U		1 U	1 U
7/8/2013	XX	GW802A964	2.5 U	2.5 U	5 U		2.5 U	
7/8/2013	XD	GWDP4X97B	2.5 U	2.5 U	5 U		2.5 U	
7/14/2014	XX	GW802A9E8	1 U	1 U	20 U		5 U	5 U
7/14/2014	XD	GWDP4X9FF	1 U	1 U	20 U		5 U	5 U
7/20/2015	XX	GW802AA45	1 U	1 U	20 U		5 U	5 U
7/20/2015	XD	GWDP4XA5C	1 U	1 U	20 U		5 U	5 U
10/17/2016	XX	GW802AACD	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	GW802AACDSIM			0.25 U			
10/2/2017	XX	GW802AAGB	1 U	1 U	20 U	5 U	5 U	5 U
10/9/2018	XX	GW802AB09	1 U	1 U	20 U	5 U	5 U	5 U
MW03-802B								
7/22/2008	XX	GW802B725	2 U	2 U	2 U		2 U	2 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B) Date	Type	Sample ID	1,4-Dichloro benzene ug/L	1,2-Dichloro benzene ug/L	Acrylonitrile ug/L	Diethyl ether ug/L	trans-1,4-Dichloro-2-butene ug/L	Iodomethane ug/L
7/21/2009	XX	GW802B79H	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	GW802B7J9	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/25/2016	XX	GW802BA97	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	GW802BAD6	1 U	1 U	20 U	40	5 U	5 U
10/17/2016	XX	GW802BAD6SIM			0.25 U			
4/24/2017	XX	GW802BAF6	1 U	1 U	20 U	5 U	5 U	5 U
10/2/2017	XX	GW802BAH4	1 U	1 U	20 U	36	5 U	5 U
10/9/2018	XX	GW802BB12	1 U	1 U	20 U	40	5 U	5 U
MW03-803A								
7/22/2008	XX	GW803A726	2 U	2 U	2 U		2 U	2 U
7/21/2009	XX	GW803A79I	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	GW803A7JA	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/25/2016	XX	GW803AA98	1 U	1 U	20 U	22	5 U	5 U
10/17/2016	XX	GW803AAD7	1 U	1 U	20 U	61	5 U	5 U
10/17/2016	XX	GW803AAD7SIM			0.25 U			
4/24/2017	XX	GW803AAF7	1 U	1 U	20 U	17	5 U	5 U
10/2/2017	XX	GW803AAH5	1 U	1 U	20 U	61	5 U	5 U
10/9/2018	XX	GW803AB13	1 U	1 U	20 U	41	5 U	5 U
MW03-803B								
7/22/2008	XX	GW803B727	2 U	2 U	2 U		2 U	2 U
7/21/2009	XX	GW803B79J	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	GW803B7JB	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	GW803B8DD	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/9/2012	XX	GW803B903	1 U	1 U	1 U		1 U	1 U
7/8/2013	XX	GW803B965	2.5 U	2.5 U	5 U		2.5 U	
7/14/2014	XX	GW803B9E9	1 U	1 U	20 U		5 U	5 U
7/20/2015	XX	GW803BA46	1 U	1 U	20 U		5 U	5 U
10/17/2016	XD	GWDP1XACASIM			0.25 U			
10/17/2016	XD	GWDP1XACA	1 U	1 U	20 U	120	5 U	5 U
10/17/2016	XX	GW803BACE	1 U	1 U	20 U	110	5 U	5 U
10/17/2016	XX	GW803BACESIM			0.25 U			
10/2/2017	XD	GWDP1XAG8	1 U	1 U	20 U	120	5 U	5 U
10/2/2017	XX	GW803BAGC	1 U	1 U	20 U	120	5 U	5 U
10/9/2018	XD	GWDP1XB06	1 U	1 U	20 U	110	5 U	5 U
10/9/2018	XX	GW803BB0A	1 U	1 U	20 U	110	5 U	5 U
MW-916								
7/21/2008	XX	GW916X738	2 U	2 U	2 U		2 U	2 U
7/21/2009	XX	GW916X7B0	1 U	1 U	1 U		1 U	1 U
7/27/2010	XX	GW916X80C	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	GW916X8D6	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/10/2012	XX	GW916X8JG	1 U	1 U	1 U		1 U	1 U
7/9/2013	XX	GW916X95I	2.5 U	2.5 U	5 U		2.5 U	
7/15/2014	XX	GW916X9E2	1 U	1 U	20 U		5 U	5 U
7/21/2015	XX	GW916XA3J	1 U	1 U	20 U		5 U	5 U
10/18/2016	XX	GW916XAC7	1 U	1 U	20 U	5 U	5 U	5 U
10/18/2016	XX	GW916XAC7SIM			0.25 U			
10/3/2017	XX	GW916XAG5	1 U	1 U	20 U	5 U	5 U	5 U
10/10/2018	XX	GW916XB03	1 U	1 U	20 U	5 U	5 U	5 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW-917)

Date	Type	Sample ID	1,4-Dichloro benzene ug/L	1,2-Dichloro benzene ug/L	Acrylonitrile ug/L	Diethyl ether ug/L	trans-1,4-Dichloro-2-butene ug/L	Iodomethane ug/L
MW-917								
7/21/2008	XX	GW917X739	2 U	2 U	2 U		2 U	2 U
7/21/2009	XX	GW917X7B1	1 U	1 U	1 U		1 U	1 U
7/27/2010	XX	GW917X80D	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
QCBT								
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U		2 U	2 U
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U		2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U		2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U		2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U		1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U		1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U		1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U		1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U		1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U		1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U		1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U		1 U	1 U
7/8/2013	XX	BTXXXX97A	2.5 U	2.5 U	5 U		2.5 U	
7/10/2013	XX	BTXXXX97C	2.5 U	2.5 U	5 U		2.5 U	
10/22/2013	XX	BTXXXX9B9	1 U	1 U	20 U		5 U	5 U
10/22/2013	XX	BTXXXX9BD	1 U	1 U	50 U			
4/28/2014	XX	BTXXXX9DD	1 U	1 U	20 U		5 U	5 U
7/14/2014	XX	BTXXXX9FE	1 U	1 U	20 U		5 U	5 U
9/30/2014	XX	BTXXXX9HC	1 U	1 U	20 U		5 U	5 U
10/1/2014	XX	BTXXXX9HF	1 U	1 U	50 U			
4/15/2015	XX	BTXXXXA37	1 U	1 U	20 U		5 U	5 U
7/20/2015	XX	BTXXXXA5B	1 U	1 U	20 U		5 U	5 U
7/22/2015	XX	BTXXXXA5D	1 U	1 U	20 U		5 U	5 U
10/20/2015	XX	BTXXXXA7G	1 U	1 U	20 U		5 U	5 U
4/25/2016	XX	BTXXXXA9F	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	BTXXXXADE	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	BTXXXXADESIM			0.25 U			
10/18/2016	XX	BTXXXXADF	1 U	1 U	20 U	5 U	5 U	5 U
10/18/2016	XX	BTXXXXADFSIM			0.25 U			
10/19/2016	XX	BTXXXXADG	1 U	1 U	20 U	5 U	5 U	5 U
10/19/2016	XX	BTXXXXADGSIM			0.25 U			
4/24/2017	XX	BTXXXXAFE	1 U	1 U	20 U	5 U	5 U	5 U
10/2/2017	XX	BTXXXXAHC	1 U	1 U	20 U	5 U	5 U	5 U
10/3/2017	XX	BTXXXXAHD	1 U	1 U	20 U	5 U	5 U	5 U

SUMMARY REPORT

Groundwater VOAs Part 4 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	1,4-Dichloro benzene	1,2-Dichloro benzene	Acrylonitrile	Diethyl ether	trans-1,4-Dichloro-2-butene	Iodomethane									
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L									
10/4/2017	XX	BTXXXXAHE	1 U	1 U	20 U	5 U	5 U	5 U									
7/18/2018	XX	BTXXXXAA6	1 U	1 U	50 U												
10/8/2018	XX	BTXXXXB1B	1 U	1 U	20 U	5 U	5 U	5 U									
10/10/2018	XX	BTXXXXB1C	1 U	1 U	20 U	5 U	5 U	5 U									

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 10:30

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW-103) Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Turbidity (field)
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	NTU
DW-103												
4/28/2008	XX	DW103X710		436	8.2	10.2				115	1	0
7/21/2008	XX	DW103X73B		412	7.5	11.2				305	1	1
10/8/2008	XX	DW103X763		372	7.4	11.3				310	2	2
4/20/2009	XX	DW103X78E		376	7.5	10				96	0.6	0
7/20/2009	XX	DW103X7B3		403	7.2	13				264	1	0.2
10/20/2009	XX	DW103X7FJ		585	7.1	10.9				278	1	0.5
3/29/2010	XX	DW103X7IB		454	7.4	9.9				197	1	0
7/26/2010	XX	DW103X80F		414	7.4	11.6				242	2	0.1
10/4/2010	XX	DW103X833		494	8.1	15.9				272	2	0
4/11/2011	XX	DW103X8AI		452	7.8	11.4				108	1	0
7/25/2011	XX	DW103X8EE	GRAB	440	7.7	15.9				262	1	0
10/18/2011	XX	DW103X8CG	GRAB	326	8.1	13.4				259	1	0
4/9/2012	XX	DW103X8J1	GRAB	407	7.8	11.1				344	1	1.8
7/9/2012	XX	DW103X913	GRAB	386	7.6	15.3				9	2	3.5
10/24/2012	XX	DW103X933	GRAB	401	7.4	11.6				242	1	1.9
4/8/2013	XX	DW103X956	GRAB	426	7.5	10.8				95	1	0.8
7/8/2013	XX	DW103X975	GRAB	399	7.1	12.4				95	1	0.5
10/21/2013	XX	DW103X9B2	GRAB	372	7.2	12.6				174	1	0.2
4/28/2014	XX	DW103X9D8	GRAB	409	6.2	10.7				146	1	1.2
6/3/2014	XX	DW103N41793	GRAB	415	8.1	10.2				135	2	0.5
7/14/2014	XX	DW103X9F9	GRAB	418	7.7	14.8				145	1	0.8
9/29/2014	XX	DW103X9H6	GRAB	433	7.6	12.4				96	1	0.6
4/13/2015	XX	DW103XA33	GRAB	416	7.9	10.3				55	1.5	0.6
7/20/2015	XX	DW103XA5G	GRAB	428	7.7	12.6				105	1.3	0.6
12/15/2015	XX	DW103XA7AX	GRAB	383	8.7	10.5				94	2.3	3.7
12/15/2015	XX	DW103XA7A		A	A	A				A	A	A
4/25/2016	XX	DW103XA9B	GRAB	482	7.8	9.9				88	1.2	2.1
10/17/2016	XX	DW103XADA	GRAB	477	8.1	12.7				98	1.2	0.8
4/24/2017	XX	DW103XAFA	GRAB	411	7.9	11				123	1.5	2.6
10/2/2017	XX	DW103XAH8	GRAB	484	7.8	14.4				220	0.7	1.7
4/9/2018	XX	DW103XAJ6	GRAB	442	8.1	9.1				227	2.9	0.8
10/9/2018	XX	DW103XB16	LF	485	7.7	12.6				370	0.9	1.9
DW04-109												
4/30/2008	XX	DW109X716	LF	858	7.9	9	134.04	100.54	33.5	278	0.8	18.3
7/21/2008	XX	DW109X740	LF	1105	7.2	16.4	134.04			876	6	8.7
10/7/2008	XX	DW109X768	LF	2880	7.6	11.3	134.04			1004	8	20.1
4/22/2009	XX	DW109X78I	LF	895	7.4	9.6	134.04	101.34	32.7	129	1	2.5
7/21/2009	XX	DW109X7BA	LF	905	7.2	14.9	134.04			109	3	12.6
10/20/2009	XX	DW109X7G3	LF	925	7.9	7.4	134.04	100.17	33.87	99	1	11.3
3/31/2010	XX	DW109X7IC	LF	1048	7.1	8.1	134.04	101.64	32.4	74	3	12.2
7/27/2010	XX	DW109X812	LF	905	7	12.1	134.04	99.84	34.2	105	1	2.6
10/5/2010	XX	DW109X834	LF	1126	7.3	10.4	134.04	98.54	35.5	87	1	0.9
4/11/2011	XX	DW109X8AJ	LF	274	8.5	9.6	134.04	101.64	32.4	278	1	2.3
7/25/2011	XX	DW109X8EF	LF	204	8.9	12.9	134.04	98.34	35.7	197	1	5.7
10/18/2011	XX	DW109X8CH	LF	178	8.6	10.8	134.04	100.98	33.06	362	1	3.6
4/10/2012	XX	DW109X8J2	LF	761	7	9.4	134.04	101.04	33	352	0.6	3
7/10/2012	XX	DW109X914	LF	790	7.2	10.9	134.04	101.36	32.68	22	0.6	5.6

REPORT PREPARED: 3/8/2019 10:30

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)

Date	Type	Sample ID	Collection Method	Specific Conductance	pH	Temperature	Water Level Reference Point	Water Level Elevation	Water Level Depth	Eh	Dissolved Oxygen	Turbidity (field)					
			-	µmhos/cm @25°C	STU	Deg C	Feet	Feet	Feet	mV	mg/L	NTU					
10/2/2012	XX	DW109X934	LF	805	7.3	10.6	134.04	100.29	33.75	168	1	9.2					
4/9/2013	XX	DW109X957	LF	798	7.1	8.2	134.04	101.04	33	149	1	1.8					
7/10/2013	XX	DW109X976	LF	877	7.1	10.2	134.04	101.04	33	314	1	7					
10/21/2013	XX	DW109X9B3	LF	449	7.8	9.8	134.04	100.94	33.1	129	1	4.8					
4/29/2014	XX	DW109X9D9	LF	295	6.8	9.6	134.04	100.54	33.5	251	1	1.6					
6/3/2014	XX	DW109N41793	LF	273	9.7	12.3				219	1	5.4					
7/14/2014	XX	DW109X9FA	LF	656	7.3	13.1	134.04	100.94	33.1	123	1	2.6					
9/29/2014	XX	DW109X9H7	LF	793	7.6	11.6	134.04	100.44	33.6	291	0.6	6.3					
4/13/2015	XX	DW109XA34	LF	229	9.4	10.9	134.04	100.74	33.3	347	1.1	3.5					
7/20/2015	XX	DW109XA5F	LF	251	9.1	17.2	134.04	100.39	33.65	180	1	4.2					
10/19/2015	XX	DW109XA81	LF	215	8.8	8.7	134.04	99.44	34.6	301	0.8	2.4					
4/25/2016	XX	DW109XA9C	LF	280	9.1	9.8	134.04	101.48	32.56	212	0.9	1.4					
10/17/2016	XX	DW109XADB	LF	260	8.9	12.8	134.04	98.73	35.31	233	1.6	3.1					
4/24/2017	XX	DW109XAFB	LF	217	9.1	9.5	134.04	100.52	33.52	245	2.9	3.3					
10/2/2017	XX	DW109XAH9	LF	201	8.5	13.2	134.04	98.74	35.3	351	1.6	3.5					
4/9/2018	XX	DW109XAJ7	LF	206	9.3	8.1	134.04	100.69	33.35	297	4.8	1.2					
10/9/2018	XX	DW109XB17	LF	237	9.2	12.6	134.04	98.47	35.57	357	0.9	2.6					

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

A - The sampling location was Inaccessible

Sample collection notes:

LF - Low flow sample method used to collect the sample.

REPORT PREPARED: 3/8/2019 10:55

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW-103) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
DW-103																	
7/21/2008	XX	DW103X73B		11.6	165	1 J	26.7										
7/20/2009	XX	DW103X7B3		10.8	162	1.2 J	24.8										
7/26/2010	XX	DW103X80F		7.1	160	0.7 U	38.3										
7/25/2011	XX	DW103X8EE	256	9.1	157	0.7 U	48.6										
7/9/2012	XX	DW103X913	232	9.9	159	2 U	22.2										
7/8/2013	XX	DW103X975	223	8.7	160	2 U	23.2										
6/3/2014	XX	DW103N41793	239	9	161	2 U	36.4										
6/3/2014	XD	DW103D41793	245	9.1	159	2 U	36.9										
7/14/2014	XX	DW103X9F9	236	10	164	2 U	25.5										
7/20/2015	XX	DW103XA56	255	10.1	158	2 U	33.8										
10/17/2016	XD	DWDP3XADD	234	8.1	157	2 U	40.3										
10/17/2016	XX	DW103XADA	243	8.4	157	2 U	42.5										
10/2/2017	XD	DWDP3XAHB	243	11	160	2 U	43										
10/2/2017	XX	DW103XAH8	247	10	160	2 U	43										
10/9/2018	XD	DWDP3XB19	247	10 U	170	2 U	41										
10/9/2018	XX	DW103XB16	246	9.8	160	2 U	42										
DW04-109																	
7/21/2008	XX	DW109X740		38.8	433	4.1	151										
7/21/2009	XX	DW109X7BA		33.8	481	2.4	28.6										
7/27/2010	XX	DW109X812		14.8	520	1.6 J	19.7										
7/25/2011	XX	DW109X8EF	130	3.3	62	3.2	22.3										
7/25/2011	XD	DWDP3X8EI	129	3.6	62	3.2	22										
7/10/2012	XX	DW109X914	450	46.8	351	2 U	15.6										
7/10/2012	XD	DWDP3X917	450	44.8	331	2 U	15.9										
7/10/2013	XX	DW109X976	496	61.6	368	2 U	15.6										
7/10/2013	XD	DWDP3X979	499	59.7	366	2 U	15.2										
6/3/2014	XX	DW109N41793	327	25.3	248	3	11.6										
7/14/2014	XX	DW109X9FA	229	10.4	180	3.1	11.9										
7/14/2014	XD	DWDP3X9FD	264	17.8	200	3.1	14.1										
7/20/2015	XX	DW109XA57	162	2 U	109	3	11.1										
7/20/2015	XD	DWDP3XA5A	142	2 U	101	3	12										
10/17/2016	XX	DW109XADB	124	2 U	78	2.7	12										
10/2/2017	XX	DW109XAH9	106	2 U	74	2.7	13										
10/9/2018	XX	DW109XB17	119	3.6	97	3.1	8.8										

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 11:20

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW-103) Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
DW-103																	
7/21/2008	XX	DW103X73B	UF	0.008 J	36		0.24		15.1	0.16		2.6	23.4				
7/20/2009	XX	DW103X7B3	UF	0.007	34.3		0.43		14.1	0.16		2.4	21.7				
7/26/2010	XX	DW103X80F	UF	0.016	32.1		0.19		14.7	0.14		2.6	34.9				
7/25/2011	XX	DW103X8EE	UF	0.02	27.8		0.12	0.001 J	14.9	0.12	0.002 U	2.9	38.9				
10/18/2011	XX	DW103X8H0	UF	0.017		0.003 U											
7/9/2012	XX	DW103X913	UF	0.013	29.5	0.01 U	0.44	0.003 U	17.9	0.17	0.005 U	2.9	27.8				
7/8/2013	XX	DW103X975	UF	0.029	35.7	0.01 U	0.58	0.003 U	16.3	0.19	0.009	2.8	20.5				
6/3/2014	XX	DW103N41793	UF	0.012	33.5				14.3			2.6	32.5				
6/3/2014	XD	DW103D41793	UF	0.013	34.4				14.4			2.7	31.4				
7/14/2014	XX	DW103X9F9	UF	0.012	38.5	0.01 U	0.51	0.004 U	14.9	0.18	0.005 U	2.5	21.9				
4/13/2015	XX	DW103XA3C	UF	0.013													
7/20/2015	XX	DW103XA5G	UF	0.014													
7/20/2015	XX	DW103XA56	UF	0.019	36.5	0.01 U	0.4	0.004 U	15.5	0.16	0.005 U	2.7	30.1				
12/15/2015	XX	DW103XA7AX	UF	0.011													
12/15/2015	XX	DW103XA7A		A													
10/17/2016	XD	DWDP3XADD	UF	0.01	34.8	0.01 U	0.49	0.004 U	15.8	0.17	0.005 U	2.7	34.7				
10/17/2016	XX	DW103XADA	UF	0.01	35	0.01 U	0.45	0.004 U	15.2	0.16	0.005 U	2.7	34.5				
10/2/2017	XD	DWDP3XAHB	UF	0.009	33	0.01 U	0.46	0.003 U	15	0.16	0.005 U	2.4	31				
10/2/2017	XX	DW103XAH8	UF	0.01	31	0.01 U	0.44	0.003 U	15	0.15	0.005 U	2.4	31				
10/9/2018	XD	DWDP3XB19	UF	0.009	34	0.01 U	0.45	0.003 U	16	0.16	0.005 U	2.6	35				
10/9/2018	XX	DW103XB16	UF	0.006	34	0.01 U	0.48	0.003 U	16	0.16	0.005 U	2.7	36				
DW04-109																	
7/21/2008	XX	DW109X740	UF	0.003 J	94.3		43.92		37.1	0.45		4.5	44.5				
7/21/2009	XX	DW109X7BA	UF	0.002 U	166.2		164		50.4	1.36		1.9	16.3				
7/27/2010	XX	DW109X812	UF	0.039	140		31.1		50.3	0.34		1.4	14.5				
7/25/2011	XX	DW109X8EF	UF	0.002 U	5.8		19	0.001 J	15.8	0.11	0.003 J	8.3	10.1				
7/25/2011	XD	DWDP3X8EI	UF	0.002 U	6.1		23.1	0.001 J	16.3	0.13	0.004 J	8.8	10.4				
10/18/2011	XX	DW109X8H1	UF	0.003 J		0.003 U											
7/10/2012	XX	DW109X914	UF	0.01	57.3	0.01 U	1.89	0.003 U	30	0.09	0.005 U	8.4	12.8				
7/10/2012	XD	DWDP3X917	UF	0.005 U	97.8	0.01 U	3.77	0.003 U	43.5	0.15	0.005 U	4.6	14.6				
7/10/2013	XX	DW109X976	UF	0.042	109	0.01 U	3.07	0.003 U	46.2	0.17	0.005 U	2.8	12.5				
7/10/2013	XD	DWDP3X979	UF	0.036	87.4	0.01 U	3.33	0.003 U	41.5	0.15	0.005 U	3.8	12.9				
6/3/2014	XX	DW109N41793	UF	0.005 U	5.4				14.5			10.1	14.9				
7/14/2014	XX	DW109X9FA	UF	0.005 U	87.2	0.01 U	2.39	0.004 U	32.7	0.13	0.005 U	6.8	10.5				
7/14/2014	XD	DWDP3X9FD	UF	0.005 U	47.1	0.01 U	4.4	0.004 U	24	0.11	0.005 U	9.9	10.1				
4/13/2015	XX	DW109XA3D	UF	0.005 U													
7/20/2015	XX	DW109XA57	UF	0.006	42	0.01 U	2.44	0.004 U	19.7	0.09	0.005 U	13.1	7.5				
7/20/2015	XX	DW109XA5F	UF	0.005													
7/20/2015	XD	DWDP3XA5A	UF	0.006	45.2	0.01 U	2.12	0.004 U	20.2	0.09	0.005 U	13.2	7.5				
10/19/2015	XX	DW109XA81	UF	0.005													
10/17/2016	XX	DW109XADB	UF	0.005 U	5.3	0.01 U	0.53	0.004 U	14.8	0.05 U	0.005 U	11.5	12.1				
10/2/2017	XX	DW109XAH9	UF	0.003 U	5.6	0.01 U	1.4	0.003 U	13	0.06	0.005 U	9.4	8.7				
10/9/2018	XX	DW109XB17	UF	0.005 U	10	0.01 U	17	0.003 U	13	0.13	0.005 U	11	9.9				

SUMMARY REPORT

Residential Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)

Date	Type	Sample ID	Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

A - The sampling location was Inaccessible
J - Analyte was positively identified/Associated value is an estimate.
U - Not Detected above the laboratory reporting limit.

Sample collection notes:

UF - No analytical parameters were field filtered

REPORT PREPARED: 3/8/2019 13:07

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 1 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)			Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	Chloroform				
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L				
Date	Type	Sample ID															
DW04-109																	
7/21/2008	XX	DW109X740	EPA 8260	5 J	10 U	10 U	10 U	25 U	50 U	10 U	10 U	10 U	94				
7/21/2009	XX	DW109X7BA	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	4.8				
7/27/2010	XX	DW109X812	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/25/2011	XX	DW109X8EF	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.89 J				
7/25/2011	XD	DWDP3X8EI	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/10/2012	XX	DW109X914	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/10/2012	XD	DWDP3X917	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/10/2013	XX	DW109X976	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U				
7/10/2013	XD	DWDP3X979	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U				
7/14/2014	XX	DW109X9FA	EPA 8260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	2 U	0.5 U	0.5 U	0.5 U				
7/14/2014	XD	DWDP3X9FD	EPA 8260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	2 U	0.5 U	0.5 U	0.5 U				
7/20/2015	XX	DW109XA57	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
7/20/2015	XD	DWDP3XA5A	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/17/2016	XX	DW109XADBSIM	SW8260BSIM														
10/17/2016	XX	DW109XADB	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/2/2017	XX	DW109XAH9	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
10/9/2018	XX	DW109XB17	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
QCBT																	
5/21/2008	XX	BTXXXX71B	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U				
7/21/2008	XX	BTXXXX72G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U				
7/22/2008	XX	BTXXXX72H	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U				
7/23/2008	XX	BTXXXX73G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U				
7/20/2009	XX	BTXXXX7A8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/21/2009	XX	BTXXXX7A9	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/22/2009	XX	BTXXXX7B8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/26/2010	XX	BTXXXX800	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/27/2010	XX	BTXXXX801	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/28/2010	XX	BTXXXX810	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
4/13/2011	XX	BTXXXX8B3	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	23	0.5 U	0.5 U	0.5 U	0.5 U				
7/25/2011	XX	BTXXXX8EJ	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/26/2011	XX	BTXXXX8F4	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/27/2011	XX	BTXXXX8F5	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
10/18/2011	XX	BTXXXX8D1	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U				
4/10/2012	XX	BTXXXX8J6	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/9/2012	XX	BTXXXX918	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/10/2012	XX	BTXXXX91D	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
10/2/2012	XX	BTXXXX938	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
10/2/2012	XX	BTXXXXHG8	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
4/8/2013	XX	BTXXXX95B	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U				
7/8/2013	XX	BTXXXX97A	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U				
7/10/2013	XX	BTXXXX97C	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U				
10/22/2013	XX	BTXXXX9BD	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U				
10/22/2013	XX	BTXXXX9B9	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
4/28/2014	XX	BTXXXX9DD	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
7/14/2014	XX	BTXXXX9FE	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
9/30/2014	XX	BTXXXX9HC	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/1/2014	XX	BTXXXX9HF	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U				

REPORT PREPARED: 3/8/2019 13:07

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 1 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	Chloroform				
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L				
4/15/2015	XX	BTXXXXA37	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
7/20/2015	XX	BTXXXXA5B	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
7/22/2015	XX	BTXXXXA5D	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/20/2015	XX	BTXXXXA7G	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
4/25/2016	XX	BTXXXXA9F	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/17/2016	XX	BTXXXXADE	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/18/2016	XX	BTXXXXADF	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
10/19/2016	XX	BTXXXXADG	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U				
4/24/2017	XX	BTXXXXAFE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
10/2/2017	XX	BTXXXXAHC	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
10/3/2017	XX	BTXXXXAHD	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
10/4/2017	XX	BTXXXXAHE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
7/18/2018	XX	BTXXXXAA6	E624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U				
10/8/2018	XX	BTXXXXB1B	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				
10/10/2018	XX	BTXXXXB1C	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 13:09

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 2 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)

Date	Type	Sample ID	1,2-Dichloroethane ug/L	Methyl Ethyl Ketone ug/L	1,1,1-Trichloroethane ug/L	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L				
DW04-109																	
7/21/2008	XX	DW109X740	10 U	50 U	10 U	10 U	75 U	5 J	10 U	10 U	10 U	10 U	10 U				
7/21/2009	XX	DW109X7BA	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/27/2010	XX	DW109X812	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/25/2011	XX	DW109X8EF	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/25/2011	XD	DWDP3X8EI	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/10/2012	XX	DW109X914	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/10/2012	XD	DWDP3X917	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/10/2013	XX	DW109X976	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U				
7/10/2013	XD	DWDP3X979	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U				
7/14/2014	XX	DW109X9FA	0.5 U	5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.3 U	0.5 U	0.5 U	0.5 U				
7/14/2014	XD	DWDP3X9FD	0.5 U	5 U	0.5 U	0.5 U	10 U	0.5 U	0.5 U	0.3 U	0.5 U	0.5 U	0.5 U				
7/20/2015	XX	DW109XA57	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
7/20/2015	XD	DWDP3XA5A	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/17/2016	XX	DW109XADB	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/2/2017	XX	DW109XAH9	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
10/9/2018	XX	DW109XB17	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	10 U	2 U	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U				
7/21/2008	XX	BTXXXX72G	2 U	10 U	2 U	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U				
7/22/2008	XX	BTXXXX72H	2 U	10 U	2 U	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U				
7/23/2008	XX	BTXXXX73G	2 U	10 U	2 U	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U				
7/20/2009	XX	BTXXXX7A8	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/21/2009	XX	BTXXXX7A9	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/22/2009	XX	BTXXXX7B8	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/26/2010	XX	BTXXXX800	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/27/2010	XX	BTXXXX801	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/28/2010	XX	BTXXXX810	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
4/13/2011	XX	BTXXXX8B3	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/25/2011	XX	BTXXXX8EJ	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/26/2011	XX	BTXXXX8F4	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
7/27/2011	XX	BTXXXX8F5	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
10/18/2011	XX	BTXXXX8D1	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
4/10/2012	XX	BTXXXX8J6	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/9/2012	XX	BTXXXX918	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/10/2012	XX	BTXXXX91D	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
10/2/2012	XX	BTXXXX938	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
10/2/2012	XX	BTXXXXHG8	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
4/8/2013	XX	BTXXXX95B	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
7/8/2013	XX	BTXXXX97A	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U				
7/10/2013	XX	BTXXXX97C	0.5 U	5 U	0.5 U	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U				
10/22/2013	XX	BTXXXX9BD	2 U	10 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U				
10/22/2013	XX	BTXXXX9B9	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
4/28/2014	XX	BTXXXX9DD	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
7/14/2014	XX	BTXXXX9FE	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
9/30/2014	XX	BTXXXX9HC	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/1/2014	XX	BTXXXX9HF	2 U	10 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U				
4/15/2015	XX	BTXXXXA37	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				

REPORT PREPARED: 3/8/2019 13:09

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 2 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	1,2-Dichloroethane ug/L	Methyl Ethyl Ketone ug/L	1,1,1-Trichloroethane ug/L	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L				
7/20/2015	XX	BTXXXXA5B	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
7/22/2015	XX	BTXXXXA5D	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/20/2015	XX	BTXXXXA7G	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
4/25/2016	XX	BTXXXXA9F	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/17/2016	XX	BTXXXXADE	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/18/2016	XX	BTXXXXADF	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
10/19/2016	XX	BTXXXXADG	2 U	10 U	2 U	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U				
4/24/2017	XX	BTXXXXAFE	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
10/2/2017	XX	BTXXXXAHC	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
10/3/2017	XX	BTXXXXAHD	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
10/4/2017	XX	BTXXXXAHE	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
7/18/2018	XX	BTXXXXAA6	2 U	10 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U				
10/8/2018	XX	BTXXXXB1B	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				
10/10/2018	XX	BTXXXXB1C	1 U	10 U	1 U	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 13:11

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 3 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109) Date	Type	Sample ID	Trichloro fluoromethane ug/L	Benzene ug/L	trans-1,3-Dichloro propene ug/L	Bromoform ug/L	4-Methyl-2-Pentanone ug/L	2-Hexanone ug/L	Tetrachloro ethene ug/L	1,1,2,2-Tetrachloro ethane ug/L	Toluene ug/L	Chlorobenzene ug/L	Ethylbenzene ug/L	Styrene ug/L	2-Chloro ethylvinylether ug/L		
DW04-109																	
7/21/2008	XX	DW109X740	10 U	10 U	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U			
7/21/2009	XX	DW109X7BA	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/27/2010	XX	DW109X812	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XX	DW109X8EF	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XD	DWDP3X8EI	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/10/2012	XX	DW109X914	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2012	XD	DWDP3X917	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2013	XX	DW109X976	2.5 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	1 U			
7/10/2013	XD	DWDP3X979	2.5 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	1 U			
7/14/2014	XX	DW109X9FA	0.5 U	0.5 U	0.3 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/14/2014	XD	DWDP3X9FD	0.5 U	0.5 U	0.3 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/20/2015	XX	DW109XA57	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
7/20/2015	XD	DWDP3XA5A	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/17/2016	XX	DW109XADB	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/2/2017	XX	DW109XAH9	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/9/2018	XX	DW109XB17	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/8/2013	XX	BTXXXX97A	2.5 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	1 U			
7/10/2013	XX	BTXXXX97C	2.5 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	1 U			
10/22/2013	XX	BTXXXX9BD	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U	2 U		
10/22/2013	XX	BTXXXX9B9	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
4/28/2014	XX	BTXXXX9DD	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
7/14/2014	XX	BTXXXX9FE	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
9/30/2014	XX	BTXXXX9HC	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/1/2014	XX	BTXXXX9HF	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U	2 U		
4/15/2015	XX	BTXXXXA37	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			

REPORT PREPARED: 3/8/2019 13:11

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 3 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Trichloro fluoromethane	Benzene	trans-1,3-Dichloro propene	Bromoform	4-Methyl-2-Pentanone	2-Hexanone	Tetrachloro ethene	1,1,2,2-Tetrachloro ethane	Toluene	Chlorobenzene	Ethylbenzene	Styrene	2-Chloro ethylvinylether		
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
7/20/2015	XX	BTXXXXA5B	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
7/22/2015	XX	BTXXXXA5D	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/20/2015	XX	BTXXXXA7G	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
4/25/2016	XX	BTXXXXA9F	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/17/2016	XX	BTXXXXADE	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/18/2016	XX	BTXXXXADF	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
10/19/2016	XX	BTXXXXADG	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U			
4/24/2017	XX	BTXXXXAFE	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/2/2017	XX	BTXXXXAHC	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/3/2017	XX	BTXXXXAHD	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/4/2017	XX	BTXXXXAHE	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/18/2018	XX	BTXXXXAA6	5 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U	1 U	2 U	1 U	1 U	2 U		
10/8/2018	XX	BTXXXXB1B	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/10/2018	XX	BTXXXXB1C	5 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U			

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 13:36

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 4 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)			o-Xylene	m,p-Xylene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane	Acrylonitrile	trans-1,4-Dichloro-2-butene	Iodomethane	1,2-Dichloro benzene			
Date	Type	Sample ID	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L			
DW04-109																	
7/21/2008	XX	DW109X740	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			
7/21/2009	XX	DW109X7BA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/27/2010	XX	DW109X812	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XX	DW109X8EF	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XD	DWDP3X8EI	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/10/2012	XX	DW109X914	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2012	XD	DWDP3X917	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2013	XX	DW109X976	1 U	1 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U	5 U	2.5 U		2.5 U			
7/10/2013	XD	DWDP3X979	1 U	1 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U	5 U	2.5 U		2.5 U			
7/14/2014	XX	DW109X9FA	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	10 U	5 U	5 U	0.5 U			
7/14/2014	XD	DWDP3X9FD	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	10 U	5 U	5 U	0.5 U			
7/20/2015	XX	DW109XA57	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
7/20/2015	XD	DWDP3XA5A	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/17/2016	XX	DW109XADBSIM					0.05 U		0.05 U	0.05 U	0.25 U						
10/17/2016	XX	DW109XADB	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/2/2017	XX	DW109XAH9	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
10/9/2018	XX	DW109XB17	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
7/8/2013	XX	BTXXXX97A	1 U	1 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U	5 U	2.5 U		2.5 U			
7/10/2013	XX	BTXXXX97C	1 U	1 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U	5 U	2.5 U		2.5 U			
10/22/2013	XX	BTXXXX9B9	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/22/2013	XX	BTXXXX9BD	1 U	1 U							50 U			1 U			
4/28/2014	XX	BTXXXX9DD	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
7/14/2014	XX	BTXXXX9FE	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
9/30/2014	XX	BTXXXX9HC	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/1/2014	XX	BTXXXX9HF	1 U	1 U							50 U			1 U			

REPORT PREPARED: 3/8/2019 13:36

FOR: Pinetree Landfill

SUMMARY REPORT

Residential Voa's (part 4 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT) Date	Type	Sample ID	o-Xylene	m,p-Xylene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane	Acrylonitrile	trans-1,4-Dichloro-2-butene	Iodomethane	1,2-Dichloro benzene			
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L			
4/15/2015	XX	BTXXXXA37	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
7/20/2015	XX	BTXXXXA5B	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
7/22/2015	XX	BTXXXXA5D	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/20/2015	XX	BTXXXXA7G	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
4/25/2016	XX	BTXXXXA9F	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/17/2016	XX	BTXXXXADE	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/17/2016	XX	BTXXXXADESIM					0.05 U		0.05 U	0.05 U	0.25 U						
10/18/2016	XX	BTXXXXADF	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/18/2016	XX	BTXXXXADFSIM					0.05 U		0.05 U	0.05 U	0.25 U						
10/19/2016	XX	BTXXXXADG	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	5 U	5 U	1 U			
10/19/2016	XX	BTXXXXADGSIM					0.05 U		0.05 U	0.05 U	0.25 U						
4/24/2017	XX	BTXXXXAFE	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
10/2/2017	XX	BTXXXXAHC	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
10/3/2017	XX	BTXXXXAHD	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
10/4/2017	XX	BTXXXXAHE	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
7/18/2018	XX	BTXXXXAA6	1 U	1 U							50 U			1 U			
10/8/2018	XX	BTXXXXB1B	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			
10/10/2018	XX	BTXXXXB1C	1 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U	20 U	5 U	5 U	1 U			

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Residential Voa's (part 5 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109) Date	Type	Sample ID	1,3-Dichloro benzene ug/L	1,4-Dichloro benzene ug/L	trans-1,2-Dichloroethene ug/L	cis-1,2-Dichloroethene ug/L	Diethyl ether ug/L	Tetra hydrofuran ug/L
DW04-109								
7/21/2008	XX	DW109X740		10 U	10 U	10 U		
7/21/2009	XX	DW109X7BA		1 U	1 U	1 U		
7/27/2010	XX	DW109X812		0.5 U	0.5 U	0.5 U		
7/25/2011	XX	DW109X8EF		0.5 U	0.5 U	0.5 U		
7/25/2011	XD	DWDP3X8EI		0.5 U	0.5 U	0.5 U		
7/10/2012	XX	DW109X914		1 U	1 U	1 U		
7/10/2012	XD	DWDP3X917		1 U	1 U	1 U		
7/10/2013	XX	DW109X976		2.5 U	0.75 U	0.5 U		
7/10/2013	XD	DWDP3X979		2.5 U	0.75 U	0.5 U		
7/14/2014	XX	DW109X9FA		0.5 U	0.5 U	0.5 U		
7/14/2014	XD	DWDP3X9FD		0.5 U	0.5 U	0.5 U		
7/20/2015	XX	DW109XA57		1 U	2 U	2 U		
7/20/2015	XD	DWDP3XA5A		1 U	2 U	2 U		
10/17/2016	XX	DW109XADB		1 U	2 U	2 U	5 U	10 U
10/2/2017	XX	DW109XAH9		1 U	1 U	1 U	5 U	10 U
10/9/2018	XX	DW109XB17		1 U	1 U	1 U	5 U	10 U
QCBT								
5/21/2008	XX	BTXXXX71B		2 U	2 U	2 U		
7/21/2008	XX	BTXXXX72G		2 U	2 U	2 U		
7/22/2008	XX	BTXXXX72H		2 U	2 U	2 U		
7/23/2008	XX	BTXXXX73G		2 U	2 U	2 U		
7/20/2009	XX	BTXXXX7A8		1 U	1 U	1 U		
7/21/2009	XX	BTXXXX7A9		1 U	1 U	1 U		
7/22/2009	XX	BTXXXX7B8		1 U	1 U	1 U		
7/26/2010	XX	BTXXXX800		0.5 U	0.5 U	0.5 U		
7/27/2010	XX	BTXXXX801		0.5 U	0.5 U	0.5 U		
7/28/2010	XX	BTXXXX810		0.5 U	0.5 U	0.5 U		
4/13/2011	XX	BTXXXX8B3		0.5 U	0.5 U	0.5 U		
7/25/2011	XX	BTXXXX8EJ		0.5 U	0.5 U	0.5 U		
7/26/2011	XX	BTXXXX8F4		0.5 U	0.5 U	0.5 U		
7/27/2011	XX	BTXXXX8F5		0.5 U	0.5 U	0.5 U		
10/18/2011	XX	BTXXXX8D1		0.5 U	0.5 U	0.5 U		
4/10/2012	XX	BTXXXX8J6		1 U	1 U	1 U		
7/9/2012	XX	BTXXXX918		1 U	1 U	1 U		
7/10/2012	XX	BTXXXX91D		1 U	1 U	1 U		
10/2/2012	XX	BTXXXX938		1 U	1 U	1 U		
10/2/2012	XX	BTXXXXHG8		1 U	1 U	1 U		
4/8/2013	XX	BTXXXX95B		1 U	1 U	1 U		
7/8/2013	XX	BTXXXX97A		2.5 U	0.75 U	0.5 U		
7/10/2013	XX	BTXXXX97C		2.5 U	0.75 U	0.5 U		
10/22/2013	XX	BTXXXX9BD	1 U	1 U	2 U	2 U		
10/22/2013	XX	BTXXXX9B9		1 U	2 U	2 U		
4/28/2014	XX	BTXXXX9DD		1 U	2 U	2 U		
7/14/2014	XX	BTXXXX9FE		1 U	2 U	2 U		
9/30/2014	XX	BTXXXX9HC		1 U	2 U	2 U		
10/1/2014	XX	BTXXXX9HF	1 U	1 U	2 U	2 U		
4/15/2015	XX	BTXXXXA37		1 U	2 U	2 U		

SUMMARY REPORT

Residential Voa's (part 5 of 5)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	1,3-Dichloro benzene ug/L	1,4-Dichloro benzene ug/L	trans-1,2-Dichloroethene ug/L	cis-1,2-Dichloroethene ug/L	Diethyl ether ug/L	Tetra hydrofuran ug/L
7/20/2015	XX	BTXXXXA5B		1 U	2 U	2 U		
7/22/2015	XX	BTXXXXA5D		1 U	2 U	2 U		
10/20/2015	XX	BTXXXXA7G		1 U	2 U	2 U		
4/25/2016	XX	BTXXXXA9F		1 U	2 U	2 U	5 U	10 U
10/17/2016	XX	BTXXXXADE		1 U	2 U	2 U	5 U	10 U
10/18/2016	XX	BTXXXXADF		1 U	2 U	2 U	5 U	10 U
10/19/2016	XX	BTXXXXADG		1 U	2 U	2 U	5 U	10 U
4/24/2017	XX	BTXXXXAFE		1 U	1 U	1 U	5 U	10 U
10/2/2017	XX	BTXXXXAHC		1 U	1 U	1 U	5 U	10 U
10/3/2017	XX	BTXXXXAHD		1 U	1 U	1 U	5 U	10 U
10/4/2017	XX	BTXXXXAHE		1 U	1 U	1 U	5 U	10 U
7/18/2018	XX	BTXXXXAA6	1 U	1 U	2 U	2 U		
10/8/2018	XX	BTXXXXB1B		1 U	1 U	1 U	5 U	10 U
10/10/2018	XX	BTXXXXB1C		1 U	1 U	1 U	5 U	10 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 13:40

FOR: Pinetree Landfill

SUMMARY REPORT

Surface Water Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-A) Date	Type	Sample ID	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Eh mV	Dissolved Oxygen mg/L	Turbidity (field) NTU
SW-A								
4/28/2008	XX	SWXXAX6J7	86	8.3	13.6	261	4	0
7/22/2008	XX	SWXXAX71J	113	8	22.9	433	6	2.1
10/7/2008	XX	SWXXAX74A	99	7.9	12.3	350	6	0.8
4/21/2009	XX	SWXXAX771	74	8.1	9.7	90	6	0.4
7/21/2009	XX	SWXXAX79B	110	8.1	22.1	265	6	2.3
10/20/2009	XX	SWXXAX7E6	156	7	5.6	304	5	0.8
3/30/2010	XX	SWXXAX7GI	71	7.6	7	373	5	3.7
7/27/2010	XX	SWXXAX7J3	115	7.8	22.3	328	5	1.6
10/5/2010	XX	SWXXAX81A	131	7.9	14.1	278	5	0.4
4/12/2011	XX	SWXXAX8A1	86	7.5	8.2	242	5	3.5
7/26/2011	XX	SWXXAX8DH	107	7.8	20.3	472	6	2.3
10/18/2011	XX	SWXXAX8BJ	109	8.7	12.3	341	6	0.5
4/11/2012	XX	SWXXAX8I4	97	7.7	7.2	325	6	3.5
7/10/2012	XX	SWXXAX907	100	7.9	25.6	84	5	6.8
10/3/2012	XX	SWXXAX929	115	8	15.4	238	5	4
4/9/2013	XX	SWXXAX949	88	7.9	4.5	221	5	2.2
7/9/2013	XX	SWXXAX969	111	7.9	24.1	379	6	1.2
10/22/2013	XX	SWXXAX9A8	118	7.8	13.4	170	6	2.8
4/29/2014	XX	SWXXAX9CB	89	7.7	7.6	304	6	0.5
7/15/2014	XX	SWXXAX9ED	105	7.8	23.7	339	5	0.5
9/30/2014	XX	SWXXAX9GC	114	7.8	13.1	219	4	1.1
4/14/2015	XX	SWXXAXA26	91	7.1	2.2	337	11.4	1.8
7/21/2015	XX	SWXXAXA4A	126	7.8	22.2	332	4.9	1.2
10/20/2015	XX	SWXXAXA6G	104	8.2	8.1	369	9.7	2.3
4/26/2016	XX	SWXXAXA8H	100	8.7	9.5	265	8.1	1.6
10/18/2016	XX	SWXXAXACI	180	8.3	10.3	331	4.6	1.8
4/25/2017	XX	SWXXAXAEI	81	8.1	8	292	11.2	1.2
10/3/2017	XX	SWXXAXAGG	135	8.3	9.3	369	8.9	1.1
4/10/2018	XX	SWXXAXAIE	99	8.7	2.8	405	6.9	1.1
10/10/2018	XX	SWXXAXB0E	167	7.9	16.1	324	6.9	1.1
SW-C								
4/28/2008	XX	SWXXCX6J9	83	8.2	15.7	330	6	0.6
7/22/2008	XX	SWXXCX721	116	7.8	23.2	397	6	6.8
10/7/2008	XX	SWXXCX74C	98	8	11	361	6	1.2
4/21/2009	XX	SWXXCX773	86	8.3	10.8	234	6	4.1
7/21/2009	XX	SWXXCX79D	100	7.9	22.6	469	4	1.2
10/20/2009	XX	SWXXCX7E8	97	6.6	6.1	428	6	0.2
3/30/2010	XX	SWXXCX7H0	71	7.5	5.9	323	6	3.4
7/27/2010	XX	SWXXCX7J5	120	7.6	25.3	552	6	1.8
10/5/2010	XX	SWXXCX81C	134	8	12.7	283	6	0.3
4/12/2011	XX	SWXXCX8A2	87	7.1	6.6	427	5	2.5
7/26/2011	XX	SWXXCX8DI	114	7.9	20.1	350	5	2.7
10/18/2011	XX	SWXXCX8C0	112	8.4	12.9	334	6	1.7
4/11/2012	XX	SWXXCX8I5	100	7	8.1	305	8	2.3
7/10/2012	XX	SWXXCX908	109	7.5	23.3	201	8	9.3
10/3/2012	XX	SWXXCX92A	110	7.8	15.8	239	6	3.8
4/9/2013	XX	SWXXCX94A	110	6	4.6	-2	5	2.7

SUMMARY REPORT

Surface Water Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Eh mV	Dissolved Oxygen mg/L	Turbidity (field) NTU
(SW-C)								
7/9/2013	XX	SWXXCX96A	104	7.9	23.7	227	6	0.6
10/22/2013	XX	SWXXCX9A9	140	7.5	13.4	175	5	1.2
4/29/2014	XX	SWXXCX9CC	66	7.6	8.4	270	6	0.9
7/15/2014	XX	SWXXCX9EE	123	7.9	23.8	303	5	0.8
9/30/2014	XX	SWXXCX9GD	145	7.4	12.6	343	6	1.3
4/14/2015	XX	SWXXCXA27	96	7.6	8.8	360	9.1	0.7
7/21/2015	XX	SWXXCXA4B	136	8	22.4	321	5.3	1.3
10/20/2015	XX	SWXXCXA6H	83	8.3	7.9	388	9.5	2.1
4/26/2016	XX	SWXXCXA8I	116	8.4	8.1	309	8.3	1.6
10/18/2016	XX	SWXXCXACJ	200	8.3	10.1	345	6.8	2.2
4/25/2017	XX	SWXXCXAEJ	71	7.6	8.2	369	9.9	0.8
10/3/2017	XX	SWXXCXAGH	163	8.3	10.9	398	9.7	0.9
4/10/2018	XX	SWXXCXAIF	106		2.2	430	15.5	1.2
10/10/2018	XX	SWXXCXB0F	170	7.7	18	421	7.6	2.1
SW-D								
4/28/2008	XX	SWXXDX6JA	393	7.8	13.1	324	5	0.6
7/22/2008	XX	SWXXDX722	305	7.6	20.9	388	5	6.4
10/7/2008	XX	SWXXDX74D	188	7.9	8.2	373	6	1.2
4/21/2009	XX	SWXXDX774	196	7.7	7.5	225	6	8.7
7/21/2009	XX	SWXXDX79E	605	8.1	14.6	445	6	1.9
10/20/2009	XX	SWXXDX7E9	302	7	4.6	303	5	0.8
3/30/2010	XX	SWXXDX7H1	146	7.8	4.8	182	6	8.1
7/27/2010	XX	SWXXDX7J6	581	7.8	15.6	298	5	2.2
10/5/2010	XX	SWXXDX81D	234	7.8	12.1	317	5	3.2
4/12/2011	XX	SWXXDX8A3	287	7.4	7.4	402	5	1.8
7/26/2011	XX	SWXXDX8DJ	550	7.7	13.8	460	4	1.2
10/18/2011	XX	SWXXDX8C1	292	8.3	11.3	306	6	1.2
4/11/2012	XX	SWXXDX8I6	289	7.9	5.7	341	6	4.6
7/10/2012	XX	SWXXDX909	657	7.8	16.2	96	6	8
10/3/2012	XX	SWXXDX92B	268	8.3	14.4	237	6	7.7
4/9/2013	XX	SWXXDX94B	332	6	2.8	170	6	6.4
7/9/2013	XX	SWXXDX96B	461	7.8	18.8	239	6	1
10/22/2013	XX	SWXXDX9AA	554	7.2	11.1	208	4	2.2
4/29/2014	XX	SWXXDX9CD	200	7.1	5.5	391	4	0.8
7/15/2014	XX	SWXXDX9EF	657	7.6	16.5	360	6	2.4
9/30/2014	XX	SWXXDX9GE	788	7.6	11	370	5	0.8
4/14/2015	XX	SWXXDXA28	197	7.3	2.4	294	10.2	0.9
7/21/2015	XX	SWXXDXA4C	705	7.7	18.3	365	6.7	1.2
10/20/2015	XX	SWXXDXA6I	406	7.8	5.7	404	9.1	1.8
4/26/2016	XX	SWXXDXA8J	553	8.2	4.7	351	9.9	1.8
10/18/2016	XX	SWXXDXAD0	890	7.5	9.8	285	5.1	2.1
4/25/2017	XX	SWXXDXAF0	368	7.7	5.8	309	11.9	1.1
10/3/2017	XX	SWXXDXAGI	883	8.1	8.8	433	7.7	1
4/10/2018	XX	SWXXDXAIG	337	8.4	1	420	13.2	1.2
10/10/2018	XX	SWXXDXB0G	728	7.8	15.9	421	5.3	2.2
SW-E								
4/28/2008	XX	SWXXEX6JB	519	8.3	15.8	364	5	0.8
7/22/2008	XX	SWXXEX723	508	7.7	18.2	385	6	2.2

REPORT PREPARED: 3/8/2019 13:40

FOR: Pinetree Landfill

SUMMARY REPORT

Surface Water Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-E)

Date	Type	Sample ID	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Eh mV	Dissolved Oxygen mg/L	Turbidity (field) NTU									
10/7/2008	XX	SWXXEX74E	408	7.7	8.5	359	6	0.8									
4/21/2009	XX	SWXXEX775	523	7.7	7.6	250	6	6.1									
7/21/2009	XX	SWXXEX79F	618	7.9	14.8	436	6	5									
10/20/2009	XX	SWXXEX7EA	692	7.9	3.9	318	4	0.6									
3/30/2010	XX	SWXXEX7H2	180	7.6	7	142	6	7.6									
7/27/2010	XX	SWXXEX7J7	709	7.7	15.8	352	6	2.6									
10/5/2010	XX	SWXXEX81E	477	7.8	12.2	249	6	2.3									
4/12/2011	XX	SWXXEX8A4	289	7.6	7.1	406	5	1.8									
7/26/2011	XX	SWXXEX8E0	674	7.7	13.2	428	6	0.6									
10/18/2011	XX	SWXXEX8C2	469	7.9	10.8	385	6	1									
4/11/2012	XX	SWXXEX8I7	420	8.1	5.3	351	8	4.6									
7/10/2012	XX	SWXXEX90A	715	8.2	17.5	97	8	2.9									
10/3/2012	XX	SWXXEX92C	415	8	13.8	229	6	6.2									
4/9/2013	XX	SWXXEX94C	559	6.3	3.6	433	5	8.7									
7/9/2013	XX	SWXXEX96C	737	7.9	14.8	244	6	0.8									
10/22/2013	XX	SWXXEX9AB	693	7.7	11.7	193	6	2.1									
4/29/2014	XX	SWXXEX9CE	527	6.8	6.2	366	5	0.7									
7/15/2014	XX	SWXXEX9EG	806	7.9	15.4	337	5	1.4									
9/30/2014	XX	SWXXEX9GF	826	7.9	11.2	321	5	1									
4/14/2015	XX	SWXXEXA29	241	7.2	4.4	332	12.3	0.8									
7/21/2015	XX	SWXXEXA4D	914	7.9	14.1	341	7.2	0.8									
10/20/2015	XX	SWXXEXA6J	689	7.5	6.7	414	9.5	1.3									
4/26/2016	XX	SWXXEXA90	827	8.1	4.9	357	10.3	1.8									
10/18/2016	XX	SWXXEXAD1	721	7.8	9.6	332	8.6	2.2									
4/25/2017	XX	SWXXEXAF1	529	7.8	6.3	305	11.9	1.3									
10/3/2017	XX	SWXXEXAGJ	883	8	7.2	417	11.2	1.5									
4/10/2018	XX	SWXXEXAIH	547	8	2.1	426	17.2	2.2									
10/10/2018	XX	SWXXEXB0H	1046	8	14.5	412	7.4	1.8									

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

SUMMARY REPORT

Surface Water Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-A) Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L
SW-A							
4/28/2008	XX	SWXXAX6J7		2.4	21	5	10.6
7/22/2008	XX	SWXXAX71J		3.1	27	9.1	9.8
10/7/2008	XX	SWXXAX74A		5.8	23	18	10
4/21/2009	XX	SWXXAX771		2	17.9	6.2	8
7/21/2009	XX	SWXXAX79B		1.2 J	32	10.2	8.6
10/20/2009	XX	SWXXAX7E6		2.2	37	6.2	10.7
3/30/2010	XX	SWXXAX7GI		2.4	16.6	4.2	6.8
7/27/2010	XX	SWXXAX7J3		1 J	36	6.9	7.9
10/5/2010	XX	SWXXAX81A		1.9 J	30	9.2	10
4/12/2011	XX	SWXXAX8A1	60	1.9 J	15.4	4.5	7.6
7/26/2011	XX	SWXXAX8DH	99	1.1 J	37	7	9.7
10/18/2011	XX	SWXXAX8BJ	99	1.3 J	29	11.1	8.7
4/11/2012	XX	SWXXAX8I4	68	3.3	23	5.8	9.5
7/10/2012	XX	SWXXAX907	71	2 U	28	9.6	6.8
10/3/2012	XX	SWXXAX929	89	3.2	29	10.3	9.3
4/9/2013	XX	SWXXAX949	48	2.9	20	4.1	8.4
7/9/2013	XX	SWXXAX969	78	2 U	33	8.3	7.7
10/22/2013	XX	SWXXAX9A8	95	2.4	35	8.9	9
4/29/2014	XX	SWXXAX9CB	50	3.6	20	4.5	9.7
7/15/2014	XX	SWXXAX9ED	70	2 U	35	9.2	9.6
9/30/2014	XX	SWXXAX9GC	100	2 U	38	8.1	10.4
4/14/2015	XX	SWXXAXA26	68	3.1	22	4	18.1
7/21/2015	XX	SWXXAXA4A	87	2 U	35	7	14.5
10/20/2015	XX	SWXXAXA6G	85	3.4	29	9.7	15.8
4/26/2016	XX	SWXXAXA8H	66	2.6	26	4.9	13.1
10/18/2016	XX	SWXXAXACI	118	2 U	49	9.1	22.7
4/25/2017	XX	SWXXAXAEI	48	10 U	20	5.9	11
10/3/2017	XX	SWXXAXAGG	92	2 U	37	7.3	17
4/10/2018	XX	SWXXAXAIE	54	2 U	21	6.4	13
10/10/2018	XX	SWXXAXB0E	85	4.1	42	7.8	17
SW-C							
4/28/2008	XX	SWXXCX6J9		2.5	21	5.3	10.8
7/22/2008	XX	SWXXCX721		3.4	33	9.5	10.2
10/7/2008	XX	SWXXCX74C		2.4	28	13.6	9.9
4/21/2009	XX	SWXXCX773		1.7 J	18.9	5.1	8.5
7/21/2009	XX	SWXXCX79D		1.4 J	32	10.2	8.4
10/20/2009	XX	SWXXCX7E8		2.4	39	6.5	10.6
3/30/2010	XX	SWXXCX7H0		2.4	16.6	4.7	6.6
7/27/2010	XX	SWXXCX7J5		1.4 J	38	6.4	8.4
10/5/2010	XX	SWXXCX81C		2.5	33	9.2	10.2
4/12/2011	XX	SWXXCX8A2	56	2	15.5	4.4	7.8
7/26/2011	XX	SWXXCX8DI	94	1.9 J	37	6.8	10
10/18/2011	XX	SWXXCX8C0	80	1.5 J	29	11.3	8.6
10/18/2011	XD	SWDP2X8BC	75	1.4 J	28	10.9	8.3
4/11/2012	XX	SWXXCX8I5	72	3.5	25	4.7	9.6
7/10/2012	XX	SWXXCX908	72	2 U	28	8.5	7
10/3/2012	XX	SWXXCX92A	88	3.3	30	10.4	8.7

SUMMARY REPORT

Surface Water Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L
(SW-C)							
10/3/2012	XD	SWDP2X922	80	3.3	30	12	8.9
4/9/2013	XX	SWXXCX94A	54	3	21	4.1	8.3
7/9/2013	XX	SWXXCX96A	73	2 U	34	8.3	8
10/22/2013	XX	SWXXCX9A9	83	2 U	35	8.9	8.7
10/22/2013	XD	SWDP2X9A1	84	2 U	35	9	8.8
4/29/2014	XX	SWXXCX9CC	57	3.6	21	4.5	9.8
7/15/2014	XX	SWXXCX9EE	70	2 U	34	9.7	9.5
9/30/2014	XX	SWXXCX9GD	97	2 U	42	7.9	10.3
9/30/2014	XD	SWDP2X9G5	92	2	45	7.7	10.2
4/14/2015	XX	SWXXCXA27	67	3.2	23	4.1	17.9
7/21/2015	XX	SWXXCXA4B	93	2 U	37	7	14.5
10/20/2015	XX	SWXXCXA6H	86	3.5	30	9.5	15.7
10/20/2015	XD	SWDP2XA69	99	3.5	30	9.3	13.4
4/26/2016	XX	SWXXCXA8I	55	2.6	27	5.1	13.1
10/18/2016	XX	SWXXCXACJ	114	2.5	58	4.4	18.6
4/25/2017	XX	SWXXCXAEJ	35	2.5	20	6.1	11
10/3/2017	XX	SWXXCXAGH	91	2.1	37	6.8	18
4/10/2018	XX	SWXXCXAIF	55	2 U	21	5.8	13
10/10/2018	XX	SWXXCXB0F	87	4.4	48	7.4	17
SW-D							
4/28/2008	XX	SWXXDX6JA		7.4	120	4.9	56.3
4/28/2008	XD	SWDP3X6J4		7.2	116	5.2	55.6
7/22/2008	XX	SWXXDX722		9.1	62	11.2	47
10/7/2008	XX	SWXXDX74D		3.8	46	18.1	31.4
10/7/2008	XD	SWDP3X747		3.7	47	22.9	31.2
4/21/2009	XX	SWXXDX774		3.1	54	8	30
7/21/2009	XX	SWXXDX79E		4.1	119	7.6	40.7
10/20/2009	XX	SWXXDX7E9		8	62	7.4	35.1
3/30/2010	XX	SWXXDX7H1		3.9	54	7.6	48.6
3/30/2010	XD	SWDP3X7GF		3.8	36	7.8	28.7
7/27/2010	XX	SWXXDX7J6		6.6	234	0.9 J	63.8
10/5/2010	XX	SWXXDX81D		3.2	46	14.3	29.1
10/5/2010	XD	SWDP3X817		3.3	46	14.5	32.4
4/12/2011	XX	SWXXDX8A3	163	2.8	45	5.9	43.5
4/12/2011	XD	SWDP2X89E	199	3.1	62	4.9	53.4
7/26/2011	XX	SWXXDX8DJ	354	13.2	171	2	72.8
10/18/2011	XX	SWXXDX8C1	196	2.5	75	12	30.8
4/11/2012	XX	SWXXDX8I6	190	4.6	55	6.7	48.8
4/11/2012	XD	SWDP2X8HH	183	4.7	57	6.5	58.8
7/10/2012	XX	SWXXDX909	404	9.4	210	2	94
10/3/2012	XX	SWXXDX92B	198	5.8	62	14.2	41.2
4/9/2013	XX	SWXXDX94B	162	4.4	39	5.1	56.9
4/9/2013	XD	SWDP2X942	171	4.6	40	5.4	61.3
7/9/2013	XX	SWXXDX96B	280	3.2	110	10	71.5
10/22/2013	XX	SWXXDX9AA	354	6.4	161	7.3	77.9
4/29/2014	XX	SWXXDX9CD	197	5.4	50	6.6	67.9
4/29/2014	XD	SWDP2X9C4	196	5.3	50	6.6	68.4
7/15/2014	XX	SWXXDX9EF	360	7.6	167	6.1	85.6
9/30/2014	XX	SWXXDX9GE	497	9.2	251	2 U	96.4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
(SW-D)																	
4/14/2015	XX	SWXXDXA28	117	3.2	25	5.8	45.5										
4/14/2015	XD	SWDP2XA1J	106	3.1	24	5.6	41										
7/21/2015	XX	SWXXDXA4C	414	6 U	130	5.7	144										
10/20/2015	XX	SWXXDXA6I	280	8.9	77	10.4	76										
4/26/2016	XD	SWDP2XA8A	311	5.3	84	5.5	131										
4/26/2016	XX	SWXXDXA8J	310	5.6	85	6.6	103										
10/18/2016	XD	SWDP2XACB	557	11	230	2 U	96.3										
10/18/2016	XX	SWXXDXAD0	566	11	235	2 U	96.2										
4/25/2017	XD	SWDP2XAEB	223	3.9	46	8.7	98										
4/25/2017	XX	SWXXDXAF0	213	4.3	47	8.6	99										
10/3/2017	XD	SWDP2XAG9	558	9.7	220	2 U	140										
10/3/2017	XX	SWXXDXAGI	554	11	220	2 U	180										
4/10/2018	XD	SWDP2XAI7	233	10 U	57	6.5	89										
4/10/2018	XX	SWXXDXAIG	224	10 U	52	5	87										
10/10/2018	XD	SWDP2XB07	411	12	120	9.3	150										
10/10/2018	XX	SWXXDXB0G	407	10 U	110	9.6	150										
SW-E																	
4/28/2008	XX	SWXXEX6JB		12.9	149	6.8	83.4										
7/22/2008	XX	SWXXEX723		12.4	155	6.5	64.1										
10/7/2008	XX	SWXXEX74E		8.2	124	16.6	60.9										
4/21/2009	XX	SWXXEX775		10.1	170	4.7	73.4										
7/21/2009	XX	SWXXEX79F		12.5	220	4.8	77.1										
10/20/2009	XX	SWXXEX7EA		9.4	135	5	54.7										
3/30/2010	XX	SWXXEX7H2		3.4	35	7.9	24.7										
7/27/2010	XX	SWXXEX7J7		7.5	258	1.6 J	68.4										
10/5/2010	XX	SWXXEX81E		6.2	124	8.6	49.6										
4/12/2011	XX	SWXXEX8A4	168	3.6	55	5.4	47										
7/26/2011	XX	SWXXEX8E0	445	14.7	241	2.1	81.5										
7/26/2011	XD	SWDP2X8DA	454	14.7	237	1.9 J	81.2										
10/18/2011	XX	SWXXEX8C2	293	5.4	126	9.2	45.8										
4/11/2012	XX	SWXXEX8I7	276	18.2	107	5.6	64.9										
7/10/2012	XX	SWXXEX90A	442	13.5	243	3.2	96.6										
7/10/2012	XD	SWDP2X900	441	13.2	240	2 U	97.2										
10/3/2012	XX	SWXXEX92C	273	7.9	111	10.8	54										
4/9/2013	XX	SWXXEX94C	317	5.9	75	6.2	114										
7/9/2013	XX	SWXXEX96C	460	10.1	221	3.2	87.6										
7/9/2013	XD	SWDP2X962	456	10.2	220	3.2	87.7										
10/22/2013	XX	SWXXEX9AB	446	10.4	235	2.3	78.5										
4/29/2014	XX	SWXXEX9CE	303	8.2	105	4.9	88.7										
7/15/2014	XX	SWXXEX9EG	481	10.2	228	2.8	106										
7/15/2014	XD	SWDP2X9E6	473	10.4	230	2.8	109										
9/30/2014	XX	SWXXEX9GF	500	8.9	256	2 U	98.5										
4/14/2015	XX	SWXXEXA29	155	4.1	39	5.3	68.9										
7/21/2015	XX	SWXXEXA4D	555	10.4	244	2 U	138										
7/21/2015	XD	SWDP2XA43	553	10.3	243	2 U	147										
10/20/2015	XX	SWXXEXA6J	443	11.4	185	4.3	86.1										
4/26/2016	XX	SWXXEXA90	484	9.2	193	2.4	149										
10/18/2016	XX	SWXXEXAD1	534	10.2	253	2.2	131										
4/25/2017	XX	SWXXEXAF1	334	6.3	110	6.9	130										

SUMMARY REPORT

Surface Water Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-E)

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
10/3/2017	XX	SWXXEXAGJ	526	9.4	230	2 U	130										
4/10/2018	XX	SWXXEXAIH	315	10 U	83	6.3	110										
10/10/2018	XX	SWXXEXB0H	582	11	220	3.5	180										

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 13:46

FOR: Pinetree Landfill

SUMMARY REPORT

Surface Water Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-A)			Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium				
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Date	Type	Sample ID															
SW-A																	
4/28/2008	XX	SWXXAX6J7	UF		6.4		0.14		1.3	0.02 J		0.5	5.6				
7/22/2008	XX	SWXXAX71J	UF		10.4		0.25		2.2	0.08		0.6	7.3				
10/7/2008	XX	SWXXAX74A	UF		9.3		0.37		2.1	0.04 J		0.9	6.3				
4/21/2009	XX	SWXXAX771	UF		6.2		0.11		1.5	0.02 U		0.5	5.2				
7/21/2009	XX	SWXXAX79B	UF		9.5		0.46		2	0.05		0.4	5.7				
10/20/2009	XX	SWXXAX7E6	UF		11.6		0.29		2.5	0.03 J		1	7.3				
3/30/2010	XX	SWXXAX7GI	UF		5.4		0.13		1.2	0.02 U		0.5	4.4				
7/27/2010	XX	SWXXAX7J3	UF		10.4		0.11		2.4	0.04 J		0.4	6.6				
10/5/2010	XX	SWXXAX81A	UF		10.5		0.19		2.6	0.05		1	7.7				
4/12/2011	XX	SWXXAX8A1	UF		5.5		0.12		1.3			0.5	5.3				
7/26/2011	XX	SWXXAX8DH	UF	0.004 J	10.4		0.17	0.0001 U	2.4	0.06	0.002 J	0.3	6.9				
10/18/2011	XX	SWXXAX8BJ	UF	0.002 J	9.5		0.34		2			0.9	5.6				
10/18/2011	XX	SWXXAX8G6	UF			0.003 U											
4/11/2012	XX	SWXXAX8I4	UF	0.003 J	7.5		0.13		1.8			0.6	5.8				
7/10/2012	XX	SWXXAX907	UF	0.005 U	8.4	0.01 U	0.35	0.0003 U	2	0.05	0.005 U	0.4	6				
10/3/2012	XX	SWXXAX929	UF	0.005 U	9.4		0.31		2.1			0.8	6.4				
4/9/2013	XX	SWXXAX949	UF	0.005 U	6.4		0.11		1.7			0.7	6.2				
7/9/2013	XX	SWXXAX969	UF	0.005	9.4	0.01 U	0.34	0.0003 U	2.3	0.05 U	0.005 U	0.4	6.1				
10/22/2013	XX	SWXXAX9A8	UF	0.005 U	11		0.26		2.6			0.8	7.1				
4/29/2014	XX	SWXXAX9CB	UF	0.005 U	6.2		0.11		1.4			1	6.6				
7/15/2014	XX	SWXXAX9ED	UF	0.005 U	9.8	0.01 U	0.33	0.0003 U	2	0.05	0.005 U	0.4	6.7				
9/30/2014	XX	SWXXAX9GC	UF	0.008	10.5		0.33		2.3			1.4	7.5				
4/14/2015	XX	SWXXAXA26	UF	0.005 U	7		0.22		1.6			0.7	6.1				
7/21/2015	XX	SWXXAXA4A	UF	0.012	11.8	0.01 U	0.2	0.0003 U	2.7	0.05 U	0.005 U	1.5	10.6				
10/20/2015	XX	SWXXAXA6G	UF	0.013	9.8		0.39		2.2			1.3	8.4				
4/26/2016	XX	SWXXAXA8H	UF	0.01	8.1		0.12		1.7			0.5	5.9				
10/18/2016	XX	SWXXAXACI	UF	0.005 U	17.3		0.11		4	0.1		1.3	11				
4/25/2017	XX	SWXXAXAEI	UF	0.006	5.1		0.11		1.3			0.4	5.5				
10/3/2017	XX	SWXXAXAGG	UF	0.005	12		0.12		2.6	0.05 U		0.6	7.4				
4/10/2018	XX	SWXXAXAIE	UF	0.005 U	7		0.24		1.6			0.6	7.3				
10/10/2018	XX	SWXXAXB0E	UF	0.005 U	13		0.11		2.7	0.05 U		0.6	8.7				
SW-C																	
4/28/2008	XX	SWXXCX6J9	UF		6.7		0.16		1.5	0.03 J		0.5	5.6				
7/22/2008	XX	SWXXCX721	UF		10.9		0.38		2.4	0.09		0.6	7.4				
10/7/2008	XX	SWXXCX74C	UF		8.3		0.37		2.1	0.05		0.9	6.1				
4/21/2009	XX	SWXXCX773	UF		6.4		0.13		1.5	0.02 J		0.4	5.1				
7/21/2009	XX	SWXXCX79D	UF		9.6		0.46		2	0.06		0.4	5.7				
10/20/2009	XX	SWXXCX7E8	UF		12.7		0.32		2.9	0.06		1.1	7.9				
3/30/2010	XX	SWXXCX7H0	UF		5.5		0.13		1.2	0.02 U		0.5	4.3				
7/27/2010	XX	SWXXCX7J5	UF		10.8		0.14		2.6	0.07		0.5	6.5				
10/5/2010	XX	SWXXCX81C	UF		11.2		0.19		2.6	0.04 J		0.9	7.6				
4/12/2011	XX	SWXXCX8A2	UF		5.4		0.11		1.3			0.5	5.2				
7/26/2011	XX	SWXXCX8DI	UF	0.006	11.9		0.19	0.0002 J	2.3	0.07	0.002 U	0.4	6.8				
10/18/2011	XX	SWXXCX8C0	UF	0.002 U	9.6		0.33		2			0.8	5.7				
10/18/2011	XX	SWXXCX8G7	UF			0.003 U											
10/18/2011	XD	SWDP2X8FJ	UF			0.003 U											
10/18/2011	XD	SWDP2X8BC	UF	0.002 U	10		0.35		2			0.9	5.7				

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(SW-C)																	
4/11/2012	XX	SWXXCX8I5	UF	0.002 J	8		0.14		1.8			0.6	6.2				
7/10/2012	XX	SWXXCX908	UF	0.005 U	7.9	0.01 U	0.35	0.0003 U	2	0.05	0.005 U	0.4	6				
10/3/2012	XX	SWXXCX92A	UF	0.005 U	9.4		0.31		2.2			0.8	6.3				
10/3/2012	XD	SWDP2X922	UF	0.005 U	9.8		0.32		2.3			0.9	6.5				
4/9/2013	XX	SWXXCX94A	UF	0.005 U	6.6		0.11		1.8			0.7	6.3				
7/9/2013	XX	SWXXCX96A	UF	0.005	9.1	0.01 U	1.36	0.0003 U	2.4	0.08	0.005 U	0.5	6.1				
10/22/2013	XX	SWXXCX9A9	UF	0.005	10.2		0.24		2.5			0.8	6.9				
10/22/2013	XD	SWDP2X9A1	UF	0.005	10.6		0.26		2.6			0.8	6.6				
4/29/2014	XX	SWXXCX9CC	UF	0.005 U	6.4		0.11		1.4			0.8	6.1				
7/15/2014	XX	SWXXCX9EE	UF	0.005 U	9.7	0.01 U	0.28	0.0003 U	2	0.05 U	0.005 U	0.4	6.7				
9/30/2014	XX	SWXXCX9GD	UF	0.005	12.1		0.34		2.6			1.4	7.6				
9/30/2014	XD	SWDP2X9G5	UF	0.007	11.7		0.34		2.5			1.2	7.2				
4/14/2015	XX	SWXXCXA27	UF	0.006	6.8		0.19		1.6			0.7	6.2				
7/21/2015	XX	SWXXCXA4B	UF	0.013	12.4	0.01 U	0.19	0.0003 U	2.8	0.05	0.005 U	0.8	9.3				
10/20/2015	XX	SWXXCXA6H	UF	0.006	10.5		0.29		2.1			1	7.6				
10/20/2015	XD	SWDP2XA69	UF	0.008	10.6		0.28		2.1			1	7.1				
4/26/2016	XX	SWXXCXA8I	UF	0.011	8.4		0.12		1.8			0.5	6.1				
10/18/2016	XX	SWXXCXACJ	UF	0.005 U	20.2		0.16		4.5	0.1		1.2	9.9				
4/25/2017	XX	SWXXCXAEJ	UF	0.009	5.6		0.11		1.3			0.4	5.5				
10/3/2017	XX	SWXXCXAGH	UF	0.005 U	13		0.12		2.7	0.05 U		0.6	7.5				
4/10/2018	XX	SWXXCXAIF	UF	0.005 U	7.3		0.2		1.4			0.4	7.1				
10/10/2018	XX	SWXXCXB0F	UF	0.005 U	12		0.08		2.6	0.05 U		0.6	8.4				
SW-D																	
4/28/2008	XX	SWXXDX6JA	UF		43.9		0.2		7.1	0.08		1.3	29.9				
4/28/2008	XD	SWDP3X6J4	UF		41.5		0.23		6.7	0.07		1.3	28.9				
7/22/2008	XX	SWXXDX722	UF		24.1		0.45		5.9	0.02 J		2.2	24.8				
10/7/2008	XX	SWXXDX74D	UF		16.5		0.34		4.2	0.02 J		1	18.5				
10/7/2008	XD	SWDP3X747	UF		16.8		0.39		4.5	0.02 J		1.1	18.9				
4/21/2009	XX	SWXXDX774	UF		18.5		0.46		5.1	0.06		0.7	16				
7/21/2009	XX	SWXXDX79E	UF		28.6		0.68		7	0.08		0.7	18.4				
10/20/2009	XX	SWXXDX7E9	UF		22.8		0.46		5.9	0.04 J		1.8	19.2				
3/30/2010	XX	SWXXDX7H1	UF		13.7		2.11		3	0.08		1.2	18.7				
3/30/2010	XD	SWDP3X7GF	UF		19.1		1.24		3.2	0.07		1.2	27.9				
7/27/2010	XX	SWXXDX7J6	UF		76.6		0.02 J		9.9	0.07		1.7	40.9				
10/5/2010	XX	SWXXDX81D	UF		15.3		0.54		3.8	0.02 J		1.4	20.4				
10/5/2010	XD	SWDP3X817	UF		15.9		0.59		4.1	0.02 J		1.4	21.4				
4/12/2011	XX	SWXXDX8A3	UF		16.3		0.28		3.1			0.9	26.1				
4/12/2011	XD	SWDP2X89E	UF		17.7		0.25		3.7			0.9	28.1				
7/26/2011	XX	SWXXDX8DJ	UF	0.011	62.4		0.13	0.0003	10.1	0.12	0.002 U	1.4	36.9				
10/18/2011	XX	SWXXDX8C1	UF	0.002 U	26.5		0.38		5.2			1.6	18				
10/18/2011	XX	SWXXDX8G8	UF			0.003 U											
4/11/2012	XX	SWXXDX8I6	UF	0.003 J	22.8		0.19		5.7			1	25.7				
4/11/2012	XD	SWDP2X8HH	UF	0.003 J	26		0.18		5.8			1.1	26.7				
7/10/2012	XX	SWXXDX909	UF	0.005 U	73.3	0.01 U	0.08	0.0003 U	11.6	0.14	0.005 U	2	49.8				
10/3/2012	XX	SWXXDX92B	UF	0.005 U	21.5		0.33		4.9			1.8	22.7				
4/9/2013	XX	SWXXDX94B	UF	0.005 U	17.3		0.79		5.2			1.4	38.8				
4/9/2013	XD	SWDP2X942	UF	0.005 U	18.2		0.68		5.2			1.4	49.9				
7/9/2013	XX	SWXXDX96B	UF	0.01	36.5	0.01 U	0.47	0.0003 U	10.9	0.17	0.005 U	1.9	39.2				
10/22/2013	XX	SWXXDX9AA	UF	0.009	53.2		0.17		12			2.7	40.9				

SUMMARY REPORT

Surface Water Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
(SW-D)																	
4/29/2014	XX	SWXXDX9CD	UF	0.005 U	19.5		0.23		5.2			2.4	30.8				
4/29/2014	XD	SWDP2X9C4	UF	0.005 U	20.1		0.22		5.1			2.3	31.4				
7/15/2014	XX	SWXXDX9EF	UF	0.01	66.1	0.01 U	0.2	0.0003 U	10	0.17	0.005 U	4.6	51.8				
9/30/2014	XX	SWXXDX9GE	UF	0.005 U	101		0.05 U		11.9			2.3	50.7				
4/14/2015	XX	SWXXDXA28	UF	0.005	9.4		0.38		2.3			1.1	18.8				
4/14/2015	XD	SWDP2XA1J	UF	0.006	9		0.39		2.3			1.1	18.2				
7/21/2015	XX	SWXXDXA4C	UF	0.012	52.7	0.01 U	0.2	0.0003	13.1	0.08	0.005 U	6.6	81.4				
10/20/2015	XX	SWXXDXA6I	UF	0.011	31.7		0.28		7.1			3.1	36.8				
4/26/2016	XD	SWDP2XA8A	UF	0.014	35		0.31		9.2			2.3	54.5				
4/26/2016	XX	SWXXDXA8J	UF	0.014	34.5		0.29		8.7			2.3	54.1				
10/18/2016	XD	SWDP2XACB	UF	0.005 U	111		0.24		13.9	0.19		2.3	65.4				
10/18/2016	XX	SWXXDXAD0	UF	0.005 U	109		0.26		13.7	0.14		2.2	62.8				
4/25/2017	XD	SWDP2XAEB	UF	0.007	19		0.23		5			1.4	48				
4/25/2017	XX	SWXXDXAF0	UF	0.005 U	19		0.21		4.8			1.4	45				
10/3/2017	XD	SWDP2XAG9	UF	0.005 U	100		0.33		12	0.13		1.7	55				
10/3/2017	XX	SWXXDXAGI	UF	0.005 U	100		0.71		13	0.23		1.8	56				
4/10/2018	XD	SWDP2XAI7	UF	0.005 U	27		0.24		4.9			1.3	51				
4/10/2018	XX	SWXXDXAIG	UF	0.005 U	34		0.19		4.9			1.4	59				
10/10/2018	XD	SWDP2XB07	UF	0.005 U	44		0.4		9.6	0.19		5.7	76				
10/10/2018	XX	SWXXDXB0G	UF	0.005 U	38		0.28		8.7	0.16		5.2	68				
SW-E																	
4/28/2008	XX	SWXXEX6JB	UF		58.5		0.25		9.4	0.17		1.8	38.5				
7/22/2008	XX	SWXXEX723	UF		56.7		0.33		9	0.12		2.2	35.2				
10/7/2008	XX	SWXXEX74E	UF		48.6		0.27		8.3	0.13		1.6	30.5				
4/21/2009	XX	SWXXEX775	UF		62.6		0.5		10.7	0.35		1.7	37.1				
7/21/2009	XX	SWXXEX79F	UF		75.9		0.31		11.5	0.35		1.9	38.3				
10/20/2009	XX	SWXXEX7EA	UF		55.6		0.35		9.8	0.15		2.3	31.1				
3/30/2010	XX	SWXXEX7H2	UF		12.3		1.74		2.9	0.08		1.1	14.1				
7/27/2010	XX	SWXXEX7J7	UF		84.8		0.24		13.1	0.27		2.2	40.7				
10/5/2010	XX	SWXXEX81E	UF		44.5		0.3		7.2	0.1		1.6	28.2				
4/12/2011	XX	SWXXEX8A4	UF		20.6		0.26		4.3			1	22.9				
7/26/2011	XX	SWXXEX8E0	UF	0.014	82.2		0.18	0.0001 J	12.2	0.22	0.002 U	2.2	44.3				
7/26/2011	XD	SWDP2X8DA	UF	0.016	81.7		0.17	0.0001 J	12.3	0.22	0.002 U	2.2	45				
10/18/2011	XX	SWXXEX8C2	UF	0.011	48.8		0.28		7.6			1.8	24.5				
10/18/2011	XX	SWXXEX8G9	UF			0.003 U											
4/11/2012	XX	SWXXEX8I7	UF	0.006	40.2		0.23		7.8			1.4	30.9				
7/10/2012	XX	SWXXEX90A	UF	0.005 U	94.3	0.01 U	0.15	0.0003 U	13.5	0.23	0.005 U	2.5	51				
7/10/2012	XD	SWDP2X900	UF	0.005 U	88.3	0.01 U	0.16	0.0003 U	14.9	0.24	0.005 U	2.7	57.1				
10/3/2012	XX	SWXXEX92C	UF	0.005	42.8		0.29		7.1			1.9	29.4				
4/9/2013	XX	SWXXEX94C	UF	0.005 U	35.6		0.88		7.1			2	79.8				
7/9/2013	XX	SWXXEX96C	UF	0.005 U	79.9	0.01 U	0.31	0.0003 U	13.8	0.29	0.005 U	2.6	52.2				
7/9/2013	XD	SWDP2X962	UF	0.005 U	80.5	0.01 U	0.29	0.0003 U	14.5	0.28	0.005 U	2.5	56.6				
10/22/2013	XX	SWXXEX9AB	UF	0.005 U	92.4		0.16		15.1			2.8	53.1				
4/29/2014	XX	SWXXEX9CE	UF	0.008	46.2		0.21		8.1			2.3	42.6				
7/15/2014	XX	SWXXEX9EG	UF	0.019	88.1	0.01 U	0.22	0.0003 U	12.6	0.26	0.005 U	2.9	59.2				
7/15/2014	XD	SWDP2X9E6	UF	0.017	86	0.01 U	0.22	0.0003 U	12.1	0.26	0.005 U	2.8	58.3				
9/30/2014	XX	SWXXEX9GF	UF	0.018	97.4		0.09		13.4			2.8	57.1				
4/14/2015	XX	SWXXEXA29	UF	0.007	16.2		0.37		3.1			1.2	24.2				
7/21/2015	XX	SWXXEXA4D	UF	0.017	106	0.01 U	0.12	0.0003 U	14.8	0.22	0.005 U	3.3	85.3				

SUMMARY REPORT

Surface Water Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(SW-E)

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
7/21/2015	XD	SWDP2XA43	UF	0.017	103	0.01 U	0.12	0.0003 U	14.9	0.23	0.005 U	3.2	84				
10/20/2015	XX	SWXXEXA6J	UF	0.02	76.9		0.14		10.6			2.7	47.6				
4/26/2016	XX	SWXXEXA90	UF	0.03	83.3		0.17		12.3			2.2	59.8				
10/18/2016	XX	SWXXEXAD1	UF	0.005 U	109		0.16		15.2	0.2		2.6	65.7				
4/25/2017	XX	SWXXEXAF1	UF	0.008	41		0.38		7.7			1.7	55				
10/3/2017	XX	SWXXEXAGJ	UF	0.005 U	98		0.25		12	0.17		1.9	57				
4/10/2018	XX	SWXXEXAIH	UF	0.005 U	42		0.28		6.5			1.7	64				
10/10/2018	XX	SWXXEXB0H	UF	0.005	83		0.11		12	0.11		2.6	68				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

Sample collection notes:

UF - No analytical parameters were field filtered

REPORT PREPARED: 3/8/2019 13:48

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)

Date	Type	Sample ID	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Eh mV	Dissolved Oxygen mg/L	Turbidity (field) NTU
LCS-3C								
7/27/2011	XX	LTL3CX8E3	36300	6.9	30.3	99	6	D3
10/18/2011	XX	LTXXXX8GC	36400	7.3	27.9	-61	0.6	629
7/9/2012	XX	LTL3CX90D	22800	7.5	24.1	101	2	824
7/8/2013	XX	LTL3CX96F	47600	7.4	30	202	3	6.4
7/15/2014	XX	LTL3CX9EJ	42500	7.2	27.9	-101	D2	1946
7/21/2015	XX	LTL3CXA4G	38500	7.2	28.1	88	D2	3.2
4/27/2016	XX	LTLCSXA92	40200	6.4	20.6	64	0.8	1.2
10/18/2016	XX	LTLCSXAD3	40100	6.5	17.7	220	D2	2.6
4/26/2017	XX	LTLCSXAF3	43500	6.5	20.7	124	1	2.3
10/4/2017	XX	LTLCSXAH1	46600	7.5	21.4	178	1	1.4
4/11/2018	XX	LTLCSXAIJ	20000 G	7.3	18.2	35	1	1.9
10/9/2018	XX	LTLCSXB0J	45800	7.7	19.7	60	1	7.7
LCS-SII								
4/13/2011	XX	LTSC2X8A8	15630	7.2	14.2	1	3	0.8
4/10/2012	XX	LTSC2X8IB	17340	7.3	14.3	187	2	10.6
4/8/2013	XX	LTSC2X94G	15530	7.5	14.9	236	2	2
4/29/2014	XX	LTSC2X9CI	11870	7.2	13.1	106	3	1.8
1/20/2015	XX	LTSIIX9I4	13910	7.5	6	187	1	33.9
4/15/2015	XX	LTSC2XA2D	10040	7.7	13	215	3	17
10/4/2017	XX	LTXXXXAHI	12510	7.5	12.3	290	1	4.9
10/9/2018	XX	LTXXXXB1G	15430	7.3	19.6	216	1	6
PDPS								
4/30/2008	XX	LTPDPX6J3	12930	7.5	14.3	217	2	21.2
7/23/2008	XX	LTPDPX71F	5870	6.8	21.4	116	1	6.2
10/8/2008	XX	LTPDPX746	5100	7.3	18.4	51	1	4.3
4/22/2009	XX	LTPDPX76H	6070	7.1	16.2	223	1	0
7/21/2009	XX	LTPDPX797	6370	7.2	23.2	292	2	7.7
10/21/2009	XX	LTPDPX7E2	5490	7	20.1	208	5	26.3
3/30/2010	XX	LTPDPX7GE	3130	6.7	10.5	173	1	1.4
7/26/2010	XX	LTPDPX7IJ	7560	7	25.8	138	1	6
10/6/2010	XX	LTPDPX816	4910	7	17	211	1	3.6
4/12/2011	XX	LTPDPX8A5	3920	7.2	15.4	125	1	3.7
7/26/2011	XX	LTPDPX8E1	6670	7.3	23.5	230	2	4.4
10/18/2011	XX	LTPDPX8C3	3310	7.2	18.8	56	1	11.6
4/10/2012	XX	LTPDPX8I8	3800	7.1	16.8	340	2	6.9
7/9/2012	XX	LTPDPX90B	4040	6.9	22.9	48	3	3.9
10/2/2012	XX	LTPDPX92D	2930	6.7	21.3	201	2	6.1
4/9/2013	XX	LTPDPX94D	2410	6.9	11.9	145	1	5.4
7/10/2013	XX	LTPDPX96D	4130	6.7	20.7	140	3	23
10/23/2013	XX	LTPDPX9AC	3880	7.2	14.8	219	3	35
4/29/2014	XX	LTPDPX9CF	8660	7.5	14	87	1	0.8
7/15/2014	XX	LTPDPX9EH	2690	6.8	20.2	170	1	2.6
9/30/2014	XX	LTPDPX9GG	4890	7.1	17.8	175	1	5.7
1/20/2015	XX	LTPDPX9I8	2110	7.6	4.4	57	3	2.8
4/15/2015	XX	LTPDPXA2A	1536	7	10.4	276	1	4.9
7/21/2015	XX	LTPDPXA4E	3240	7.1	23.3	254	2	4.3
10/20/2015	XX	LTPDPXA70	3670	7.1	16.7	207	1	3.6

REPORT PREPARED: 3/8/2019 13:48

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate Field Data

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(PDPS)

Date	Type	Sample ID	Specific Conductance µmhos/cm @25°C	pH STU	Temperature Deg C	Eh mV	Dissolved Oxygen mg/L	Turbidity (field) NTU
4/27/2016	XX	LTPDPXA91	2060	6.8	8.7	167	1	25.6
10/18/2016	XX	LTPDPXAD2	9100	6.5	18.3	238	1	6.6
4/26/2017	XX	LTPDPXAF2	1497	6.2	11.4	155	1	1.8
10/3/2017	XX	LTPDPXAH0	5890	7.8	17.7	347	1	4.6
4/11/2018	XX	LTPDPXAII	1301	6.9	10.7	177	1	8.6
10/9/2018	XX	LTPDPXB0I	8190	7.4	19	143	1	4.4

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

D2 - Sample too dark to read D.O. reading.
D3 - Sample too dark to take reading.
G - Greater than specified amount.

SUMMARY REPORT

Leachate Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L
LCS-3C							
7/27/2011	XX	LTL3CX8E3	21470	247 J	1910	632	19200
7/27/2011	XD	LTDP4X8F0	21940	225 J	1970	634	17800
7/9/2012	XX	LTL3CX90D	13220	219	1500	436	8210
7/9/2012	XD	LTDP4X919	15610	206	1770	470	9010
7/8/2013	XX	LTL3CX96F	22390	1100	3690	1700	32600
7/15/2014	XX	LTL3CX9EJ	18760	4450	3950	1020	22800
7/21/2015	XX	LTL3CXA4G	25640	1780	4150	1150	17700
4/27/2016	XX	LTLCSXA92	20840	685	5260	1510	10700
10/18/2016	XX	LTLCSXAD3	21490	2260	4900	2020	19200
4/26/2017	XX	LTLCSXAF3	20676	640	5400	2 U	24000
10/4/2017	XX	LTLCSXAH1	21476	2500	5500	3100	16000
4/11/2018	XX	LTLCSXAIJ	19772	600 U	4900	1000	11000
10/9/2018	XX	LTLCSXB0J	20804	5100	5400	1100	25000
LCS-SII							
4/13/2011	XX	LTSC2X8A8	9096	434	378	6.1	6660
4/10/2012	XX	LTSC2X8IB	11120	392	335	5.8	6040
4/8/2013	XX	LTSC2X94G	10060	373	247	5.8	5210
4/29/2014	XX	LTSC2X9CI	7380	596	284	4.5	4290
4/15/2015	XX	LTSC2XA2D	6129	200 U	243	5.8	3260
10/4/2017	XX	LTXXXXAHI	7982	440	370	7	980
10/9/2018	XX	LTXXXXB1G	9686	2100	300	5	9000
PDPS							
4/30/2008	XX	LTPDPX6J3		78.6	4300	999	2320
7/23/2008	XX	LTPDPX71F		37	1930	233	1190
10/8/2008	XX	LTPDPX746		58.3	1780	224	1160
4/22/2009	XX	LTPDPX76H		20.6	1920	286	1010
7/21/2009	XX	LTPDPX797		34.8	2060	257	1270
10/21/2009	XX	LTPDPX7E2		6 U	2370	235	1010
3/30/2010	XX	LTPDPX7GE		34.8	1090	67.2	507
7/26/2010	XX	LTPDPX7IJ		120 U	2670	335	1630
10/6/2010	XX	LTPDPX816		30.8	1440	142	889
4/12/2011	XX	LTPDPX8A5	1842	39.4	1240	6	707
4/12/2011	XD	LTDP4X8B4	1832	42.9	1270	5.9	715
7/26/2011	XX	LTPDPX8E1	1638	6 U	2090	218	1610
10/18/2011	XX	LTPDPX8C3	1519	22.6	940	82.2	423
4/10/2012	XX	LTPDPX8I8	2007	57.5	1320	117	527
4/10/2012	XD	LTDP4X8J7	2037	59.4	1310	113	546
7/9/2012	XX	LTPDPX90B	2108	35.5	1340	142	662
10/2/2012	XX	LTPDPX92D	1523	35.3	870	55.8	443
4/9/2013	XX	LTPDPX94D	1154	15.9	749	43.7	313
4/9/2013	XD	LTDP4X95C	1190	15.8	763	44.8	315
7/10/2013	XX	LTPDPX96D	1994	4.7	1270	134	464
10/23/2013	XX	LTPDPX9AC	1916	20 U	1350	97	829
4/29/2014	XX	LTPDPX9CF	3660	21.6	2720	258	1070
7/15/2014	XX	LTPDPX9EH	1294	1390	900	5450	3370
9/30/2014	XX	LTPDPX9GG	2336	20 U	1470	141	727
4/15/2015	XX	LTPDPXA2A	767	30 U	500	27.4	161

SUMMARY REPORT

Leachate Inorganics

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(PDPS)

Date	Type	Sample ID	Total Dissolved Solids mg/L	Sulfate mg/L	Bicarbonate (CaCO3) mg/L	Organic Carbon mg/L	Chloride mg/L										
7/21/2015	XX	LTPDPXA4E	1790	864	1090	89.4	3390										
10/20/2015	XX	LTPDPXA70	1906	21.8	1190	110	621										
4/27/2016	XX	LTPDPXA91	984	17.4	670	53.3	258										
10/18/2016	XX	LTPDPXAD2	4540	31	2890	399	1480										
4/26/2017	XX	LTPDPXAF2	736	11	530	33	140										
10/3/2017	XX	LTPDPXAH0	2560	30 U	1600	170	820										
4/11/2018	XX	LTPDPXAII	615	12	450	17	99										
10/9/2018	XX	LTPDPXB0I	3876	40 U	2500	260	1100										

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 14:22

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)			Filtration	Arsenic	Calcium	Cobalt	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Sodium				
			-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Date	Type	Sample ID															
LCS-3C																	
7/27/2011	XX	LTL3CX8E3	UF	0.239	522		22	0.029	303	1.1	0.175	1736	4252				
7/27/2011	XD	LTDP4X8F0	UF	0.249	541		22	0.025	306	1.2	0.178	1737	4228				
10/18/2011	XX	LTXXXX8GC	UF			0.016 J											
7/9/2012	XX	LTL3CX90D	UF	0.36	489	0.1 U	23.4	0.03 U	198	1.8	0.06	1289	3321				
7/9/2012	XD	LTDP4X919	UF	0.44	455	0.1 U	23.4	0.03 U	260	1.4	0.08	1807	3864				
7/8/2013	XX	LTL3CX96F	UF	0.554	320	0.05 U	18.1	0.015 U	348	0.4	0.096	2383	6638				
7/15/2014	XX	LTL3CX9EJ	UF	0.532	302	0.028	7.42	0.003 U	227	0.54	0.101	1752	5083				
7/21/2015	XX	LTL3CXA4G	UF	0.66	459	0.1 U	8	0.03 U	376	3 U	0.14	2668	7005				
4/27/2016	XX	LTLCSXA92	UF	0.51	184		8.05		154			1737	4560				
10/18/2016	XX	LTLCSXAD3	UF	0.581	179	0.05 U	5.5	0.015 U	192	0.4	0.119	2087	5874				
4/26/2017	XX	LTLCSXAF3	UF	0.35	150		8.2		190			2116	5700				
10/4/2017	XX	LTLCSXAH1	UF	0.59	140	0.05 U	13	0.015 U	180	0.16	0.059	1600	4500				
4/11/2018	XX	LTLCSXAIJ	UF	0.43	130		6.9		130			1600	4900				
10/9/2018	XX	LTLCSXB0J	UF	0.51	110	0.011	8	0.003 U	130	0.2	0.072	1500	5200				
LCS-SII																	
4/13/2011	XX	LTSC2X8A8	UF	0.048	944		2	0.013 J	96	1.9	0.039	753	1409				
4/10/2012	XX	LTSC2X8IB	UF	0.034	1496	0.05 U	1.1	0.015 U	126	2.7	0.025 U	1075	2078				
4/8/2013	XX	LTSC2X94G	UF	0.026	1316	0.02 U	0.11	0.006 U	133	1.68	0.027	922	1715				
4/29/2014	XX	LTSC2X9CI	UF	0.031	911	0.01 U	0.22	0.01	85.1	1.36	0.032	614	1110				
1/20/2015	XX	LTSIIX9I4	UF	0.064													
1/20/2015	XX	LTSIIX9J1	FILT	0.041													
4/15/2015	XX	LTSC2XA2D	UF	0.031	800	0.01 U	1.95	0.02	57.1	1.07	0.017	541	1031				
10/4/2017	XX	LTXXXXAHI	UF	0.028	830	0.01 U	5.7	0.003 U	190	1.5	0.005 U	460	910				
10/9/2018	XX	LTXXXXB1G	UF	0.01	990	0.01 U	0.37	0.003 U	100	1.5	0.019	610	1300				
PDPS																	
4/30/2008	XX	LTPDPX6J3	UF		113		9.62		76.4	1.03		427	1482				
7/23/2008	XX	LTPDPX71F	UF	0.207	128.6		18.72	0.029	98.5	1.29		179.7	605				
10/8/2008	XX	LTPDPX746	UF		141		10.4		72	2.5		167	631				
4/22/2009	XX	LTPDPX76H	UF		93		11.9		86	0.7		155	598				
7/21/2009	XX	LTPDPX797	UF	0.126	104		7	0.005 U	76	0.9		170	659				
10/21/2009	XX	LTPDPX7E2	UF		101		13.1		85	0.7		193	716				
3/30/2010	XX	LTPDPX7GE	UF		129		9.38		55.2	2.22		83.9	287				
7/26/2010	XX	LTPDPX7IJ	UF	0.294	86.4		11.5	0.009	92.4	0.19		237	891				
10/6/2010	XX	LTPDPX816	UF		109		4		68	0.9		113	438				
4/12/2011	XX	LTPDPX8A5	UF		112		7.5		52			102	373				
4/12/2011	XD	LTDP4X8B4	UF		105		6.4		54.2			104	355				
7/26/2011	XX	LTPDPX8E1	UF	0.171	83.8		4.63	0.004	93.9	0.19	0.244	181	726				
10/18/2011	XX	LTPDPX8GA	UF			0.012											
10/18/2011	XX	LTPDPX8C3	UF	0.15	119		12.8		48			66	238				
4/10/2012	XX	LTPDPX8I8	UF	0.11	113		3.8		72			120	419				
4/10/2012	XD	LTDP4X8J7	UF	0.107	105		3.2		69			104	395				
7/9/2012	XX	LTPDPX90B	UF	0.211	87	0.05 U	8.8	0.015 U	71	0.8	0.105	132	533				
10/2/2012	XX	LTPDPX92D	UF	0.103	149		6		72			93	324				
4/9/2013	XX	LTPDPX94D	UF	0.13	100		7.2		65			83.4	244				
4/9/2013	XD	LTDP4X95C	UF	0.111	91		6.52		59.2			76.6	244				
7/10/2013	XX	LTPDPX96D	UF	0.394	94	0.05 U	21.3	0.015 U	79	0.8	0.09	104	401				
10/23/2013	XX	LTPDPX9AC	UF	0.546	103		38.9		79.9			123	418				

REPORT PREPARED: 3/8/2019 14:22

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate Metals

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(PDPS)

Date	Type	Sample ID	Filtration -	Arsenic mg/L	Calcium mg/L	Cobalt mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Nickel mg/L	Potassium mg/L	Sodium mg/L				
4/29/2014	XX	LTPDPX9CF	UF	0.55	73.8		9.27		65.4			238	985				
7/15/2014	XX	LTPDPX9EH	UF	0.17	89.4	0.01 U	6.37	0.003 U	49.8	0.76	0.072	65.4	233				
9/30/2014	XX	LTPDPX9GG	UF	0.377	81.3		8.61		78.2			141	542				
1/20/2015	XX	LTPDPX9I8	UF	0.135													
1/20/2015	XX	LTPDPX9J5	FILT	0.128													
4/15/2015	XX	LTPDPXA2A	UF	0.112	84.1		2.16		26.6			32.7	118				
7/21/2015	XX	LTPDPXA4E	UF	0.198	98.8	0.01 U	4.03	0.003 U	72.2	0.54	0.102	113	435				
10/20/2015	XX	LTPDPXA70	UF	0.212	95.7		3.16		60.9			101	415				
4/27/2016	XX	LTPDPXA91	UF	0.521	92.7		23.5		26.9			39.7	171				
10/18/2016	XX	LTPDPXAD2	UF	0.648	83.6	0.045	21.1	0.005	54.5	0.84	0.303	209	1254				
4/26/2017	XX	LTPDPXAF2	UF	0.29	85		11		26			34.1	130				
10/3/2017	XX	LTPDPXAH0	UF	0.35	72	0.01	4.3	0.003 U	63	0.5	0.1	150	540				
4/11/2018	XX	LTPDPXAII	UF	0.3	89		21		24			27	90				
10/9/2018	XX	LTPDPXB0I	UF	0.21	82	0.031	9.4	0.003 U	37	1.2	0.2	150	1100				

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

Sample collection notes:

FILT - One or more analytical parameters were field filtered.

UF - No analytical parameters were field filtered

REPORT PREPARED: 3/8/2019 14:38

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate VOAs - Current Part 1 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)			Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	trans-1,2-Dichloroethene	Chloroform	1,2-Dichloroethane	Methyl Ethyl Ketone	1,1,1-Trichloroethane
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date	Type	Sample ID															
LCS-3C																	
7/27/2011	XX	LTL3CX8E3	EPA 8260	2.5 U	5 U	2.5 U	2.5 U	25 U	87	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	27 J	2.5 U
7/27/2011	XD	LTDP4X8F0	EPA 8260	2.5 U	5 U	2.5 U	2.5 U	25 U	101	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	30 J	2.5 U
7/9/2012	XX	LTL3CX90D	EPA 8260	10 U	20 U	10 U	10 U	50 U	427	10 U	10 U	10 U	10 U	10 U	10 U	203	10 U
7/9/2012	XD	LTDP4X919	EPA 8260	10 U	20 U	10 U	10 U	50 U	388	10 U	10 U	10 U	10 U	10 U	10 U	183	10 U
7/8/2013	XX	LTL3CX96F	EPA 8260	250 U	100 U	100 U	100 U	300 U	1800	500 U	50 U	75 U	75 U	75 U	50 U	820	50 U
7/15/2014	XX	LTL3CX9EJ	EPA 8260	2 U	2 U	2 U	5 U	5 U	160	5 U	1 U	2 U	2 U	2 U	2 U	130	2 U
7/21/2015	XX	LTL3CXA4G	EPA 8260	2 U	2 U	2 U	5 U	5 U	330	5 U	1 U	2 U	2 U	2 U	2 U	160	2 U
10/18/2016	XX	LTLCSXAD3	EPA 8260	20 U	20 U	2 U	50 U	50 U	300	20 U	10 U	10 U	10 U	10 U	10 U	200	10 U
10/4/2017	XX	LTLCSXAH1	SW8260C	20 U	20 U	20 U	50 U	50 U	300	20 U	10 U	10 U	10 U	10 U	10 U	200	10 U
10/9/2018	XX	LTLCSXB0J	SW8260C	2 U	2 U	2 U	5 U	5 U	110	2 U	1 U	1 U	1 U	1 U	1 U	65	1 U
LCS-SII																	
4/13/2011	XX	LTSC2X8A8	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4/10/2012	XX	LTSC2X8IB	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
4/8/2013	XX	LTSC2X94G	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
4/29/2014	XX	LTSC2X9CI	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/15/2015	XX	LTSC2XA2D	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/4/2017	XX	LTXXXXAHI	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/9/2018	XX	LTXXXXB1G	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
PDPS																	
7/23/2008	XX	LTPDPX71F	EPA 8260	20 U	20 U	20 U	20 U	50 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	20 U
7/21/2009	XX	LTPDPX797	EPA 8260	5 U	5 U	5 U	5 U	25 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U
7/26/2010	XX	LTPDPX7IJ	EPA 8260	5 U	10 U	5 U	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U
7/26/2011	XX	LTPDPX8E1	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	129	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.5 J	0.5 U
7/9/2012	XX	LTPDPX90B	EPA 8260	10 U	20 U	10 U	10 U	50 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	10 U
7/10/2013	XX	LTPDPX96D	EPA 8260	25 U	10 U	10 U	10 U	30 U	50 U	50 U	5 U	7.5 U	7.5 U	7.5 U	5 U	50 U	5 U
7/15/2014	XX	LTPDPX9EH	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/21/2015	XX	LTPDPXA4E	EPA 8260	2 U	2 U	2 U	5 U	5 U	30	5 U	1 U	2 U	2 U	2 U	2 U	10	2 U
10/18/2016	XX	LTPDPXAD2	EPA 8260	20 U	20 U	2 U	50 U	50 U	100 U	20 U	10 U	10 U	10 U	10 U	10 U	100 U	10 U
10/3/2017	XX	LTPDPXAH0	SW8260C	10 U	10 U	10 U	30 U	30 U	50 U	10 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U
10/9/2018	XX	LTPDPXB0I	SW8260C	2 U	2 U	2 U	5 U	5 U	35	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
QCBT																	
5/21/2008	XX	BTXXXX71B	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/21/2008	XX	BTXXXX72G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/22/2008	XX	BTXXXX72H	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/23/2008	XX	BTXXXX73G	EPA 8260	2 U	2 U	2 U	2 U	5 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2009	XX	BTXXXX7A8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/21/2009	XX	BTXXXX7A9	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/22/2009	XX	BTXXXX7B8	EPA 8260	1 U	1 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/26/2010	XX	BTXXXX800	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/27/2010	XX	BTXXXX801	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/28/2010	XX	BTXXXX810	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	EPA 8260	0.5 U	1 U	0.5 U	0.5 U	5 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U

REPORT PREPARED: 3/8/2019 14:38

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate VOAs - Current Part 1 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Analytical Method (VOA)	Chloromethane	Bromomethane	Vinyl Chloride	Chloroethane	Methylene Chloride	Acetone	Carbon Disulfide	1,1-Dichloroethene	1,1-Dichloroethane	trans-1,2-Dichloroethene	Chloroform	1,2-Dichloroethane	Methyl Ethyl Ketone	1,1,1-Trichloroethane
			-	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
4/10/2012	XX	BTXXXX8J6	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/9/2012	XX	BTXXXX918	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/10/2012	XX	BTXXXX91D	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2012	XX	BTXXXXHG8	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2012	XX	BTXXXX938	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
4/8/2013	XX	BTXXXX95B	EPA 8260	1 U	2 U	1 U	1 U	5 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/8/2013	XX	BTXXXX97A	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
7/10/2013	XX	BTXXXX97C	EPA 8260	2.5 U	1 U	1 U	1 U	3 U	5 U	5 U	0.5 U	0.75 U	0.75 U	0.75 U	0.5 U	5 U	0.5 U
10/22/2013	XX	BTXXXX9B9	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/22/2013	XX	BTXXXX9BD	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/28/2014	XX	BTXXXX9DD	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/14/2014	XX	BTXXXX9FE	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
9/30/2014	XX	BTXXXX9HC	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/1/2014	XX	BTXXXX9HF	EPA 624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/15/2015	XX	BTXXXXA37	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/20/2015	XX	BTXXXXA5B	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
7/22/2015	XX	BTXXXXA5D	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/20/2015	XX	BTXXXXA7G	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/25/2016	XX	BTXXXXA9F	EPA 8260	2 U	2 U	2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/17/2016	XX	BTXXXXADE	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/18/2016	XX	BTXXXXADF	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/19/2016	XX	BTXXXXADG	EPA 8260	2 U	2 U	0.2 U	5 U	5 U	10 U	5 U	1 U	2 U	2 U	2 U	2 U	10 U	2 U
4/24/2017	XX	BTXXXXAFE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/2/2017	XX	BTXXXXAHC	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/3/2017	XX	BTXXXXAHD	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/4/2017	XX	BTXXXXAHE	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
7/18/2018	XX	BTXXXXAA6	E624	5 U	2 U	2 U	5 U	5 U	50 U		1 U	2 U	2 U	2 U	2 U	10 U	2 U
10/8/2018	XX	BTXXXXB1B	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U
10/10/2018	XX	BTXXXXB1C	SW8260C	2 U	2 U	2 U	5 U	5 U	10 U	2 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 14:39

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate VOAs - Current Part 2 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C) Date	Type	Sample ID	Carbon Tetrachloride ug/L	Vinyl Acetate ug/L	Bromo dichloro methane ug/L	1,2-Dichloro propane ug/L	cis-1,3-Dichloro propene ug/L	Trichloroethene ug/L	Dibromo chloromethane ug/L	1,1,2-Trichloroethane ug/L	Benzene ug/L	trans-1,3-Dichloro propene ug/L	Bromoform ug/L	4-Methyl-2-Pentanone ug/L	2-Hexanone ug/L	Tetrachloro ethene ug/L	1,1,2,2-Tetrachloro ethane ug/L
LCS-3C																	
7/27/2011	XX	LTL3CX8E3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U
7/27/2011	XD	LTDP4X8F0	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	25 U	2.5 U	2.5 U
7/9/2012	XX	LTL3CX90D	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	100 U	10 U	10 U
7/9/2012	XD	LTDP4X919	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	100 U	10 U	10 U
7/8/2013	XX	LTL3CX96F	50 U	500 U	50 U	180 U	50 U	50 U	50 U	75 U	50 U	50 U	200 U	500 U	500 U	50 U	50 U
7/15/2014	XX	LTL3CX9EJ	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	3	2 U	2 U	20	10 U	2 U	2 U
7/21/2015	XX	LTL3CXA4G	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	7	2 U	2 U	20	10 U	2 U	2 U
10/18/2016	XX	LTLCSXAD3	10 U	100 U	5 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	100 U	100 U	10 U	10 U
10/4/2017	XX	LTLCSXAH1	10 U	100 U	5 U	10 U	5 U	10 U	10 U	10 U	10 U	5 U	20 U	100 U	100 U	10 U	10 U
10/9/2018	XX	LTLCSXB0J	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	4.3	0.5 U	2 U	10	10 U	1 U	1 U
LCS-SII																	
4/13/2011	XX	LTSC2X8A8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/10/2012	XX	LTSC2X8IB	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	10 U	10 U	1 U	1 U
4/8/2013	XX	LTSC2X94G	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
4/29/2014	XX	LTSC2X9CI	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/15/2015	XX	LTSC2XA2D	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/4/2017	XX	LTXXXXAHI	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/9/2018	XX	LTXXXXB1G	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
PDPS																	
7/23/2008	XX	LTPDPX71F	20 U	150 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	100 U	20 U	20 U
7/21/2009	XX	LTPDPX797	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U
7/26/2010	XX	LTPDPX7IJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	50 U	5 U	5 U
7/26/2011	XX	LTPDPX8E1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.9	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/9/2012	XX	LTPDPX90B	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	100 U	10 U	10 U
7/10/2013	XX	LTPDPX96D	5 U	50 U	5 U	18 U	5 U	5 U	5 U	7.5 U	5 U	5 U	20 U	50 U	50 U	5 U	5 U
7/15/2014	XX	LTPDPX9EH	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2015	XX	LTPDPXA4E	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/18/2016	XX	LTPDPXAD2	10 U	100 U	5 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	100 U	100 U	10 U	10 U
10/3/2017	XX	LTPDPXAH0	5 U	50 U	3 U	5 U	3 U	5 U	5 U	5 U	5 U	3 U	10 U	50 U	50 U	5 U	5 U
10/9/2018	XX	LTPDPXB0I	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1.2	0.5 U	2 U	10 U	10 U	1 U	1 U
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/21/2008	XX	BTXXXX72G	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	15 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U

REPORT PREPARED: 3/8/2019 14:39

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate VOAs - Current Part 2 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Carbon Tetrachloride	Vinyl Acetate	Bromo dichloro methane	1,2-Dichloro propane	cis-1,3-Dichloro propene	Trichloroethene	Dibromo chloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloro propene	Bromoform	4-Methyl-2-Pentanone	2-Hexanone	Tetrachloro ethene	1,1,2,2-Tetrachloro ethane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U
7/8/2013	XX	BTXXXX97A	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
7/10/2013	XX	BTXXXX97C	0.5 U	5 U	0.5 U	1.8 U	0.5 U	0.5 U	0.5 U	0.75 U	0.5 U	0.5 U	2 U	5 U	5 U	0.5 U	0.5 U
10/22/2013	XX	BTXXXX9B9	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/22/2013	XX	BTXXXX9BD	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/28/2014	XX	BTXXXX9DD	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/14/2014	XX	BTXXXX9FE	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
9/30/2014	XX	BTXXXX9HC	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/1/2014	XX	BTXXXX9HF	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/15/2015	XX	BTXXXXA37	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/20/2015	XX	BTXXXXA5B	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
7/22/2015	XX	BTXXXXA5D	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/20/2015	XX	BTXXXXA7G	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/25/2016	XX	BTXXXXA9F	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/17/2016	XX	BTXXXXADE	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/18/2016	XX	BTXXXXADF	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/19/2016	XX	BTXXXXADG	2 U	10 U	0.5 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
4/24/2017	XX	BTXXXXAFE	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/2/2017	XX	BTXXXXAHC	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/3/2017	XX	BTXXXXAHD	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/4/2017	XX	BTXXXXAHE	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
7/18/2018	XX	BTXXXXAA6	2 U	10 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U	2 U	10 U	10 U	2 U	2 U
10/8/2018	XX	BTXXXXB1B	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U
10/10/2018	XX	BTXXXXB1C	1 U	10 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U	2 U	10 U	10 U	1 U	1 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

U - Not Detected above the laboratory reporting limit.

SUMMARY REPORT

Leachate VOAs - Current Part 3 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)			Toluene	Chlorobenzene	Ethylbenzene	Styrene	o-Xylene	m,p-Xylene	Tetra hydrofuran	Trichloro fluoromethane	cis-1,2-Dichloroethene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane
Date	Type	Sample ID	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS-3C																	
7/27/2011	XX	LTL3CX8E3	4.6 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
7/27/2011	XD	LTDP4X8F0	4.7 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
7/9/2012	XX	LTL3CX90D	10 U	10 U	10 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7/9/2012	XD	LTDP4X919	10 U	10 U	10 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7/8/2013	XX	LTL3CX96F	75 U	50 U	50 U	100 U	100 U	100 U		250 U	50 U	250 U	500 U	200 U	50 U	500 U	250 U
7/15/2014	XX	LTL3CX9EJ	25	2 U	7	1 U	4	7		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2015	XX	LTL3CXA4G	59	2 U	16	2	9	17		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	LTLCSXAD3DL2SIM												0.5 U		0.5 U	0.5 U
10/18/2016	XX	LTLCSXAD3	30	10 U	10 U	10 U	10 U	10 U	400	50 U	10 U	10 U	10 U	20 U	10 U	10 U	20 U
10/4/2017	XX	LTLCSXAH1	60	10 U	20	10 U	10 U	20	300	50 U	10 U	10 U	10 U	20 U	10 U	5 U	20 U
10/9/2018	XX	LTLCSXB0J	34	1 U	8.9	1 U	5.2	9.3	340 H	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
LCS-SII																	
4/13/2011	XX	LTSC2X8A8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/10/2012	XX	LTSC2X8IB	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4/8/2013	XX	LTSC2X94G	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4/29/2014	XX	LTSC2X9CI	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4/15/2015	XX	LTSC2XA2D	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/4/2017	XX	LTXXXXAHI	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/9/2018	XX	LTXXXXB1G	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
PDPS																	
7/23/2008	XX	LTPDPX71F	20 U	20 U	20 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
7/21/2009	XX	LTPDPX797	5 U	5 U	5 U	5 U	5 U	4.6 J		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
7/26/2010	XX	LTPDPX7IJ	6.2 J	5 U	7.4 J	5 U	5 U	10		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
7/26/2011	XX	LTPDPX8E1	1.8	0.84 J	1.1	0.5 U	1.2	2.7		0.5 U	0.52 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/9/2012	XX	LTPDPX90B	10 U	10 U	10 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7/10/2013	XX	LTPDPX96D	7.5 U	5 U	5 U	10 U	10 U	10 U		25 U	5 U	25 U	50 U	20 U	5 U	50 U	25 U
7/15/2014	XX	LTPDPX9EH	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2015	XX	LTPDPXA4E	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	LTPDPXAD2DL2SIM												0.5 U		0.5 U	0.5 U
10/18/2016	XX	LTPDPXAD2	10 U	10 U	10 U	10 U	10 U	10 U	100 U	50 U	10 U	10 U	10 U	20 U	10 U	10 U	20 U
10/3/2017	XX	LTPDPXAH0	5 U	5 U	5 U	5 U	5 U	5 U	60	30 U	5 U	5 U	5 U	10 U	5 U	3 U	10 U
10/9/2018	XX	LTPDPXB0I	1 U	1 U	2.2	1 U	1.5	3.8	50	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
QCBT																	
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

SUMMARY REPORT

Leachate VOAs - Current Part 3 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Toluene	Chlorobenzene	Ethylbenzene	Styrene	o-Xylene	m,p-Xylene	Tetra hydrofuran	Trichloro fluoromethane	cis-1,2-Dichloroethene	Bromochloro methane	Dibromo methane	1,2-Dibromoethane	1,1,1,2-Tetrachloro ethane	1,2,3-Trichloro propane	1,2-Dibromo-3-Chloropropane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
7/8/2013	XX	BTXXXX97A	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
7/10/2013	XX	BTXXXX97C	0.75 U	0.5 U	0.5 U	1 U	1 U	1 U		2.5 U	0.5 U	2.5 U	5 U	2 U	0.5 U	5 U	2.5 U
10/22/2013	XX	BTXXXX9B9	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/22/2013	XX	BTXXXX9BD	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
4/28/2014	XX	BTXXXX9DD	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/14/2014	XX	BTXXXX9FE	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
9/30/2014	XX	BTXXXX9HC	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/1/2014	XX	BTXXXX9HF	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
4/15/2015	XX	BTXXXXA37	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/20/2015	XX	BTXXXXA5B	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
7/22/2015	XX	BTXXXXA5D	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/20/2015	XX	BTXXXXA7G	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4/25/2016	XX	BTXXXXA9F	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	BTXXXXADE	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/17/2016	XX	BTXXXXADESIM												0.05 U		0.05 U	0.05 U
10/18/2016	XX	BTXXXXADF	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
10/18/2016	XX	BTXXXXADFSIM												0.05 U		0.05 U	0.05 U
10/19/2016	XX	BTXXXXADGSIM												0.05 U		0.05 U	0.05 U
10/19/2016	XX	BTXXXXADG	1 U	2 U	1 U	1 U	1 U	1 U	10 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4/24/2017	XX	BTXXXXAFE	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/2/2017	XX	BTXXXXAHC	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/3/2017	XX	BTXXXXAHD	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/4/2017	XX	BTXXXXAHE	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
7/18/2018	XX	BTXXXXAA6	1 U	2 U	1 U	1 U	1 U	1 U		5 U	2 U						
10/8/2018	XX	BTXXXXB1B	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U
10/10/2018	XX	BTXXXXB1C	1 U	1 U	1 U	1 U	1 U	1 U	10 U	5 U	1 U	1 U	1 U	2 U	1 U	0.5 U	2 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

H - Analyzed outside U.S.EPA's recommended hold time

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

REPORT PREPARED: 3/8/2019 14:39

FOR: Pinetree Landfill

SUMMARY REPORT

Leachate VOAs - Current Part 4 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(LCS-3C)

Date	Type	Sample ID	1,4-Dichloro benzene	1,2-Dichloro benzene	Acrylonitrile	Diethyl ether	trans-1,4-Dichloro-2-butene	Iodomethane
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS-3C								
7/27/2011	XX	LTL3CX8E3	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U
7/27/2011	XD	LTDP4X8F0	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U
7/9/2012	XX	LTL3CX90D	10 U	10 U	10 U		10 U	10 U
7/9/2012	XD	LTDP4X919	10 U	10 U	10 U		10 U	10 U
7/8/2013	XX	LTL3CX96F	250 U	250 U	500 U		250 U	
7/15/2014	XX	LTL3CX9EJ	2	1 U	20 U		5 U	5 U
7/21/2015	XX	LTL3CXA4G	6	1 U	20 U		5 U	5 U
10/18/2016	XX	LTLCSXAD3DL2SIM			2.5 U			
10/18/2016	XX	LTLCSXAD3	10 U	10 U	200 U	50 U	50 U	50 U
10/4/2017	XX	LTLCSXAH1	10 U	10 U	200 U	50 U	50 U	50 U
10/9/2018	XX	LTLCSXB0J	2.8	1 U	20 U	5 U	5 U	5 U
LCS-SII								
4/13/2011	XX	LTSC2X8A8	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/10/2012	XX	LTSC2X8IB	1 U	1 U	1 U		1 U	1 U
4/8/2013	XX	LTSC2X94G	1 U	1 U	1 U		1 U	1 U
4/29/2014	XX	LTSC2X9CI	1 U	1 U	20 U		5 U	5 U
4/15/2015	XX	LTSC2XA2D	1 U	1 U	20 U		5 U	5 U
10/4/2017	XX	LTXXXXAHI	1 U	1 U	20 U	5 U	5 U	5 U
10/9/2018	XX	LTXXXXB1G	1 U	1 U	20 U	5 U	5 U	5 U
PDPS								
7/23/2008	XX	LTPDPX71F	20 U	20 U	20 U		20 U	20 U
7/21/2009	XX	LTPDPX797	3 J	5 U	5 U		5 U	5 U
7/26/2010	XX	LTPDPX7IJ	5 U	5 U	5 U		5 U	5 U
7/26/2011	XX	LTPDPX8E1	3.2	0.57 J	0.5 U		0.5 U	0.5 U
7/9/2012	XX	LTPDPX90B	10 U	10 U	10 U		10 U	10 U
7/10/2013	XX	LTPDPX96D	25 U	25 U	50 U		25 U	
7/15/2014	XX	LTPDPX9EH	3	1 U	20 U		5 U	5 U
7/21/2015	XX	LTPDPXA4E	2	1 U	20 U		5 U	5 U
10/18/2016	XX	LTPDPXAD2DL2SIM			2.5 U			
10/18/2016	XX	LTPDPXAD2	10 U	10 U	200 U	50 U	50 U	50 U
10/3/2017	XX	LTPDPXAH0	5 U	5 U	100 U	30 U	30 U	30 U
10/9/2018	XX	LTPDPXB0I	1.9	1 U	20 U	11	5 U	5 U
QCBT								
5/21/2008	XX	BTXXXX71B	2 U	2 U	2 U		2 U	2 U
7/21/2008	XX	BTXXXX72G	2 U	2 U	2 U		2 U	2 U
7/22/2008	XX	BTXXXX72H	2 U	2 U	2 U		2 U	2 U
7/23/2008	XX	BTXXXX73G	2 U	2 U	2 U		2 U	2 U
7/20/2009	XX	BTXXXX7A8	1 U	1 U	1 U		1 U	1 U
7/21/2009	XX	BTXXXX7A9	1 U	1 U	1 U		1 U	1 U
7/22/2009	XX	BTXXXX7B8	1 U	1 U	1 U		1 U	1 U
7/26/2010	XX	BTXXXX800	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/27/2010	XX	BTXXXX801	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/28/2010	XX	BTXXXX810	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/13/2011	XX	BTXXXX8B3	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/25/2011	XX	BTXXXX8EJ	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
7/26/2011	XX	BTXXXX8F4	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U

SUMMARY REPORT

Leachate VOAs - Current Part 4 of 4

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	1,4-Dichloro benzene ug/L	1,2-Dichloro benzene ug/L	Acrylonitrile ug/L	Diethyl ether ug/L	trans-1,4-Dichloro-2-butene ug/L	Iodomethane ug/L
7/27/2011	XX	BTXXXX8F5	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
10/18/2011	XX	BTXXXX8D1	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
4/10/2012	XX	BTXXXX8J6	1 U	1 U	1 U		1 U	1 U
7/9/2012	XX	BTXXXX918	1 U	1 U	1 U		1 U	1 U
7/10/2012	XX	BTXXXX91D	1 U	1 U	1 U		1 U	1 U
10/2/2012	XX	BTXXXX938	1 U	1 U	1 U		1 U	1 U
10/2/2012	XX	BTXXXXHG8	1 U	1 U	1 U		1 U	1 U
4/8/2013	XX	BTXXXX95B	1 U	1 U	1 U		1 U	1 U
7/8/2013	XX	BTXXXX97A	2.5 U	2.5 U	5 U		2.5 U	
7/10/2013	XX	BTXXXX97C	2.5 U	2.5 U	5 U		2.5 U	
10/22/2013	XX	BTXXXX9B9	1 U	1 U	20 U		5 U	5 U
10/22/2013	XX	BTXXXX9BD	1 U	1 U	50 U			
4/28/2014	XX	BTXXXX9DD	1 U	1 U	20 U		5 U	5 U
7/14/2014	XX	BTXXXX9FE	1 U	1 U	20 U		5 U	5 U
9/30/2014	XX	BTXXXX9HC	1 U	1 U	20 U		5 U	5 U
10/1/2014	XX	BTXXXX9HF	1 U	1 U	50 U			
4/15/2015	XX	BTXXXXA37	1 U	1 U	20 U		5 U	5 U
7/20/2015	XX	BTXXXXA5B	1 U	1 U	20 U		5 U	5 U
7/22/2015	XX	BTXXXXA5D	1 U	1 U	20 U		5 U	5 U
10/20/2015	XX	BTXXXXA7G	1 U	1 U	20 U		5 U	5 U
4/25/2016	XX	BTXXXXA9F	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	BTXXXXADE	1 U	1 U	20 U	5 U	5 U	5 U
10/17/2016	XX	BTXXXXADESIM			0.25 U			
10/18/2016	XX	BTXXXXADF	1 U	1 U	20 U	5 U	5 U	5 U
10/18/2016	XX	BTXXXXADFSIM			0.25 U			
10/19/2016	XX	BTXXXXADGSIM			0.25 U			
10/19/2016	XX	BTXXXXADG	1 U	1 U	20 U	5 U	5 U	5 U
4/24/2017	XX	BTXXXXAFE	1 U	1 U	20 U	5 U	5 U	5 U
10/2/2017	XX	BTXXXXAHC	1 U	1 U	20 U	5 U	5 U	5 U
10/3/2017	XX	BTXXXXAHD	1 U	1 U	20 U	5 U	5 U	5 U
10/4/2017	XX	BTXXXXAHE	1 U	1 U	20 U	5 U	5 U	5 U
7/18/2018	XX	BTXXXXAA6	1 U	1 U	50 U			
10/8/2018	XX	BTXXXXB1B	1 U	1 U	20 U	5 U	5 U	5 U
10/10/2018	XX	BTXXXXB1C	1 U	1 U	20 U	5 U	5 U	5 U

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

J - Analyte was positively identified/Associated value is an estimate.

U - Not Detected above the laboratory reporting limit.

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(641)

Date	Type	Sample ID	Methane ug/L
641			
4/29/2008	XX	GW641X708	1270
7/21/2008	XX	GW641X72J	1280
10/7/2008	XX	GW641X75B	1030
4/20/2009	XX	GW641X782	1210
7/20/2009	XX	GW641X7AB	650
10/20/2009	XX	GW641X7F7	410
3/29/2010	XX	GW641X7HJ	350
8/10/2010	XX	GW641X803RE	3290
10/5/2010	XX	GW641X82B	2310
4/13/2011	XX	GW641X89C	1330
7/26/2011	XX	GW641X8D8	2400
4/10/2012	XX	GW641X8HF	159
7/10/2012	XX	GW641X8JI	41.6
4/9/2013	XX	GW641X940	160
7/9/2013	XX	GW641X960	1040
4/30/2014	XX	GW641X9C2	1800
7/16/2014	XX	GW641X9E4	420
4/15/2015	XX	GW641XA1H	30
7/22/2015	XX	GW641XA41	20 U
10/19/2016	XX	GW641XAC9	20 U
10/3/2017	XX	GW641XAG7	20 U
10/8/2018	XX	GW641XB05	88
DW04-109			
4/30/2008	XX	DW109X716	7320
7/21/2008	XX	DW109X740	5580
10/7/2008	XX	DW109X768	6650
4/22/2009	XX	DW109X78I	12700
7/21/2009	XX	DW109X7BA	11800
10/20/2009	XX	DW109X7G3	15000
3/31/2010	XX	DW109X7IC	441
8/10/2010	XX	DW109X812RE	3490
10/5/2010	XX	DW109X834	3590
4/11/2011	XX	DW109X8AJ	7590
7/25/2011	XX	DW109X8EF	6670
7/25/2011	XD	DWDP3X8EI	6200
10/18/2011	XX	DW109X8CH	6610
4/10/2012	XX	DW109X8J2	682
7/10/2012	XX	DW109X914	1830
7/10/2012	XD	DWDP3X917	616
10/2/2012	XX	DW109X934	913
4/9/2013	XX	DW109X957	901
7/10/2013	XX	DW109X976	180
7/10/2013	XD	DWDP3X979	138
10/21/2013	XX	DW109X9B3	1140
4/29/2014	XX	DW109X9D9	830
7/14/2014	XX	DW109X9FA	740
7/14/2014	XD	DWDP3X9FD	550

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(DW04-109)

Date	Type	Sample ID	Methane ug/L
9/29/2014	XX	DW109X9H7	110
4/13/2015	XX	DW109XA34	110
7/20/2015	XX	DW109XA57	190
7/20/2015	XD	DWDP3XA5A	220
10/19/2015	XX	DW109XA7B	300
4/25/2016	XX	DW109XA9C	20 U
10/17/2016	XX	DW109XADB	190
4/24/2017	XX	DW109XAFB	30
10/2/2017	XX	DW109XAH9	190
4/9/2018	XX	DW109XAJ7	20 U
10/9/2018	XX	DW109XB17	94

DW-103

4/28/2008	XX	DW103X710	191
7/21/2008	XX	DW103X73B	181
10/8/2008	XX	DW103X763	213
4/20/2009	XX	DW103X78E	326
7/20/2009	XX	DW103X7B3	241
10/20/2009	XX	DW103X7FJ	280
3/29/2010	XX	DW103X7IB	332 M8
8/10/2010	XX	DW103X80FRE	223
10/4/2010	XX	DW103X833	252
4/11/2011	XX	DW103X8AI	460
4/11/2011	XD	DWDP3X8B2	411
7/25/2011	XX	DW103X8EE	306
10/18/2011	XX	DW103X8CG	149
4/9/2012	XX	DW103X8J1	417
4/9/2012	XD	DWDP3X8J5	290
7/9/2012	XX	DW103X913	396
10/24/2012	XX	DW103X933	380
4/8/2013	XX	DW103X956	96.4
4/8/2013	XD	DWDP3X95A	261
7/8/2013	XX	DW103X975	373
10/21/2013	XX	DW103X9B2	318
10/21/2013	XD	DWDP3X9B6	6.6 U
4/28/2014	XX	DW103X9D8	130
4/28/2014	XD	DWDP3X9DC	130
7/14/2014	XX	DW103X9F9	90
9/29/2014	XX	DW103X9H6	130
4/13/2015	XX	DW103XA33	60
4/13/2015	XD	DWDP3XA36	70
7/20/2015	XX	DW103XA56	70
12/15/2015	XX	DW103XA7AX	50
12/15/2015	XX	DW103XA7A	A
4/25/2016	XX	DW103XA9B	40
4/25/2016	XD	DWDP3XA9E	50
10/17/2016	XD	DWDP3XADD	60
10/17/2016	XX	DW103XADA	50
4/24/2017	XD	DWDP3XAFD	30
4/24/2017	XX	DW103XAFA	30

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

Date	Type	Sample ID	Methane ug/L
(DW-103)			
10/2/2017	XD	DWDP3XAHB	50
10/2/2017	XX	DW103XAH8	60
4/9/2018	XD	DWDP3XAJ9	39
4/9/2018	XX	DW103XAJ6	37
10/9/2018	XD	DWDP3XB19	43
10/9/2018	XX	DW103XB16	33
LCS-3C			
7/27/2011	XX	LTL3CX8E3	4010
7/27/2011	XD	LTDP4X8F0	3880
7/9/2012	XX	LTL3CX90D	1990
7/9/2012	XD	LTDP4X919	1790
7/8/2013	XX	LTL3CX96F	5560
7/15/2014	XX	LTL3CX9EJ	1300
7/21/2015	XX	LTL3CXA4G	1400
10/18/2016	XX	LTLCSXAD3	700
10/4/2017	XX	LTLCSXAH1	460
10/9/2018	XX	LTLCSXB0J	1500
LCS-SII			
4/13/2011	XX	LTSC2X8A8	1140
4/10/2012	XX	LTSC2X8IB	2440
4/8/2013	XX	LTSC2X94G	782
4/29/2014	XX	LTSC2X9CI	490
4/15/2015	XX	LTSC2XA2D	200
10/4/2017	XX	LTXXXXAHI	190
10/9/2018	XX	LTXXXXB1G	500
MW02-801A			
4/30/2008	XX	GW801A709	2450
4/30/2008	XD	GWDP4X6JI	2300
7/22/2008	XX	GW801A730	2190
7/22/2008	XD	GWDP2X71D	2230
10/8/2008	XX	GW801A75C	948
10/8/2008	XD	GWDP4X751	1060
4/22/2009	XX	GW801A783	2380
4/22/2009	XD	GWDP4X77C	2320
7/22/2009	XX	GW801A7AC	3030
7/22/2009	XD	GWDP2X795	3470
10/21/2009	XX	GW801A7F8	3400
10/21/2009	XD	GWDP4X7EH	3600
3/30/2010	XX	GW801A7I0	3230
3/30/2010	XD	GWDP4X7H9	2820
8/11/2010	XX	GW801A804RE	1110
8/11/2010	XD	GWDP2X7IHRE	1160
10/4/2010	XX	GW801A82C	104
10/4/2010	XD	GWDP4X821	108
4/11/2011	XX	GW801A89F	1040
7/25/2011	XX	GW801A8DB	1830
4/9/2012	XX	GW801A8HI	2050
7/9/2012	XX	GW801A901	2110

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW02-801A)

Date	Type	Sample ID	Methane ug/L
4/9/2013	XX	GW801A943	1950
7/8/2013	XX	GW801A963	2510
4/28/2014	XX	GW801A9C5	780
7/14/2014	XX	GW801A9E7	1100
4/13/2015	XX	GW801AA20	1000
7/20/2015	XX	GW801AA44	710
10/17/2016	XX	GW801AACC	730
10/2/2017	XX	GW801AAGA	540
10/9/2018	XX	GW801AB08	660

MW03-802A

4/29/2008	XX	GW802A70A	6510
7/22/2008	XX	GW802A731	4720
10/6/2008	XX	GW802A75D	2930
4/21/2009	XX	GW802A784	3880
7/21/2009	XX	GW802A7AD	5250
10/19/2009	XX	GW802A7F9	5100
3/30/2010	XX	GW802A7I1	5680 M8
8/10/2010	XX	GW802A805RE	5530
10/4/2010	XX	GW802A82D	4560
4/11/2011	XX	GW802A89G	5510
4/11/2011	XD	GWDP1X89D	6120
7/26/2011	XX	GW802A8DC	9010
4/9/2012	XX	GW802A8HJ	4240
4/9/2012	XD	GWDP1X8HG	4820
7/9/2012	XX	GW802A902	4740
4/8/2013	XX	GW802A944	6890
4/8/2013	XD	GWDP1X941	6180
7/8/2013	XX	GW802A964	6760
7/8/2013	XD	GWDP4X97B	8700
4/28/2014	XX	GW802A9C6	3200
4/28/2014	XD	GWDP1X9C3	4900
7/14/2014	XX	GW802A9E8	3100
7/14/2014	XD	GWDP4X9FF	3500
4/13/2015	XX	GW802AA21	3000
4/13/2015	XD	GWDP1XA1I	2400
7/20/2015	XX	GW802AA45	420
7/20/2015	XD	GWDP4XA5C	480
10/17/2016	XX	GW802AACD	50
10/2/2017	XX	GW802AAGB	470
10/9/2018	XX	GW802AB09	560

MW03-802B

4/29/2008	XX	GW802B6JD	3780
7/22/2008	XX	GW802B725	3190
10/6/2008	XX	GW802B74G	2720
4/21/2009	XX	GW802B777	3920
7/21/2009	XX	GW802B79H	4670
10/19/2009	XX	GW802B7EC	3400
3/30/2010	XX	GW802B7H4	4390 M8

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-802B)

Date	Type	Sample ID	Methane ug/L
8/10/2010	XX	GW802B7J9RE	3260
10/4/2010	XX	GW802B81G	6740
4/11/2011	XX	GW802B8AE	6600
4/9/2012	XX	GW802B8IH	1760
4/8/2013	XX	GW802B952	4010
4/28/2014	XX	GW802B9D4	2000
4/13/2015	XX	GW802BA2J	710
4/25/2016	XX	GW802BA97	700
10/17/2016	XX	GW802BAD6	1300
4/24/2017	XX	GW802BAF6	340
10/2/2017	XX	GW802BAH4	2300
10/9/2018	XX	GW802BB12	890

MW03-803A

4/29/2008	XX	GW803A6JE	539
7/22/2008	XX	GW803A726	2030
10/6/2008	XX	GW803A74H	1490
4/21/2009	XX	GW803A778	811
7/21/2009	XX	GW803A79I	2010
10/19/2009	XX	GW803A7ED	570
3/30/2010	XX	GW803A7H5	1240 M8
8/10/2010	XX	GW803A7JARE	912
10/4/2010	XX	GW803A81H	331
4/11/2011	XX	GW803A8AF	896
4/9/2012	XX	GW803A8II	438
4/8/2013	XX	GW803A953	251
4/28/2014	XX	GW803A9D5	140
4/13/2015	XX	GW803AA30	90
4/25/2016	XX	GW803AA98	90
7/27/2016	XX	GW803AABB	40
10/17/2016	XX	GW803AAD7	30
4/24/2017	XX	GW803AAF7	50
10/2/2017	XX	GW803AAH5	30
10/9/2018	XX	GW803AB13	22

MW03-803B

4/29/2008	XX	GW803B6JF	5540
7/22/2008	XX	GW803B727	3330
10/6/2008	XX	GW803B74I	4080
10/6/2008	XD	GWDP2X744	5740
4/21/2009	XX	GW803B779	5260
7/21/2009	XX	GW803B79J	5970
10/19/2009	XX	GW803B7EE	830
3/30/2010	XX	GW803B7H6	7160 M8
8/10/2010	XX	GW803B7JBRE	3480
10/4/2010	XX	GW803B81I	1770
4/11/2011	XX	GW803B89H	4240
7/26/2011	XX	GW803B8DD	6490
4/9/2012	XX	GW803B8I0	2460
7/9/2012	XX	GW803B903	4710

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW03-803B)

Date	Type	Sample ID	Methane ug/L
4/8/2013	XX	GW803B945	5620
7/8/2013	XX	GW803B965	7100
4/28/2014	XX	GW803B9C7	4200
7/14/2014	XX	GW803B9E9	3800
4/13/2015	XX	GW803BA22	1300
7/20/2015	XX	GW803BA46	800
10/17/2016	XD	GWDP1XACA	310
10/17/2016	XX	GW803BACE	250
10/2/2017	XD	GWDP1XAG8	590
10/2/2017	XX	GW803BAGC	1200
10/9/2018	XD	GWDP1XB06	430
10/9/2018	XX	GW803BB0A	370

MW-916

4/30/2008	XX	GW916X70H	8360
7/21/2008	XX	GW916X738	6390
10/7/2008	XX	GW916X760	8800
4/20/2009	XX	GW916X78B	10100
7/21/2009	XX	GW916X7B0	708
10/20/2009	XX	GW916X7FG	5600
3/31/2010	XX	GW916X7I8	10 U
3/31/2010	XD	GWDP2X7GC	10 U
8/11/2010	XX	GW916X80CRE	10 U
10/5/2010	XX	GW916X830	2180
4/12/2011	XX	GW916X89A	179
7/26/2011	XX	GW916X8D6	502
4/10/2012	XX	GW916X8HD	600
7/10/2012	XX	GW916X8JG	138
4/8/2013	XX	GW916X93I	6.6 U
7/9/2013	XX	GW916X95I	89.6
4/29/2014	XX	GW916X9C0	530
7/15/2014	XX	GW916X9E2	170
4/29/2015	XX	GW916XA1F	20 U
7/21/2015	XX	GW916XA3J	140
10/18/2016	XX	GW916XAC7	20
10/3/2017	XX	GW916XAG5	140
10/10/2018	XX	GW916XB03	20 U

MW-917

4/30/2008	XX	GW917X70I	5630
7/21/2008	XX	GW917X739	6920
10/7/2008	XX	GW917X761	6390
4/20/2009	XX	GW917X78C	5780
7/21/2009	XX	GW917X7B1	8160
10/20/2009	XX	GW917X7FH	9400
3/31/2010	XX	GW917X7I9	2720
8/11/2010	XX	GW917X80DRE	1860
10/5/2010	XX	GW917X831	3500
4/12/2011	XX	GW917X89I	2120
7/26/2011	XX	GW917X8DE	1020

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(MW-917)

Date	Type	Sample ID	Methane ug/L
4/10/2012	XX	GW917X8I1	630
7/10/2012	XX	GW917X904	677
4/8/2013	XX	GW917X946	535
7/9/2013	XX	GW917X966	587
4/29/2014	XX	GW917X9C8	220
7/15/2014	XX	GW917X9EA	170
4/14/2015	XX	GW917XA23	130
7/21/2015	XX	GW917XA47	100
10/18/2016	XX	GW917XACF	20
10/3/2017	XX	GW917XAGD	30
10/10/2018	XX	GW917XB0B	280
PDPS			
4/30/2008	XX	LTPDPX6J3	2120
7/23/2008	XX	LTPDPX71F	1960
10/8/2008	XX	LTPDPX746	1590
4/22/2009	XX	LTPDPX76H	1850
7/21/2009	XX	LTPDPX797	1310
10/21/2009	XX	LTPDPX7E2	6100
3/30/2010	XX	LTPDPX7GE	4310
8/10/2010	XX	LTPDPX7IJRE	4640
10/6/2010	XX	LTPDPX816	1740
7/26/2011	XX	LTPDPX8E1	4200
7/9/2012	XX	LTPDPX90B	3390
7/10/2013	XX	LTPDPX96D	6960
7/15/2014	XX	LTPDPX9EH	340
7/21/2015	XX	LTPDPXA4E	290
10/18/2016	XX	LTPDPXAD2	290
10/3/2017	XX	LTPDPXAH0	250
10/9/2018	XX	LTPDPXB0I	840
QCBT			
4/28/2008	XX	BTXXXX705	7 U
4/29/2008	XX	BTXXXX706	7 U
4/30/2008	XX	BTXXXX717	7 U
7/21/2008	XX	BTXXXX72G	7 U
7/22/2008	XX	BTXXXX72H	7 U
7/23/2008	XX	BTXXXX73G	7 U
10/6/2008	XX	BTXXXX758	7 U
10/7/2008	XX	BTXXXX759	7 U
10/8/2008	XX	BTXXXX769	7 U
4/20/2009	XX	BTXXXX77J	7 U
4/21/2009	XX	BTXXXX780	7 U
4/22/2009	XX	BTXXXX78J	7 U
7/20/2009	XX	BTXXXX7A8	7 U
7/21/2009	XX	BTXXXX7A9	7 U
7/22/2009	XX	BTXXXX7B8	7 U
8/20/2009	XX	BTXXXX7CG	7 U
10/19/2009	XX	BTXXXX7F4	10 U
10/20/2009	XX	BTXXXX7F5	10 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)

Date	Type	Sample ID	Methane ug/L
10/20/2009	XX	BTXXXXHG5	10 U
10/21/2009	XX	BTXXXX7G4	10 U
3/29/2010	XX	BTXXXX7HG	10 U
3/30/2010	XX	BTXXXX7HH	10 UM8
3/31/2010	XX	BTXXXX7ID	10 U
8/10/2010	XX	BTXXXX801RE	10 U
10/4/2010	XX	BTXXXX828	10 U
10/5/2010	XX	BTXXXX829	10 U
10/6/2010	XX	BTXXXX835	10 U
4/11/2011	XX	BTXXXXHG6	10 U
4/12/2011	XX	BTXXXXHG7	10 U
4/13/2011	XX	BTXXXX8B3	10 U
7/25/2011	XX	BTXXXX8EJ	10 U
7/26/2011	XX	BTXXXX8F4	10 U
7/27/2011	XX	BTXXXX8F5	10 U
10/18/2011	XX	BTXXXX8D1	10 U
4/9/2012	XX	BTXXXX8J8	6.6 U
4/10/2012	XX	BTXXXX8J6	6.6 U
7/9/2012	XX	BTXXXX918	6.6 U
7/10/2012	XX	BTXXXX91D	6.6 U
10/2/2012	XX	BTXXXX938	6.6 U
10/24/2012	XX	BTXXXX93D	6.6 U
4/8/2013	XX	BTXXXX95B	6.6 U
7/8/2013	XX	BTXXXX97A	6.6 U
7/10/2013	XX	BTXXXX97C	6.6 U
10/21/2013	XX	BTXXXX9BA	6.6 U
4/28/2014	XX	BTXXXX9DD	20 U
4/30/2014	XX	BTXXXX9DG	20 U
7/14/2014	XX	BTXXXX9FE	20 U
9/29/2014	XX	BTXXXX9HD	20 U
4/13/2015	XX	BTXXXXA39	20 U
4/15/2015	XX	BTXXXXA37	20 U
10/19/2015	XX	BTXXXXA7F	20 U
4/25/2016	XX	BTXXXXA9F	20 U
10/17/2016	XX	BTXXXXADE	20 U
10/18/2016	XX	BTXXXXADF	20 U
10/19/2016	XX	BTXXXXADG	20 U
4/24/2017	XX	BTXXXXAFE	20 U
10/2/2017	XX	BTXXXXAHC	20 U
10/3/2017	XX	BTXXXXAHD	20 U
10/4/2017	XX	BTXXXXAHE	20 U
4/9/2018	XX	BTXXXXAJB	20 U
10/8/2018	XX	BTXXXXB1B	20 U
10/10/2018	XX	BTXXXXB1C	20 U

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

(QCBT)		Methane
		ug/L
Date	Type	Sample ID

Notes: TYPE - Sample Type Qualifier where D = Duplicate Sample.

Blank Cells appear when a parameter was not analyzed.

Concentration Qualifier Notes:

A - The sampling location was Inaccessible

M8 - Final laboratory CCV values for methane analysis failed low on this sample, therefore the methane value on this sample is considered to have a low bias.

U - Not Detected above the laboratory reporting limit.

UM8 - Non detect. Final laboratory CCV values for methane analysis failed low on this sample, therefore the methane value on this sample is considered to have a low bias.

APPENDIX B

2018 WATER QUALITY SUMMARY REPORTS

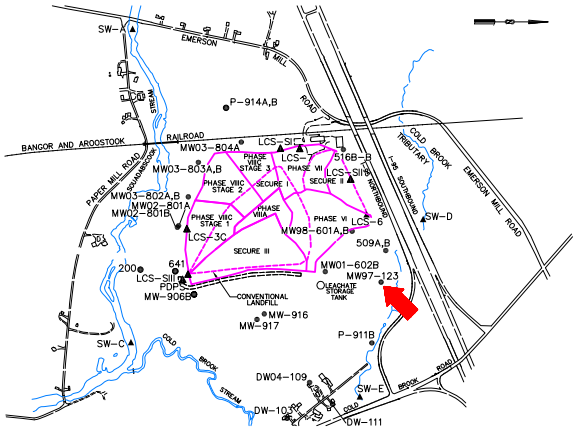
SME
SEVEE & MAHER
ENGINEERS

NORTHEASTERN ON-SITE MONITORING LOCATIONS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Well located downgradient (northeast) from the northeastern edge of the Conventional Landfill.



Screen Interval:	**34 ft. to 176 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jan-98**
Material Screened:	**Bedrock (6-inch open hole)**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1363		969	780	to	1834	1400	±	39	54
pH (STU)		7.3		7.3	6.5	to	8	7.2	±	0.04	54
Temperature (Deg C)		6.9		7.9	5.5	to	16.3	9.7	±	0.33	54
Water Level Depth (Feet)		14.5		17.4	13.82	to	18.78	16	±	0.15	54
Water Level Elevation (Feet)		111.22		108.32	106.94	to	112.3	110	±	0.15	54
Eh (mV)		176		124	-62	to	277	120	±	11	52
Dissolved Oxygen (mg/L)		1.4		0.3	0.1 U	to	2	0.63	±	0.05	54
Arsenic (mg/L)		0.005		0.005 U	0.001 U	to	0.078	0.015	±	0.002	48
Calcium (mg/L)		130		98	35.3	to	200	150	±	4.8	54
Cobalt (mg/L)				0.01 U	0.003 U	to	0.016	0.0059	±	0.000	29
Iron (mg/L)		0.98		1.9	0.16	to	17	3.3	±	0.55	54
Lead (mg/L)				0.003 U	0.001 U	to	0.012	0.0029	±	0.000	23
Magnesium (mg/L)		42		29	24.5	to	70	44	±	1.3	54
Manganese (mg/L)				2	0.0209	to	5.1	2.7	±	0.15	42
Nickel (mg/L)				0.005 U	0.002	to	0.081	0.011	±	0.002	33
Potassium (mg/L)		4		3.4	2.5	to	8	4.5	±	0.19	54
Sodium (mg/L)		92		57	37.3	to	120	79	±	2.6	54
Total Dissolved Solids (mg/L)		793		553	449	to	1097	870	±	26	45
Sulfate (mg/L)		67		41	10 U	to	281	110	±	5.8	54
Bicarbonate (CaCO3) (mg/L)		390		320	100	to	458	360	±	10	54
Organic Carbon (mg/L)		5.6		3.9	3.1	to	9.7	5.7	±	0.16	52
Chloride (mg/L)		170		96	75.7	to	478	210	±	9.5	54
Turbidity (field) (NTU)		0.3		2.4	0	to	91	3.1	±	1.7	54

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

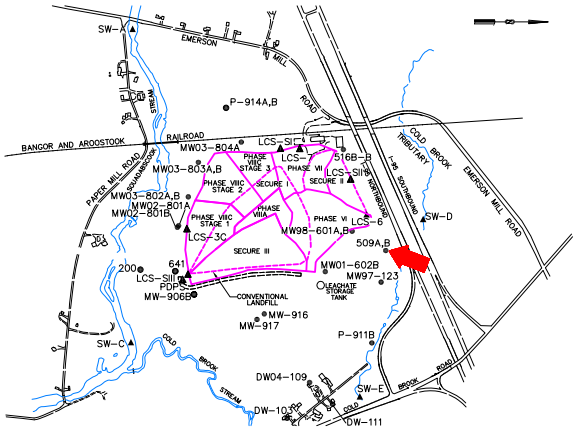
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient (northeast) from the northeastern edge of the Conventional Landfill.



Screen Interval:	**19.5 ft. to 24.5 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**2011**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		988		1150	357	to	1234	970	±	39	21
pH (STU)		6.9		6.9	6.6	to	7.2	6.9	±	0.04	21
Temperature (Deg C)		↓3.5		10.3	5.4	to	13.7	10	±	0.6	21
Water Level Depth (Feet)		7.55		8.55	4.7	to	13.52	8.3	±	0.35	21
Water Level Elevation (Feet)		109.4		108.4	103.43	to	112.25	110	±	0.35	21
Eh (mV)		153		↑237	-48	to	192	100	±	19	20
Dissolved Oxygen (mg/L)		0.3		0.4	0.2	to	2.2	0.6	±	0.1	20
Turbidity (field) (NTU)		2		1.8	0	to	5.3	1.1	±	0.32	20

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

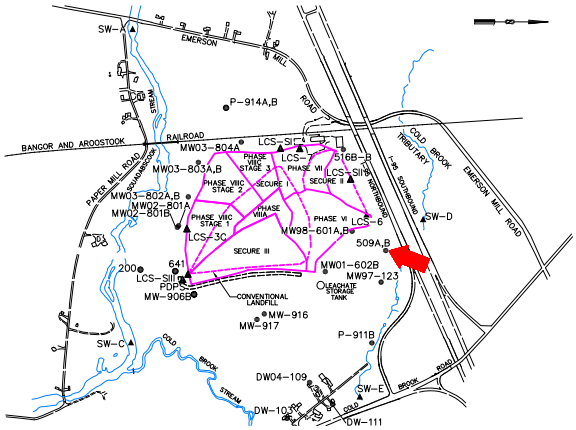
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018
Q4= 10 - 2018

Well Description

Well located downgradient (northeast) from the northeastern edge of the Conventional Landfill.



Screen Interval:	**12.5 ft. to 17.5 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**2011**
Material Screened:	**Soil Overburden**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		934		1134	580	to	1249	940	±	35	21
pH (STU)		6.8		6.8	6.6	to	7	6.7	±	0.03	21
Temperature (Deg C)		↓3.4		11.3	4.4	to	13.6	9.7	±	0.71	21
Water Level Depth (Feet)		7.62		↓6.6	7.2	to	11.2	8.3	±	0.18	21
Water Level Elevation (Feet)		109.49		↑110.51	105.91	to	109.91	110	±	0.18	21
Eh (mV)		195		↑351	13	to	319	190	±	19	20
Dissolved Oxygen (mg/L)		↑3.6		↓0.1	0.3	to	2.9	0.64	±	0.13	20
Arsenic (mg/L)		0.005		0.005	0.005 U	to	0.063	0.021	±	0.003	18
Calcium (mg/L)		99		110	79.2	to	141	110	±	4.3	20
Cobalt (mg/L)				0.01 U	0.008	to	0.01 U	0.0097	±	0.000	7
Iron (mg/L)		↑1.6		↑2.2	0.04	to	1.1	0.31	±	0.08	19
Lead (mg/L)				0.003 U	0.001 U	to	0.006	0.0031	±	0.000	7
Magnesium (mg/L)		22		26	11.3	to	30.9	23	±	0.97	20
Manganese (mg/L)				10	0.02 U	to	10.8	7.3	±	1.4	7
Nickel (mg/L)				0.005 U	0.002 U	to	0.005 U	0.0046	±	0.000	7
Potassium (mg/L)		4.3		4.8	1.7	to	10	5.8	±	0.35	20
Sodium (mg/L)		43		40	22.9	to	73	47	±	2.5	20
Total Dissolved Solids (mg/L)		491		682	396	to	709	560	±	22	19
Sulfate (mg/L)		6 U		17	5	to	58.4	23	±	3.4	20
Bicarbonate (CaCO3) (mg/L)		290		290	247	to	355	300	±	6.5	21
Organic Carbon (mg/L)		3.4		2.5	0.7 U	to	4.6	3.4	±	0.19	19
Chloride (mg/L)		79		160	13.1	to	194	100	±	10	21
Turbidity (field) (NTU)		0.7		2.1	0	to	2.6	0.8	±	0.16	20

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

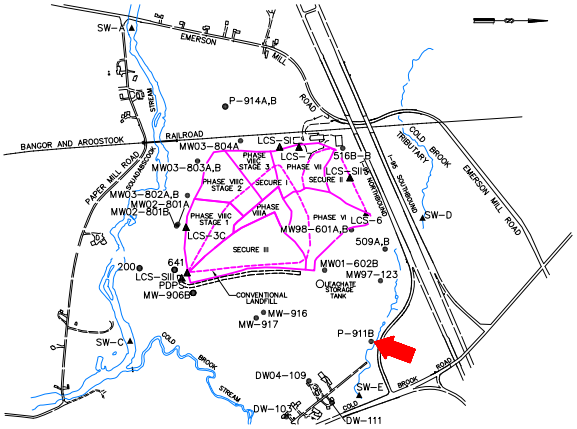
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018
Q4= 10 - 2018

Well Description

Well located downgradient (east) from the conventional landfill and Secure III Landfill.



Screen Interval:	**17.9 ft. to 22.9 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**2011**
Material Screened:	**Soil Overburden**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		933		935	768	to	1249	1000	±	27	21
pH (STU)		7.1		7.1	6.5	to	7.5	7	±	0.06	21
Temperature (Deg C)		7		9.6	6.7	to	13.1	9.8	±	0.41	21
Water Level Depth (Feet)		5.43		5.08	1.88	to	5.82	3.6	±	0.25	20
Water Level Elevation (Feet)		100.24		100.59	99.85	to	103.79	100	±	0.25	20
Eh (mV)		188		↑ 301	73	to	196	130	±	7	20
Dissolved Oxygen (mg/L)		↑ 2.2		0.1	0.1	to	1	0.35	±	0.05	20
Turbidity (field) (NTU)		1.5		2.1	0	to	12.2	4.4	±	0.88	20

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Cobalt MEG16=0.01 mg/L, Iron MEG16=5 mg/L, Lead MEG16=0.01 mg/L, MCL=0.015 mg/L, Manganese MEG16=0.3 mg/L, Nickel MEG16=0.02 mg/L, Sodium MEG16=20 mg/L, Arsenic MEG16=0.01 mg/L, MCL=0.01 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q1= 1 - 2018

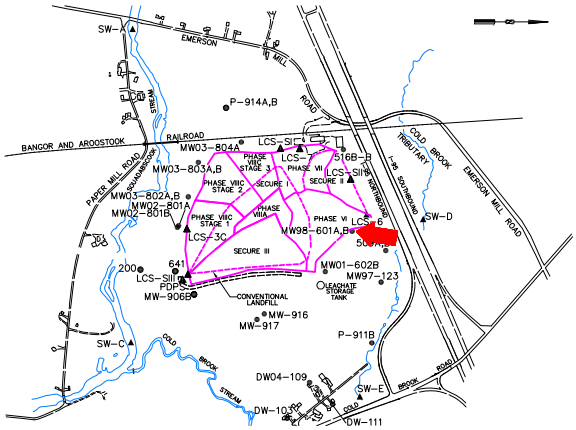
Q2= 4 - 2018

Q3= 7 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient (north) from the Conventional Landfill and (east) from the Secure III Landfill.



Screen Interval:	**23.6 ft. to 28.6 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Oct-98**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		2174		2248	1817	to	4140	2500	±	58	53
pH (STU)		6.6		6.7	5.5	to	7.4	6.5	±	0.03	53
Temperature (Deg C)		8.6		12.9	5.5	to	18.8	12	±	0.42	53
Water Level Depth (Feet)		5.85		9.45	5.2	to	11.03	7.6	±	0.21	53
Water Level Elevation (Feet)		112.96		109.36	107.78	to	113.54	110	±	0.21	53
Eh (mV)		266		211	-11	to	353	250	±	9.3	52
Dissolved Oxygen (mg/L)		↑ 5.1		2.6	0.3	to	4.6	1.2	±	0.15	52
Turbidity (field) (NTU)		0.5		1.9	0	to	4	0.36	±	0.09	52

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

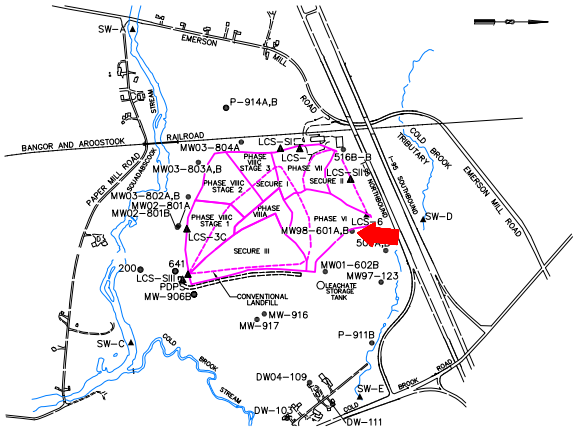
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018
Q4= 10 - 2018

Well Description

Well located downgradient (north) from the Conventional Landfill and (east) from the Secure III Landfill.



Screen Interval:	**9.6 ft. to 14.6 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Oct-98**
Material Screened:	**Overburden**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1500		1369	628	to	2840	1600	±	51	53
pH (STU)		6.5		6.4	6.1	to	7.2	6.4	±	0.03	53
Temperature (Deg C)		8.3		14.3	4.7	to	19	12	±	0.52	53
Water Level Depth (Feet)		5.65		9.5	5.13	to	10.97	7.5	±	0.21	53
Water Level Elevation (Feet)		113.14		109.29	107.82	to	113.62	110	±	0.21	53
Eh (mV)		134		262	-38	to	400	160	±	13	52
Dissolved Oxygen (mg/L)		↑ 6.3		2.9	0	to	5.5	1.1	±	0.17	52
Turbidity (field) (NTU)		1.6		1.6	0	to	4.6	0.72	±	0.15	52

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

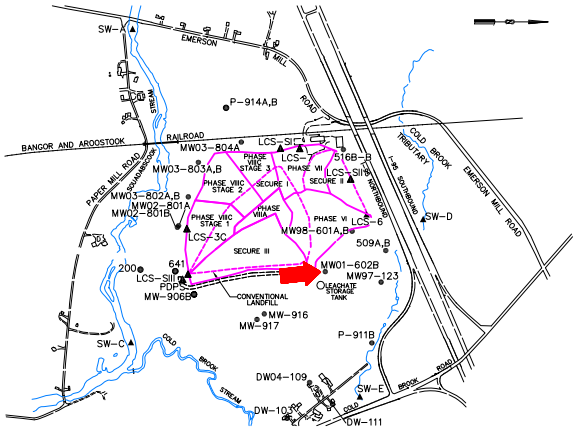
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018
Q4= 10 - 2018

Well Description

Well located downgradient from Secure II and the Secure III-Phase VI cell (along the northeastern edge of Secure III-Phase VI).



Screen Interval:	**30.4 ft. to 40.4 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jan-01**
Material Screened:	**Overburden/Till**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		424		658	259	to	5770	2500	±	270	45
pH (STU)		7.4		↑7.6	6.1	to	7.5	6.8	±	0.05	45
Temperature (Deg C)		↓5.5		11.3	5.7	to	21.1	12	±	0.61	45
Water Level Depth (Feet)		25.19		30.85	17.33	to	33.1	24	±	0.72	45
Water Level Elevation (Feet)		114.91		109.25	107	to	115.69	110	±	0.34	40
Eh (mV)		↑267		217	-92	to	247	110	±	9.5	45
Dissolved Oxygen (mg/L)		1.8		1	0.1 U	to	3	0.74	±	0.08	45
Turbidity (field) (NTU)		0.3		1.2	0	to	5.3	1.3	±	0.21	45

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

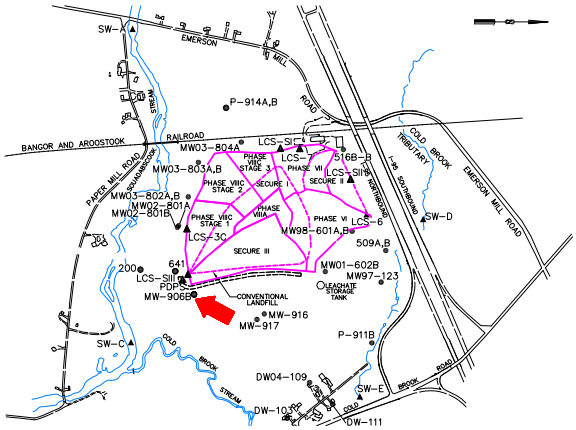
Q4= 10 - 2018

SOUTHERN ON-SITE MONITORING LOCATIONS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Well located downgradient in the dominant flow direction from the Conventional Landfill.



Screen Interval:	**29.7 ft. to 39.7 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Mar-93**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		382		455	90	to	1882	540	±	43	74
pH (STU)		7.1		7	5.8	to	8.4	6.9	±	0.05	74
Temperature (Deg C)		9.4		10.5	4.9	to	18.7	9.5	±	0.28	74
Water Level Depth (Feet)		32.2		33.7	30.39	to	34.15	33	±	0.12	74
Water Level Elevation (Feet)		92.8		91.3	90.85	to	94.61	92	±	0.12	74
Eh (mV)		273		405	-536	to	522	230	±	18	74
Dissolved Oxygen (mg/L)		2		1.1	0.2	to	9.6	1.9	±	0.2	74
Arsenic (mg/L)		0.005 U		0.005 U	0.001 U	to	0.026	0.0071	±	0.000	53
Calcium (mg/L)		44		42	22	to	250	61	±	4.3	74
Cobalt (mg/L)				0.01 U	0.003 U	to	0.03 U	0.0072	±	0.001	30
Iron (mg/L)		0.05 U		0.16	0.02	to	2.7	0.25	±	0.05	74
Lead (mg/L)				0.003 U	0.001	to	0.012	0.0035	±	0.000	28
Magnesium (mg/L)		6.3		6.4	3.2	to	39	9	±	0.72	71
Manganese (mg/L)				2.9	0.005 U	to	10.5	1.6	±	0.27	62
Nickel (mg/L)				0.005 U	0.002 U	to	0.04 U	0.0065	±	0.001	32
Potassium (mg/L)		0.9		1	0.3	to	7.5	1.6	±	0.12	74
Sodium (mg/L)		24		31	2.7	to	250	40	±	4.8	74
Total Dissolved Solids (mg/L)		211		231	74	to	1132	370	±	35	53
Sulfate (mg/L)		↓4 U		11	6.1	to	46.1	16	±	1.2	74
Bicarbonate (CaCO3) (mg/L)		140		140	44	to	318	140	±	5.5	74
Organic Carbon (mg/L)		2.3		2 U	0.6	to	10	2.4	±	0.17	74
Chloride (mg/L)		27		51	1	to	488	91	±	13	74
Turbidity (field) (NTU)		0.3		2.3	0	to	7.5	1.5	±	0.23	62

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

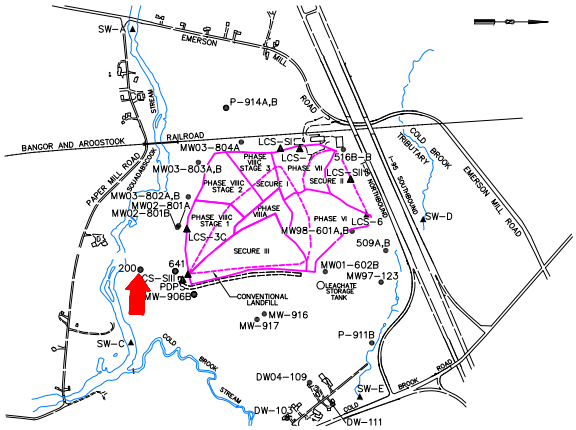
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

This well monitors overburden water quality, downgradient (south) of the Conventional Landfill.



Screen Interval: **11.6 ft. to 21.6 ft.**

Sampled: **2 Times Annually**

Sampled Since: **Feb 1991**

Material Screened: **Overburden**

Well Condition: **Good**

Sampling Method: **Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		414		620	362	to	2270	930	±	48	82
pH (STU)		7.4		7.3	5.7	to	8.5	7	±	0.04	82
Temperature (Deg C)		3.9		10.9	2.8	to	25.9	9.4	±	0.43	82
Water Level Depth (Feet)		6.3		12.55	5.1	to	13.73	10	±	0.22	82
Water Level Elevation (Feet)		86.2		79.95	78.77	to	87.4	82	±	0.22	82
Eh (mV)		179		90	-9	to	512	140	±	9.2	80
Dissolved Oxygen (mg/L)		0.1		0.1	0	to	8.4	0.9	±	0.14	76
Arsenic (mg/L)		0.029		0.043	0.011	to	0.106	0.041	±	0.003	42
Calcium (mg/L)		66		85	54	to	220	96	±	3.1	80
Cobalt (mg/L)				0.01 U	0.003 U	to	0.01 U	0.009	±	0.001	7
Iron (mg/L)		8		6	0.53	to	63	14	±	1.3	80
Lead (mg/L)				0.003 U	0.001 U	to	0.009	0.0036	±	0.000	28
Magnesium (mg/L)		↓ 6.5		8.8	7.3	to	97	30	±	2.3	74
Manganese (mg/L)				1.5	0.63	to	4.4	2	±	0.08	66
Nickel (mg/L)				0.005 U	0.002 U	to	0.05	0.02	±	0.005	13
Potassium (mg/L)		3.6		4.2	3	to	49	12	±	1.1	77
Sodium (mg/L)		6.1		9.2	5	to	220	55	±	5.5	80
Total Dissolved Solids (mg/L)		↓ 225		355	231	to	1200	530	±	41	37
Sulfate (mg/L)		↓ 8.3		20	8.4	to	103	39	±	2.3	80
Bicarbonate (CaCO3) (mg/L)		190		260	186	to	1100	340	±	18	77
Organic Carbon (mg/L)		2.6		4	2	to	40.8	7.3	±	0.74	80
Chloride (mg/L)		6.2		19	3.1	to	572	100	±	13	80
Turbidity (field) (NTU)		0.6		1.4	0	to	9.6	1.4	±	0.23	62

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

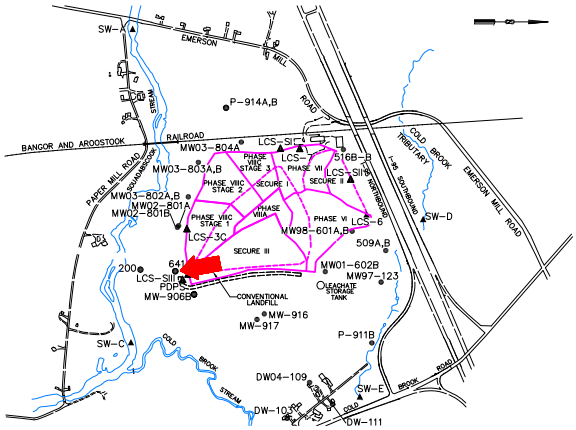
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient in the dominant flow direction from the Conventional Landfill.



Screen Interval:	**20.5 ft. to 30.5 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**June-91**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1250		972	575	to	6520	2200	±	140	81
pH (STU)		7.1		7	5.6	to	8.1	6.7	±	0.05	81
Temperature (Deg C)		8		11.9	3.5	to	23	12	±	0.45	81
Water Level Depth (Feet)		18.41		23.2	4.25	to	25.08	17	±	0.68	81
Water Level Elevation (Feet)		89.06		84.27	78.36	to	91.79	86	±	0.25	81
Eh (mV)		157		120	-65	to	313	100	±	8.2	79
Dissolved Oxygen (mg/L)		1.4		1.1	0.1	to	3	1	±	0.08	77
Arsenic (mg/L)		0.035		0.013	0.005	to	0.131	0.046	±	0.004	57
Calcium (mg/L)		99		140	82.5	to	1000	190	±	12	80
Cobalt (mg/L)				0.01 U	0.005	to	0.156	0.025	±	0.007	29
Iron (mg/L)		6.1		5	0.78	to	108	28	±	2.7	80
Lead (mg/L)				0.003 U	0.001 U	to	0.012	0.0038	±	0.000	29
Magnesium (mg/L)		36		22	16.8	to	120	54	±	2.7	75
Manganese (mg/L)				2.6	1.38	to	15	5.4	±	0.38	65
Nickel (mg/L)				0.005 U	0.005 U	to	0.28	0.049	±	0.01	34
Potassium (mg/L)		16		7.8	2.5	to	190	50	±	5	78
Sodium (mg/L)		70		35	25	to	720	160	±	14	80
Total Dissolved Solids (mg/L)		572		571	451	to	4400	1100	±	89	59
Sulfate (mg/L)		33		42	0.1 U	to	628	85	±	12	80
Bicarbonate (CaCO3) (mg/L)		390		390	64	to	1790	630	±	34	78
Organic Carbon (mg/L)		6.2		3.3	3	to	370	37	±	6.4	80
Chloride (mg/L)		67		60	34	to	1800	370	±	40	80
Turbidity (field) (NTU)		0.3		1.6	0	to	16.5	1.8	±	0.31	63
Methane (ug/L)				88	20 U	to	3290	1000	±	150	29

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

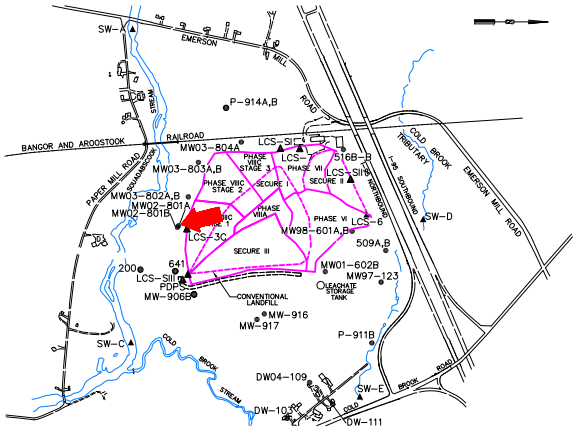
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient in the dominant flow direction (south) from the Conventional Landfill.



Screen Interval:	**50.9 ft. to 60.9 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jul-02**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		2568		2870	1540	to	6490	3700	±	130	45
pH (STU)		6.8		7	5.9	to	7.2	6.6	±	0.04	45
Temperature (Deg C)		10.1		14.1	6.4	to	18.5	13	±	0.45	45
Water Level Depth (Feet)		25.83		28.2	25.03	to	29.56	27	±	0.13	45
Water Level Elevation (Feet)		87.07		84.7	83.34	to	88.01	86	±	0.13	45
Eh (mV)		233		229	34	to	354	170	±	11	45
Dissolved Oxygen (mg/L)		1.2		0.4	0.1	to	5	1.6	±	0.19	45
Arsenic (mg/L)		0.088		0.055	0.003	to	0.256	0.078	±	0.01	44
Calcium (mg/L)		99		100	96.4	to	390	210	±	13	45
Cobalt (mg/L)				0.01 U	0.01 U	to	0.05 U	0.026	±	0.002	29
Iron (mg/L)		8		8.3	0.22	to	12.5	7.2	±	0.43	45
Lead (mg/L)				0.003 U	0.002 U	to	0.024	0.0063	±	0.002	19
Magnesium (mg/L)		64		65	52	to	210	100	±	4.1	45
Manganese (mg/L)				↓ 2.3	2.59	to	42	10	±	1.3	33
Nickel (mg/L)				0.1	0.039	to	0.21	0.14	±	0.009	33
Potassium (mg/L)		68		68	5.8	to	124	70	±	4.8	45
Sodium (mg/L)		250		220	155	to	546	340	±	14	45
Total Dissolved Solids (mg/L)		↓ 1268		1379	1287	to	3163	2200	±	75	45
Sulfate (mg/L)		20 U		20 U	0.6 U	to	138	19	±	3	45
Bicarbonate (CaCO3) (mg/L)		800		820	321	to	1120	880	±	31	45
Organic Carbon (mg/L)		22		28	10.4	to	82.8	44	±	2.4	45
Chloride (mg/L)		↓ 300		↓ 380	400	to	1940	930	±	56	45
Turbidity (field) (NTU)		1.1		1.4	0	to	26.5	3.9	±	0.81	45
Methane (ug/L)				660	104	to	4300	1900	±	200	29

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

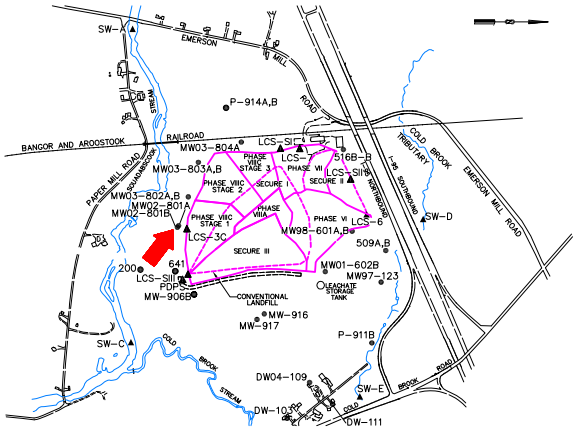
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient in the dominant flow direction (south) from the Conventional Landfill.



Screen Interval:	**22.9 ft. to 32.9 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jul-02**
Material Screened:	**Soil Overburden**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1402		1686	950	to	5850	3000	±	180	45
pH (STU)		↑7.1		↑7.1	5.8	to	7	6.5	±	0.04	45
Temperature (Deg C)		11.2		14.3	6.2	to	18.3	12	±	0.33	45
Water Level Depth (Feet)		25.45		27.44	24.72	to	27.7	26	±	0.12	45
Water Level Elevation (Feet)		87.16		85.17	84.91	to	87.89	86	±	0.12	45
Eh (mV)		185		320	-42	to	385	150	±	12	45
Dissolved Oxygen (mg/L)		1.2		3.3	0.3	to	6	1.5	±	0.21	45
Turbidity (field) (NTU)		1.1		3.5	0	to	12.8	4.3	±	0.58	45

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

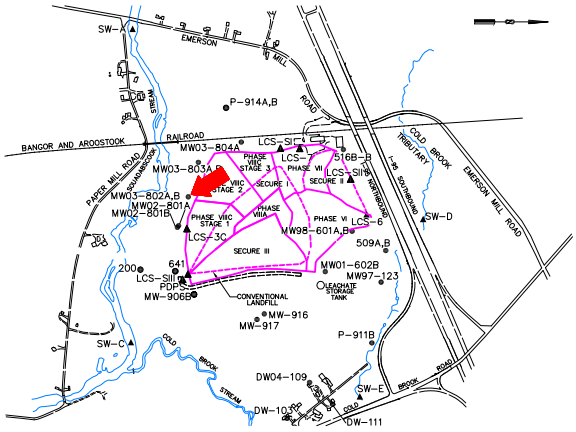
Q2= 4 - 2018

Q4= 10 - 2018

Well Description

This well monitors groundwater in the deeper bedrock, downgradient to the south of the Conventional Landfill.

Screen Interval:	**44.6 ft. to 54.6 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**July-03**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**



Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		540		525	470	to	1168	810	±	26	42
pH (STU)		7.3		6.6	5.7	to	7.5	6.6	±	0.07	42
Temperature (Deg C)		7.4		16.6	6.5	to	18.4	11	±	0.42	42
Water Level Depth (Feet)		24.2		26.2	23.9	to	26.8	25	±	0.11	42
Water Level Elevation (Feet)		96.52		94.52	93.92	to	96.82	96	±	0.11	42
Eh (mV)		↑ 268		258	-42	to	267	130	±	13	42
Dissolved Oxygen (mg/L)		↑ 7		2.3	0.4	to	6	1.5	±	0.16	42
Arsenic (mg/L)		0.005 U		0.005 U	0.001 U	to	0.061	0.023	±	0.003	29
Calcium (mg/L)		72		81	33	to	140	92	±	3.3	42
Cobalt (mg/L)				0.01 U	0.01 U	to	0.016	0.013	±	0.002	4
Iron (mg/L)		0.05 U		0.24	0.05 U	to	31	8.4	±	1.1	42
Lead (mg/L)				0.003 U	0.002 U	to	0.013	0.0033	±	0.000	12
Magnesium (mg/L)		↓ 9		13	9.2	to	56.9	34	±	2.1	42
Manganese (mg/L)				0.32	0.05 U	to	4.1	1.7	±	0.21	25
Nickel (mg/L)				0.005 U	0.003	to	0.022	0.0076	±	0.002	8
Potassium (mg/L)		↓ 0.6		2	0.9	to	425	14	±	10	42
Sodium (mg/L)		11		12	10.5	to	99	35	±	2.9	42
Total Dissolved Solids (mg/L)		270		302	254	to	677	450	±	18	25
Sulfate (mg/L)		52		7.8	2.7	to	52.7	14	±	1.3	42
Bicarbonate (CaCO3) (mg/L)		220		240	182	to	462	380	±	9.7	42
Organic Carbon (mg/L)		3.4		3.9	1.4	to	8.2	3.4	±	0.24	42
Chloride (mg/L)		17		11	9.9	to	139	42	±	3.9	42
Turbidity (field) (NTU)		1.2		5.2	0	to	7	1.8	±	0.26	42
Methane (ug/L)				560	50	to	9010	4700	±	400	30

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

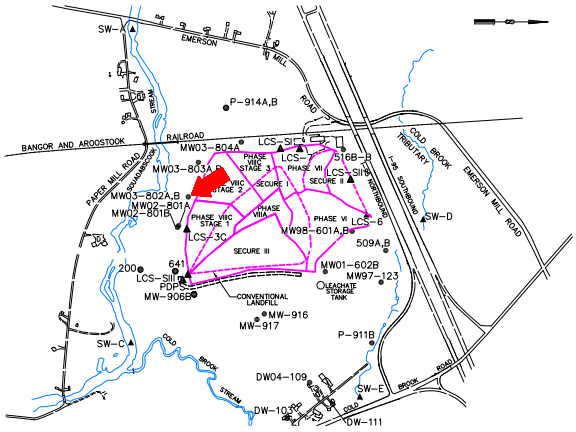
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

This well monitors groundwater in the shallow bedrock, downgradient to the south of the Conventional Landfill.



Screen Interval:	**24.9 ft. to 34.9 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**July-03**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1131		1500	643	to	1587	1100	±	25	42
pH (STU)		6.8		6.5	5.4	to	7	6.2	±	0.04	42
Temperature (Deg C)		7.4		↑ 15.4	6.1	to	15.2	11	±	0.33	42
Water Level Depth (Feet)		27.7		28.15	27.5	to	28.52	28	±	0.04	42
Water Level Elevation (Feet)		94.31		93.86	93.49	to	99.19	94	±	0.13	42
Eh (mV)		223		160	-11	to	358	180	±	12	42
Dissolved Oxygen (mg/L)		4.2		2.7	0.4	to	5.4	1.3	±	0.16	42
Arsenic (mg/L)				0.057	0.002 U	to	0.146	0.021	±	0.01	16
Calcium (mg/L)				130	103	to	189.4	130	±	4.3	27
Cobalt (mg/L)				0.01 U	0.01 U	to	0.023	0.017	±	0.002	6
Iron (mg/L)				↑ 32	0.61	to	26	5	±	1.4	27
Lead (mg/L)				0.003 U	0.002 U	to	0.009	0.0044	±	0.000	14
Magnesium (mg/L)				47	28	to	57	39	±	1.4	27
Manganese (mg/L)				7.2	5	to	47.1	20	±	2.1	27
Nickel (mg/L)				0.019	0.005 U	to	0.046	0.026	±	0.005	10
Potassium (mg/L)				11	1.5	to	25	3.9	±	0.95	27
Sodium (mg/L)				65	11	to	71.3	24	±	2.5	27
Total Dissolved Solids (mg/L)				822	580	to	877	670	±	29	10
Sulfate (mg/L)				20 U	1.8	to	22	12	±	1	27
Bicarbonate (CaCO3) (mg/L)				540	318	to	644	460	±	16	27
Organic Carbon (mg/L)				7.4	0.5 U	to	8.7	2.6	±	0.38	27
Chloride (mg/L)				130	28.6	to	161	80	±	7.4	27
Turbidity (field) (NTU)		3		3.7	0	to	8.5	1.8	±	0.32	42
Methane (ug/L)				890	340	to	6740	3300	±	330	27

underlined/bold - values exceed a regulatory standard listed below.

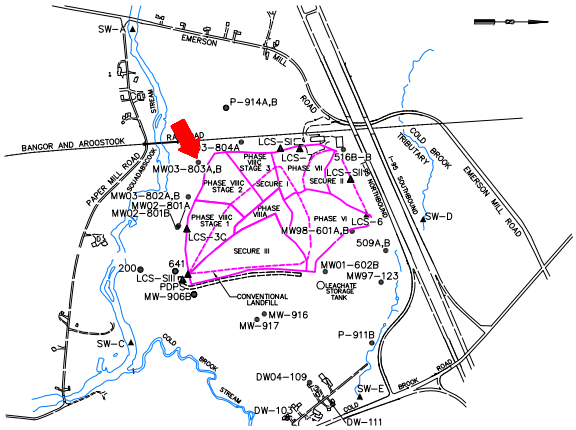
↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Well Description

This well monitors groundwater in the deeper bedrock, downgradient to the southwest of the Conventional Landfill.



Screen Interval:	**33.9 ft. to 43.9 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**July-03**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		↑ 1867		↑ 1700	437	to	1691	1000	±	49	43
pH (STU)		6.8		6.7	6.1	to	7.8	6.7	±	0.05	43
Temperature (Deg C)		7.4		11.9	4	to	13.9	10	±	0.31	43
Water Level Depth (Feet)		20.2		22.68	19.4	to	23.1	21	±	0.13	43
Water Level Elevation (Feet)		105.56		103.08	102.66	to	106.36	100	±	0.13	43
Eh (mV)		218		290	36	to	355	250	±	10	43
Dissolved Oxygen (mg/L)		2.8		1.2	0.4	to	4.2	1.1	±	0.13	43
Arsenic (mg/L)				0.005 U	0.002 U	to	0.048	0.014	±	0.004	17
Calcium (mg/L)				200	55	to	225	130	±	9.3	28
Cobalt (mg/L)				0.01 U	0.003 U	to	0.025	0.014	±	0.003	7
Iron (mg/L)				0.13	0.02 U	to	1.42	0.12	±	0.05	28
Lead (mg/L)				0.003 U	0.001 U	to	0.003	0.0023	±	0.000	15
Magnesium (mg/L)				62	19	to	75	35	±	2.8	28
Manganese (mg/L)				1.4	0.02	to	21.1	2.8	±	0.83	28
Nickel (mg/L)				0.007	0.002 U	to	0.02	0.0069	±	0.002	11
Potassium (mg/L)				2.9	1.4	to	16	2.7	±	0.5	28
Sodium (mg/L)				29	7.6	to	42	14	±	1.5	28
Total Dissolved Solids (mg/L)				939	264	to	1178	640	±	110	11
Sulfate (mg/L)				20 U	8.2	to	20 U	12	±	0.62	28
Bicarbonate (CaCO3) (mg/L)				470	213	to	630	360	±	19	28
Organic Carbon (mg/L)				2 U	0.5 U	to	5.8	1.8	±	0.23	28
Chloride (mg/L)				280	5.1	to	450	77	±	21	28
Turbidity (field) (NTU)		0.3		2.3	0	to	4.9	1	±	0.19	43
Methane (ug/L)				↓ 22	30	to	3570	1300	±	220	28

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

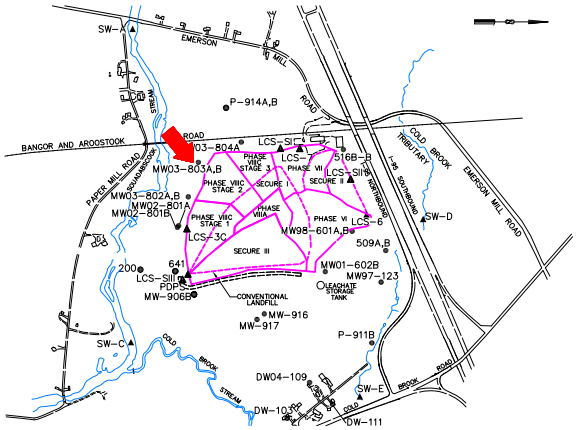
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

This well monitors groundwater in the shallow bedrock, downgradient to the southwest of the Conventional Landfill.



Screen Interval:	**20 ft. to 30 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**July-03**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		↑ 1502		↑ 1507	432	to	1497	1200	±	34	43
pH (STU)		6.4		6.5	5.5	to	6.9	6.2	±	0.03	43
Temperature (Deg C)		8.6		11.6	4.2	to	12.4	9.6	±	0.26	43
Water Level Depth (Feet)		21.45		23.65	20.2	to	24.2	22	±	0.14	43
Water Level Elevation (Feet)		103.96		101.76	101.21	to	105.04	100	±	0.13	43
Eh (mV)		9		228	-29	to	333	180	±	13	43
Dissolved Oxygen (mg/L)		3.6		3	0.3	to	4.3	1.1	±	0.14	43
Arsenic (mg/L)		0.017		0.009	0.001 U	to	0.181	0.054	±	0.009	31
Calcium (mg/L)		200		200	40	to	264	180	±	6.9	43
Cobalt (mg/L)				0.059	0.025	to	0.147	0.082	±	0.01	9
Iron (mg/L)		6.5		1.8	0.19	to	22.1	3.9	±	0.75	43
Lead (mg/L)				0.003 U	0.001 U	to	0.02	0.005	±	0.001	17
Magnesium (mg/L)		↑ 48		↑ 47	6.8	to	46.9	30	±	1.4	43
Manganese (mg/L)				24	6.6	to	70.4	28	±	3.2	30
Nickel (mg/L)				0.008	0.005	to	0.058	0.026	±	0.004	13
Potassium (mg/L)		1.9		1.9	0.9	to	11.5	1.8	±	0.23	43
Sodium (mg/L)		22		19	12	to	50	21	±	0.89	43
Total Dissolved Solids (mg/L)		821		894	512	to	927	810	±	22	26
Sulfate (mg/L)		10		15	3.5	to	26.9	15	±	0.75	43
Bicarbonate (CaCO3) (mg/L)		530		650	147	to	736	580	±	18	43
Organic Carbon (mg/L)		2.3		2.2	1.2	to	10.4	2.8	±	0.22	43
Chloride (mg/L)		84		41	14.3	to	130	63	±	4	43
Turbidity (field) (NTU)		0.9		2.1	0	to	5.7	1.2	±	0.21	43
Methane (ug/L)				370	250	to	7660	4400	±	400	30

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

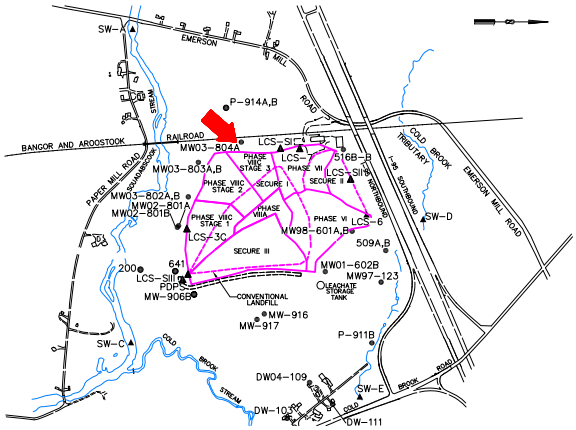
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

This well monitors groundwater in the deeper bedrock, downgradient to the southwest of the Conventional Landfill.



Screen Interval:	**39.6 ft. to 54.6 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**July-03**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		900		896	597	to	1190	810	±	20	42
pH (STU)		6.7		6.8	6.3	to	7.4	6.6	±	0.03	42
Temperature (Deg C)		7.6		14.5	6.7	to	15.3	11	±	0.37	42
Water Level Depth (Feet)		16.15		19.3	14.99	to	20.9	18	±	0.22	42
Water Level Elevation (Feet)		121.36		118.21	116.61	to	122.52	120	±	0.22	42
Eh (mV)		317		258	207	to	424	310	±	8.6	42
Dissolved Oxygen (mg/L)		3.3		1.2	0.4	to	3.3	0.83	±	0.07	42
Turbidity (field) (NTU)		0.3		↑4.8	0	to	2	0.4	±	0.07	42

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

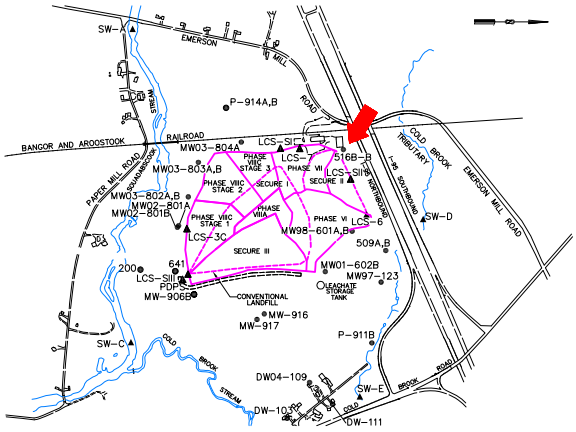
Q4= 10 - 2018

NORTH ON-SITE MONITORING LOCATION

SME
SEVEE & MAHER
ENGINEERS

Well Description

Well located on the northwest corner of Secure II Landfill, upgradient from all Landfill facilities.



Screen Interval:	**37 ft. to 47 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**March-95**
Material Screened:	**Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		↑ 1169		1109	400	to	1141	970	±	15	67
pH (STU)		7.3		7.3	6.3	to	7.8	7.2	±	0.03	67
Temperature (Deg C)		6.6		10.1	5	to	19.3	11	±	0.39	67
Water Level Depth (Feet)		9.3		11.2	8.67	to	17.62	12	±	0.27	67
Eh (mV)		241		66	-19	to	456	240	±	13	67
Dissolved Oxygen (mg/L)		1.9		0.5	0.3	to	5	1.4	±	0.13	66
Arsenic (mg/L)		0.005 U		0.011	0.001 U	to	0.062	0.015	±	0.002	35
Calcium (mg/L)		130		120	80	to	136	110	±	1.3	68
Cobalt (mg/L)				0.01 U	0.003 U	to	0.01 U	0.009	±	0.001	7
Iron (mg/L)		0.51		↑ 3.1	0.02 U	to	2.9	0.36	±	0.07	68
Lead (mg/L)				0.003 U	0.001 U	to	0.006	0.0031	±	0.000	24
Magnesium (mg/L)		22		22	13.5	to	34	22	±	0.38	65
Manganese (mg/L)				1.7	0.03	to	2.49	0.76	±	0.07	56
Nickel (mg/L)				0.005 U	0.002 U	to	0.04 U	0.009	±	0.004	8
Potassium (mg/L)		2.8		2.4	1.4	to	3.9	2.5	±	0.06	68
Sodium (mg/L)		73		71	47	to	100	61	±	1.2	68
Total Dissolved Solids (mg/L)		601		617	500	to	700	600	±	7.4	25
Sulfate (mg/L)		10 U		25	5.3	to	98.8	28	±	1.8	67
Bicarbonate (CaCO3) (mg/L)		300		310	200	to	337	290	±	2.5	67
Organic Carbon (mg/L)		2 U		2 U	1.2	to	12.3	2.5	±	0.19	67
Chloride (mg/L)		140		150	24.5	to	287	150	±	4.1	67
Turbidity (field) (NTU)		1		2.1	0	to	85	3.4	±	1.6	60

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

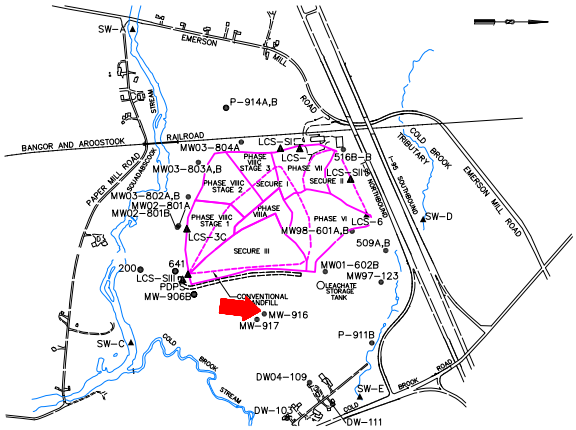
Q4= 10 - 2018

EAST ON-SITE MONITORING LOCATIONS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Well located downgradient from the eastern edge of the Conventional and Secure III Landfills.



Screen Interval:	**35.2 ft. to 45.2 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jan-96**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		769		1160	225	to	1848	1200	±	60	65
pH (STU)		7		7.2	5.8	to	8.4	6.7	±	0.07	65
Temperature (Deg C)		8.7		11	5.2	to	15.1	9.6	±	0.25	65
Water Level Depth (Feet)		38.4		36.41	34.61	to	39.95	37	±	0.15	65
Water Level Elevation (Feet)		100.56		102.55	99.01	to	104.52	100	±	0.15	65
Eh (mV)		206		103	-16	to	389	190	±	9.7	65
Dissolved Oxygen (mg/L)		2.1		0.4	0.2	to	10	1.4	±	0.18	65
Arsenic (mg/L)		0.005 U		0.005 U	0.002	to	0.072	0.022	±	0.003	34
Calcium (mg/L)		↓ 26		79	31.4	to	250	170	±	7.4	65
Cobalt (mg/L)				0.01 U	0.003	to	0.011	0.0091	±	0.001	7
Iron (mg/L)		1.5		3.4	0.02 U	to	32.61	6.9	±	1	65
Lead (mg/L)				0.003 U	0.001 U	to	0.026	0.0044	±	0.001	23
Magnesium (mg/L)		9.2		22	8.2	to	135	80	±	4.7	62
Manganese (mg/L)				0.65	0.05	to	8.8	3.7	±	0.28	53
Nickel (mg/L)				0.005 U	0.005 U	to	0.04 U	0.011	±	0.004	8
Potassium (mg/L)		3.1		2.9	1.3	to	7.7	3.1	±	0.14	65
Sodium (mg/L)		1.8		3.4	1.5	to	39	11	±	0.75	65
Total Dissolved Solids (mg/L)		↓ 155		381	215	to	950	520	±	39	22
Sulfate (mg/L)		17		↑ 72	3.6	to	51.2	21	±	1.1	65
Bicarbonate (CaCO3) (mg/L)		130		350	121	to	1120	770	±	38	65
Organic Carbon (mg/L)		9.6		5.6	0.5	to	122	12	±	3.2	65
Chloride (mg/L)		1 U		↑ 8.3	0.2 U	to	7.9	2.9	±	0.21	65
Turbidity (field) (NTU)		0.8		1.8	0	to	10.1	2.6	±	0.3	62
Methane (ug/L)				20 U	6.6 U	to	13200	3700	±	770	29

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

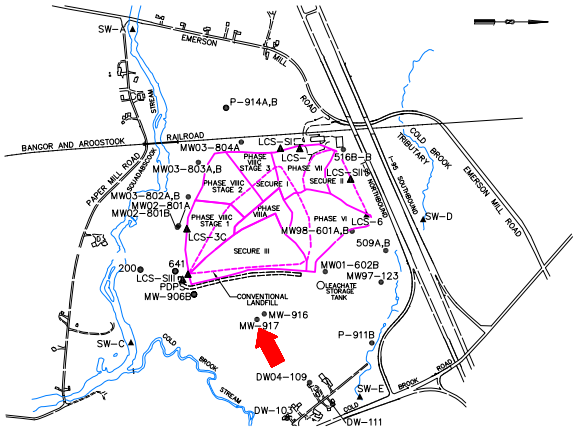
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

Q4= 10 - 2018

Well Description

Well located downgradient from the eastern edge of the Conventional and Secure III Landfills.



Screen Interval:	**53.7 ft. to 63.7 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Jan-96**
Material Screened:	**Deep Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		903		1042	354	to	1920	1300	±	41	65
pH (STU)		7.2		7.2	6.1	to	8.6	6.8	±	0.05	65
Temperature (Deg C)		8.7		10.3	5	to	14.9	9.2	±	0.22	65
Water Level Depth (Feet)		37.04		37.89	33.79	to	39.1	36	±	0.13	65
Water Level Elevation (Feet)		100.95		100.1	98.89	to	104.43	100	±	0.14	65
Eh (mV)		126		114	-187	to	342	91	±	12	65
Dissolved Oxygen (mg/L)		0.6		0.1 U	0.1	to	6	1.1	±	0.14	65
Arsenic (mg/L)		0.086		0.11	0.001	to	0.189	0.11	±	0.008	49
Calcium (mg/L)		100		110	91.3	to	250	170	±	5.8	65
Cobalt (mg/L)				0.01 U	0.003 U	to	0.023	0.01	±	0.001	29
Iron (mg/L)		7.5		8.1	0.02 U	to	95.8	20	±	2.4	65
Lead (mg/L)				0.003 U	0.001 U	to	0.023	0.0038	±	0.000	24
Magnesium (mg/L)		57		66	56.8	to	150	97	±	2.8	62
Manganese (mg/L)				0.95	0.41	to	9.6	1.9	±	0.26	53
Nickel (mg/L)				0.005 U	0.002 U	to	0.04 U	0.0055	±	0.001	30
Potassium (mg/L)		2.5		2.4	1.8	to	5.2	3	±	0.06	65
Sodium (mg/L)		8.5		8	7.5	to	40	11	±	0.51	65
Total Dissolved Solids (mg/L)		513		583	488	to	1071	770	±	28	44
Sulfate (mg/L)		11		↑71	1 U	to	58	20	±	1.6	65
Bicarbonate (CaCO3) (mg/L)		450		470	430	to	1098	820	±	27	65
Organic Carbon (mg/L)		2 U		2 U	0.5 U	to	94.2	6.4	±	1.9	65
Chloride (mg/L)		6.1		5.1	0.2 U	to	11	4.7	±	0.3	65
Turbidity (field) (NTU)		0.3		0.7	0	to	8.1	1.5	±	0.25	62
Methane (ug/L)				280	20	to	10000	4000	±	670	29

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

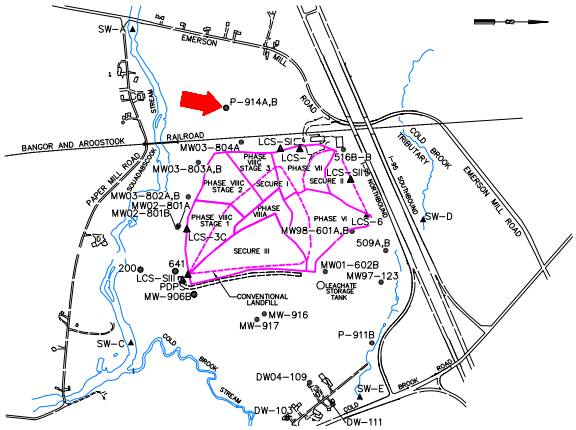
Q4= 10 - 2018

WEST ON-SITE MONITORING LOCATIONS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Well located side-gradient (west) from the Conventional Landfill and downgradient (southwest) from the leachate lagoon.



Screen Interval:	**37.5 ft. to 42.5 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Mar-94**
Material Screened:	**Deep Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		949		925	522	to	1072	770	±	14	65
pH (STU)		6.9		6.9	6.2	to	7.7	6.7	±	0.03	65
Temperature (Deg C)		6.1		9.3	4.3	to	16.5	9.5	±	0.3	65
Water Level Depth (Feet)		6.65		8.82	5.94	to	10.61	7.9	±	0.13	65
Water Level Elevation (Feet)		115.86		113.69	111.9	to	116.57	110	±	0.13	65
Eh (mV)		122		301	-105	to	350	92	±	14	64
Dissolved Oxygen (mg/L)		2.9		↓0.1	0.3	to	4	0.86	±	0.08	64
Arsenic (mg/L)		0.005 U		0.005 U	0.001 U	to	0.05	0.01	±	0.002	48
Calcium (mg/L)		110		95	48	to	130	100	±	1.9	63
Cobalt (mg/L)				0.01 U	0.003 U	to	0.012	0.0064	±	0.000	29
Iron (mg/L)		0.05 U		0.05 U	0.02 U	to	0.87	0.076	±	0.01	63
Lead (mg/L)				0.003 U	0.001 U	to	0.005 U	0.0027	±	0.000	23
Magnesium (mg/L)		28		23	20	to	45	27	±	0.69	60
Manganese (mg/L)				2.2	0.164	to	3.5	1.5	±	0.13	50
Nickel (mg/L)				0.005 U	0.002 U	to	0.016	0.005	±	0.000	29
Potassium (mg/L)		1.4		1.2	0.4	to	11	1.7	±	0.16	62
Sodium (mg/L)		↑29		↑31	10	to	28	21	±	0.53	63
Total Dissolved Solids (mg/L)		498		521	417	to	638	490	±	9.3	41
Sulfate (mg/L)		↑130		↑77	11	to	74	30	±	1.9	63
Bicarbonate (CaCO3) (mg/L)		260		↓200	210	to	440	310	±	7.4	63
Organic Carbon (mg/L)		2 U		2 U	0.6	to	15	1.9	±	0.23	63
Chloride (mg/L)		72		↑110	26.7	to	101	56	±	2.1	63
Turbidity (field) (NTU)		0.6		0.6	0	to	5.5	0.46	±	0.13	62

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

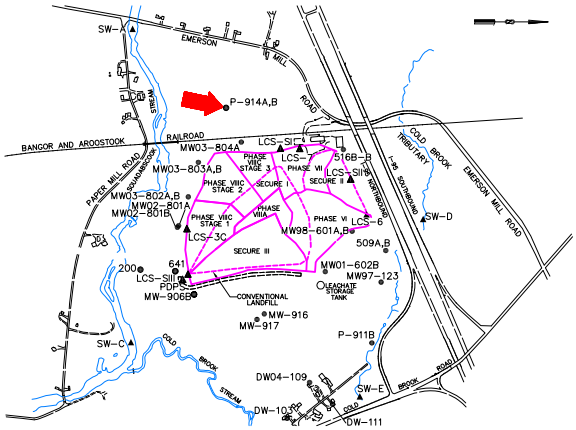
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018
Q4= 10 - 2018

Well Description

Well located side-gradient (west) from the Conventional Landfill and downgradient (southwest) from the leachate lagoon.



Screen Interval:	**16 ft. to 18 ft.**
Sampled:	**2 Times Annually**
Sampled Since:	**Mar-94**
Material Screened:	**Shallow Bedrock**
Well Condition:	**Good**
Sampling Method:	**Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		918		880	410	to	971	650	±	15	65
pH (STU)		6.6		6.9	5.7	to	7.6	6.6	±	0.04	65
Temperature (Deg C)		5.8		10.3	3	to	18.3	10	±	0.41	65
Water Level Depth (Feet)		↓ 6.23		8.64	6.82	to	10.11	8	±	0.08	65
Water Level Elevation (Feet)		↑ 116.32		113.91	112.44	to	115.73	110	±	0.08	65
Eh (mV)		260		↑ 447	-41	to	442	200	±	13	64
Dissolved Oxygen (mg/L)		3.2		0.7	0.3	to	4.5	1.1	±	0.08	64
Turbidity (field) (NTU)		1.4		3.5	0	to	79	5	±	1.3	62

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018

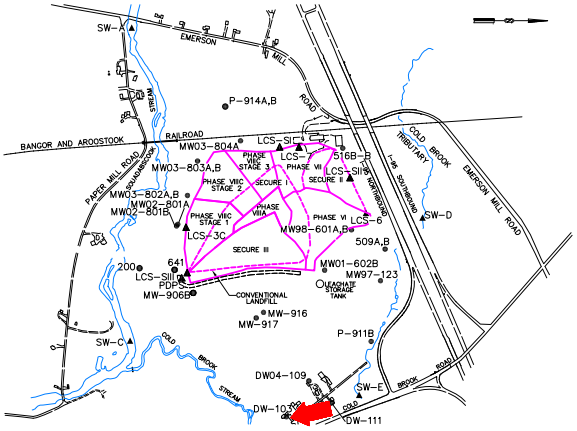
Q4= 10 - 2018

RESIDENTIAL WELLS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Sample located to the east of the PTL site at the Walker residence on Old Cold Creek Road.



Screen Interval:

Sampled: **2 Times Annually**

Sampled Since: **July-96**

Material Screened: **Bedrock(open borehole)**

Well Condition: **Good**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		442		485	325	to	585	420	±	7.2	46
pH (STU)		8.1		7.7	6.2	to	8.7	7.6	±	0.07	46
Temperature (Deg C)		9.1		12.6	7.7	to	17.4	12	±	0.3	44
Eh (mV)		227		↑ 370	9	to	344	170	±	14	42
Dissolved Oxygen (mg/L)		2.9		0.9	0.3	to	4	1.2	±	0.1	42
Arsenic (mg/L)				↓ 0.006	0.007	to	0.029	0.012	±	0.001	22
Calcium (mg/L)				34	27	to	49	34	±	0.93	23
Cobalt (mg/L)				0.01 U	0.003 U	to	0.01 U	0.009	±	0.001	7
Iron (mg/L)				0.48	0.12	to	0.58	0.32	±	0.03	22
Lead (mg/L)				0.003 U	0.001	to	0.004 U	0.0031	±	0.000	7
Magnesium (mg/L)				16	13.5	to	18	15	±	0.27	20
Manganese (mg/L)				0.16	0.11	to	0.26	0.16	±	0.008	22
Nickel (mg/L)				0.005 U	0.002 U	to	0.009	0.0051	±	0.000	7
Potassium (mg/L)				2.7	2.1	to	12	3.3	±	0.41	23
Sodium (mg/L)				**36**	20.5	to	52	32	±	1.6	23
Total Dissolved Solids (mg/L)				246	223	to	256	240	±	4	8
Sulfate (mg/L)				9.8	7.1	to	14	11	±	0.39	23
Bicarbonate (CaCO3) (mg/L)				160	150	to	171	160	±	1	23
Organic Carbon (mg/L)				2 U	0.4 U	to	2.2	1.4	±	0.12	23
Chloride (mg/L)				42	22.2	to	57.9	37	±	2.2	23
Turbidity (field) (NTU)		0.8		1.9	0	to	3.7	0.85	±	0.15	42
Methane (ug/L)		37		33	30	to	460	180	±	21	36

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Cobalt MEG16=0.01 mg/L, Iron MEG16=5 mg/L, Lead MEG16=0.01 mg/L, MCL=0.015 mg/L, Manganese MEG16=0.3 mg/L, Nickel MEG16=0.02 mg/L, Sodium MEG16=20 mg/L, Arsenic MEG16=0.01 mg/L, MCL=0.01 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

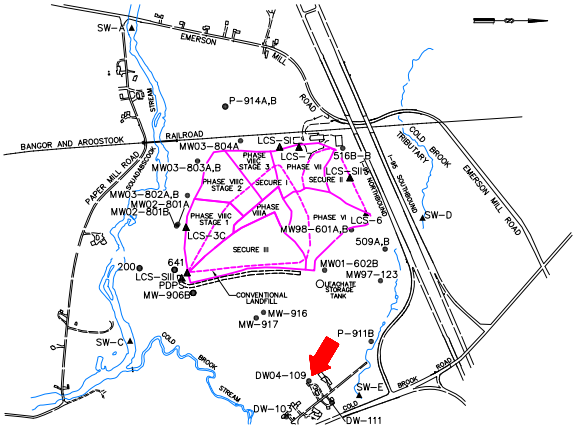
See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.

Q4= 10 - 2018

Well Description

Sample located to the east of the PTL site in a residential area on Old Creek Road (not currently used as a domestic water supply).



Screen Interval:

Sampled: **2 Times Annually**

Sampled Since: **July 2007**

Material Screened: **Bedrock(open borehole)**

Well Condition: **Good**

Sampling Method: **Low Flow**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		206		237	178	to	2880	730	±	100	31
pH (STU)		9.3		9.2	6.6	to	9.7	7.9	±	0.16	31
Temperature (Deg C)		8.1		12.6	7.4	to	17.2	11	±	0.42	31
Water Level Depth (Feet)		33.35		35.57	32.4	to	36.2	34	±	0.2	27
Water Level Elevation (Feet)		100.69		98.47	97.84	to	101.64	100	±	0.2	27
Eh (mV)		297		357	22	to	1076	300	±	48	31
Dissolved Oxygen (mg/L)		4.8		0.9	0.6	to	8	2	±	0.38	31
Arsenic (mg/L)				0.005 U	0.001 U	to	0.042	0.0084	±	0.003	17
Calcium (mg/L)				10	5.3	to	180	83	±	19	13
Cobalt (mg/L)				0.01 U	0.003 U	to	0.01 U	0.009	±	0.001	7
Iron (mg/L)				**17**	0.04	to	164	23	±	14	12
Lead (mg/L)				0.003 U	0.001	to	0.004 U	0.0031	±	0.000	7
Magnesium (mg/L)				13	13	to	50.4	32	±	4	13
Manganese (mg/L)				0.13	0.02	to	1.36	0.24	±	0.11	12
Nickel (mg/L)				0.005 U	0.003	to	0.005 U	0.0047	±	0.000	7
Potassium (mg/L)				11	1.4	to	13.1	6.3	±	1.1	13
Sodium (mg/L)				9.9	7.5	to	85	26	±	7.7	13
Total Dissolved Solids (mg/L)				119	106	to	496	250	±	54	8
Sulfate (mg/L)				3.6	2 U	to	61.6	23	±	5.8	12
Bicarbonate (CaCO3) (mg/L)				97	62	to	520	270	±	48	12
Organic Carbon (mg/L)				3.1	1.6	to	4.1	2.8	±	0.2	12
Chloride (mg/L)				↓8.8	11.1	to	429	62	±	35	12
Turbidity (field) (NTU)		1.2		2.6	0.9	to	36	6.9	±	1.3	31
Methane (ug/L)		20 U		94	20 U	to	15000	3500	±	770	30

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Cobalt MEG16=0.01 mg/L, Iron MEG16=5 mg/L, Lead MEG16=0.01 mg/L, MCL=0.015 mg/L, Manganese MEG16=0.3 mg/L, Nickel MEG16=0.02 mg/L, Sodium MEG16=20 mg/L, Arsenic MEG16=0.01 mg/L, MCL=0.01 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.

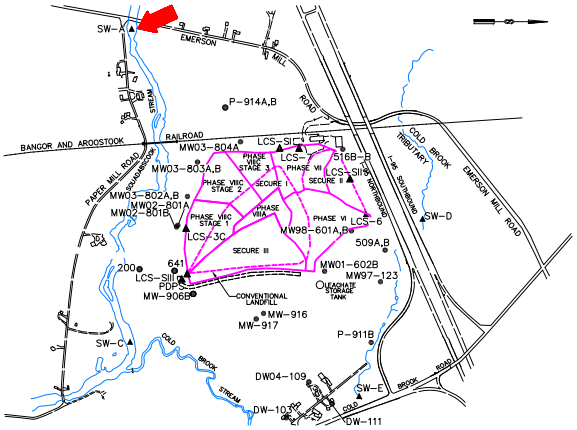
Q4= 10 - 2018

SURFACE WATER LOCATIONS

SME
SEVEE & MAHER
ENGINEERS

Well Description

Sample point is located on Souadabscook Stream, upstream and to the east of the SERF site.



Sampled: **2 Times Annually**

Sampled Since: **Sept-96**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		99		167	40	to	180	100	±	3.1	60
pH (STU)		8.7		7.9	6	to	8.7	7.6	±	0.08	60
Temperature (Deg C)		2.8		16.1	-0.2	to	25.6	13	±	0.94	60
Eh (mV)		405		324	84	to	545	300	±	11	60
Dissolved Oxygen (mg/L)		6.9		6.9	2	to	11.4	6.5	±	0.24	60
Arsenic (mg/L)		0.005 U		0.005 U	0.001 U	to	0.013	0.0059	±	0.000	20
Calcium (mg/L)		7		13	4.1	to	17.3	9.5	±	0.35	60
Iron (mg/L)		0.24		0.11	0.07	to	0.46	0.24	±	0.01	60
Magnesium (mg/L)		1.6		2.7	1	to	4	2	±	0.07	58
Manganese (mg/L)				0.05 U	0.02 U	to	0.28	0.055	±	0.007	48
Potassium (mg/L)		0.6		0.6	0.3	to	6.2	0.97	±	0.11	60
Sodium (mg/L)		7.3		8.7	4.4	to	14	7.1	±	0.25	60
Total Dissolved Solids (mg/L)		54		85	48	to	118	78	±	4.5	19
Sulfate (mg/L)		2 U		4.1	0.6	to	10 U	2.6	±	0.2	60
Bicarbonate (CaCO3) (mg/L)		21		42	10.5	to	49	28	±	0.99	60
Organic Carbon (mg/L)		6.4		7.8	4	to	18	8.1	±	0.37	60
Chloride (mg/L)		13		17	4.7	to	22.7	11	±	0.43	60
Turbidity (field) (NTU)		1.1		1.1	0	to	8.6	1.9	±	0.21	60

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Chloride MFCCC=230 mg/L, Arsenic MFCCC=0.15 mg/L, Iron MFCCC=1 mg/L, Lead MFCCC=0.00041 mg/L, Nickel MFCCC=0.0134 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

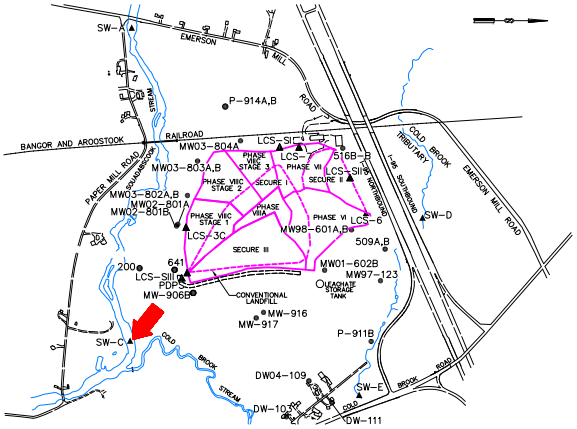
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018

Well Description

Sample point is located on Souadabscook Stream, downgradient of groundwater flow.



Sampled: **2 Times Annually**

Sampled Since: **Sept-96**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		106		170	30	to	762	120	±	12	60
pH (STU)				7.7	5.8	to	8.4	7.4	±	0.08	60
Temperature (Deg C)		2.2		18	-0.2	to	25.3	14	±	0.93	60
Eh (mV)		430		421	-2	to	552	310	±	13	60
Dissolved Oxygen (mg/L)		↑ 15.5		7.6	4	to	10	6.6	±	0.19	60
Arsenic (mg/L)		0.005 U		0.005 U	0.001 U	to	0.013	0.0057	±	0.000	20
Calcium (mg/L)		7.3		12	4.1	to	65	11	±	1.1	60
Iron (mg/L)		0.2		↓ 0.08	0.09	to	1.36	0.28	±	0.02	60
Magnesium (mg/L)		1.4		2.6	1	to	20	2.6	±	0.34	58
Manganese (mg/L)				0.05 U	0.02 U	to	4.1	0.16	±	0.09	48
Potassium (mg/L)		0.4		0.6	0.3	to	4.8	1	±	0.11	60
Sodium (mg/L)		7.1		8.4	4.3	to	47	7.9	±	0.72	60
Total Dissolved Solids (mg/L)		55		87	35	to	114	76	±	4.4	19
Sulfate (mg/L)		2 U		4.4	1 U	to	14.3	2.9	±	0.24	60
Bicarbonate (CaCO3) (mg/L)		21		48	9.4	to	197	33	±	3.2	60
Organic Carbon (mg/L)		5.8		7.4	3.9	to	15.3	8.1	±	0.38	60
Chloride (mg/L)		13		17	5.9	to	139	14	±	2.3	60
Turbidity (field) (NTU)		1.2		2.1	0	to	12.3	2.3	±	0.27	60

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Chloride MFCCC=230 mg/L, Arsenic MFCCC=0.15 mg/L, Iron MFCCC=1 mg/L, Lead MFCCC=0.00041 mg/L, Nickel MFCCC=0.0134 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

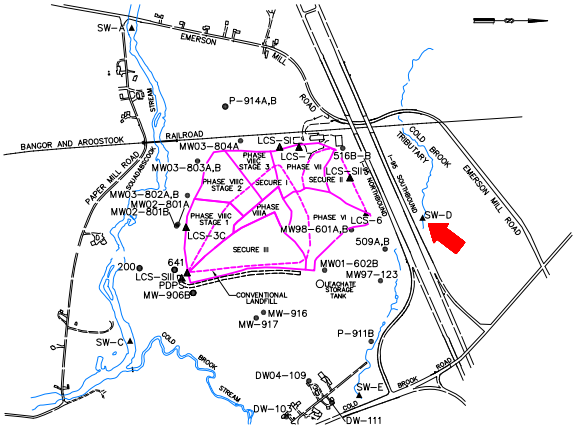
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018

Well Description

Sample point located on Cold Brook Stream, upstream and to the north of the SERF site across Interstate 95.



Sampled: **2 Times Annually**

Sampled Since: **Sept-96**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		337		728	60	to	938	420	±	31	60
pH (STU)		↑ 8.4		7.8	6	to	8.3	7.4	±	0.07	60
Temperature (Deg C)		1		15.9	0.1	to	23.8	9.7	±	0.7	60
Eh (mV)		420		421	96	to	616	320	±	12	59
Dissolved Oxygen (mg/L)		↑ 13.2		5.3	4	to	11.9	6.2	±	0.22	60
Arsenic (mg/L)		0.005 U		0.005 U	0.001	to	0.014	0.0068	±	0.000	20
Calcium (mg/L)		34		38	7.2	to	109	41	±	3.5	60
Iron (mg/L)		0.19		0.28	0.02	to	2.11	0.38	±	0.04	60
Magnesium (mg/L)		4.9		8.7	2	to	13.7	7.5	±	0.46	58
Manganese (mg/L)				0.16	0.02 U	to	0.59	0.097	±	0.01	48
Potassium (mg/L)		1.4		5.2	0.4	to	23	2.2	±	0.38	60
Sodium (mg/L)		59		68	7.1	to	89	35	±	2.5	60
Total Dissolved Solids (mg/L)		224		407	117	to	566	310	±	31	19
Sulfate (mg/L)		10 U		10 U	2	to	29	8.3	±	0.71	60
Bicarbonate (CaCO3) (mg/L)		52		110	15.1	to	251	110	±	9.7	60
Organic Carbon (mg/L)		5		9.6	0.7	to	18.4	7.6	±	0.63	59
Chloride (mg/L)		87		150	12.3	to	180	63	±	4.6	60
Turbidity (field) (NTU)		1.2		2.2	0	to	23.6	4.1	±	0.59	60

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Chloride MFCCC=230 mg/L, Arsenic MFCCC=0.15 mg/L, Iron MFCCC=1 mg/L, Lead MFCCC=0.00041 mg/L, Nickel MFCCC=0.0134 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

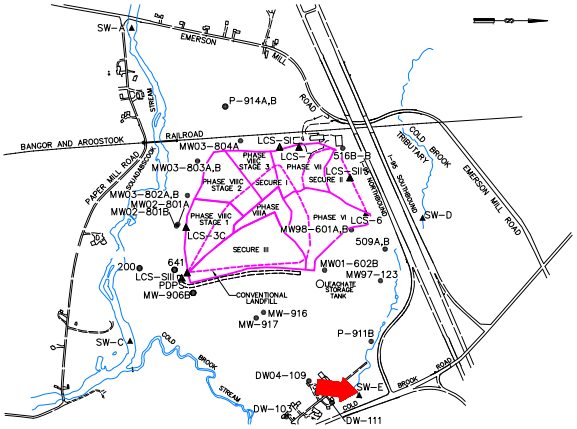
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018

Well Description

Sample point located on Cold Brook Stream, downgradient and to the northeast of the SERF site and on the same side of Interstate 95.



Sampled: **2 Times Annually**

Sampled Since: **Sept-96**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		547		↑1046	180	to	928	580	±	28	59
pH (STU)		8		8	6.1	to	8.3	7.6	±	0.07	59
Temperature (Deg C)		2.1		14.5	0.2	to	20.4	9.7	±	0.62	59
Eh (mV)		426		412	86	to	543	310	±	11	59
Dissolved Oxygen (mg/L)		↑17.2		7.4	4	to	12.3	7	±	0.25	59
Arsenic (mg/L)		0.005 U		0.005	0.001 U	to	0.03	0.01	±	0.002	20
Calcium (mg/L)		42		83	12.3	to	109	65	±	3.7	59
Iron (mg/L)		0.28		0.11	0.09	to	1.74	0.34	±	0.03	59
Magnesium (mg/L)		6.5		12	2.9	to	17	10	±	0.49	57
Manganese (mg/L)				0.11	0.06	to	0.93	0.29	±	0.03	47
Potassium (mg/L)		1.7		2.6	1	to	3.8	2.2	±	0.08	59
Sodium (mg/L)		64		68	13.2	to	85.3	44	±	2.3	59
Total Dissolved Solids (mg/L)		315		↑582	155	to	555	390	±	28	19
Sulfate (mg/L)		10 U		11	3.4	to	25.5	12	±	0.67	59
Bicarbonate (CaCO3) (mg/L)		83		220	35	to	272	170	±	10	59
Organic Carbon (mg/L)		6.3		3.5	1.4	to	16.6	5.2	±	0.42	59
Chloride (mg/L)		110		↑180	16.9	to	171	83	±	4.2	59
Turbidity (field) (NTU)		2.2		1.8	0	to	37.2	3.5	±	0.68	59

underlined/bold - values exceed a regulatory standard listed below.

Applicable Limits:
Chloride MFCCC=230 mg/L, Arsenic MFCCC=0.15 mg/L, Iron MFCCC=1 mg/L, Lead MFCCC=0.00041 mg/L, Nickel MFCCC=0.0134 mg/L

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

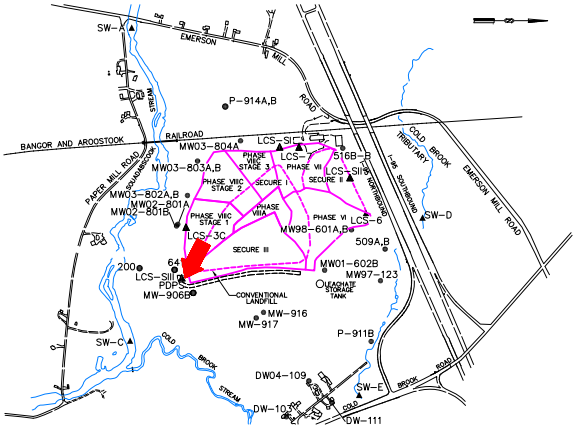
Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018

LEACHATE

SME
SEVEE & MAHER
ENGINEERS

Well Description

Sample collected from perimeter drain at the southeastern toe of the Conventional Landfill.



Sampled: **2 Times Annually**

Sampled Since: **June-91**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		1301		8190	880	to	20000	4900	±	340	80
pH (STU)		6.9		7.4	5.5	to	7.8	6.8	±	0.04	80
Temperature (Deg C)		10.7		19	2.2	to	26.6	15	±	0.63	80
Eh (mV)		177		143	-21	to	357	160	±	8.7	80
Dissolved Oxygen (mg/L)		1		1	0.1	to	7.6	2.1	±	0.16	79
Arsenic (mg/L)		0.3		0.21	0.012	to	1.31	0.23	±	0.04	43
Calcium (mg/L)		89		82	72	to	1250	190	±	18	78
Cobalt (mg/L)				0.031	0.01 U	to	0.05 U	0.025	±	0.007	8
Iron (mg/L)		21		9.4	1.25	to	1900	85	±	27	79
Lead (mg/L)				0.003 U	0.001	to	0.09	0.012	±	0.003	29
Magnesium (mg/L)		↓ 24		37	26	to	220	97	±	4.6	74
Manganese (mg/L)				1.2	0.19	to	16	3.4	±	0.39	64
Nickel (mg/L)				0.2	0.04 U	to	0.303	0.15	±	0.03	11
Potassium (mg/L)		27		150	11	to	3000	190	±	39	77
Sodium (mg/L)		90		1100	22	to	2500	540	±	44	79
Total Dissolved Solids (mg/L)		615		3876	380	to	7100	2100	±	230	36
Sulfate (mg/L)		12		40 U	0.2 U	to	1390	68	±	21	79
Bicarbonate (CaCO3) (mg/L)		↓ 450		2500	490	to	4300	1600	±	82	77
Organic Carbon (mg/L)		17		260	0.5 U	to	5450	330	±	74	79
Chloride (mg/L)		99		1100	8.1	to	7940	1000	±	120	79
Turbidity (field) (NTU)		8.6		4.4	0	to	104	19	±	2.8	64
Methane (ug/L)				840	250	to	6960	2300	±	360	25

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

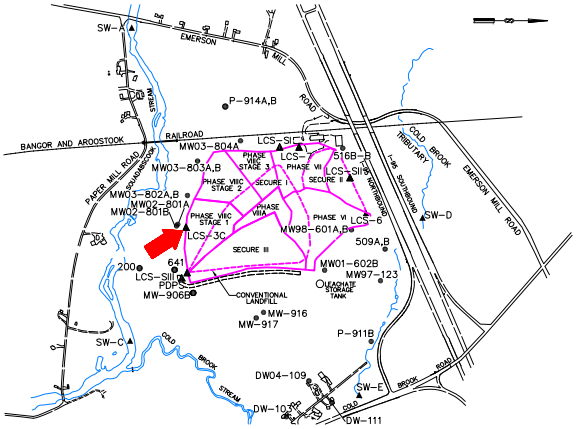
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018

Well Description

Sample collected from the leachate collection system beneath Secure III Phase VIII-C stage 1.



Sampled: **2 Times Annually**

Sampled Since: **2011**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)		↓ 20000 G		45800	22800	to	47600	39000	±	2200	10
pH (STU)		7.3		↑ 7.7	6.4	to	7.5	7	±	0.14	10
Temperature (Deg C)		18.2		19.7	17.7	to	30.3	25	±	1.4	10
Eh (mV)		35		60	-101	to	220	91	±	33	10
Dissolved Oxygen (mg/L)		1		1	0.6	to	6	2.1	±	0.73	7
Arsenic (mg/L)		0.43		0.51	0.239	to	0.66	0.49	±	0.05	9
Calcium (mg/L)		↓ 130		↓ 110	140	to	522	310	±	51	9
Cobalt (mg/L)				↓ 0.011	0.016	to	0.1 U	0.056	±	0.01	7
Iron (mg/L)		6.9		8	5.5	to	23.4	13	±	2.3	9
Lead (mg/L)				0.003 U	0.003 U	to	0.03 U	0.02	±	0.004	7
Magnesium (mg/L)		↓ 130		↓ 130	154	to	376	240	±	27	9
Manganese (mg/L)				0.2	0.16	to	3 U	1.1	±	0.39	7
Nickel (mg/L)				0.072	0.059	to	0.175	0.11	±	0.02	7
Potassium (mg/L)		1600		1500	1289	to	2668	1900	±	140	9
Sodium (mg/L)		4900		5200	3321	to	7005	5200	±	400	9
Total Dissolved Solids (mg/L)		19772		20804	13220	to	25640	21000	±	1100	9
Sulfate (mg/L)		600 U		↑ 5100	219	to	4450	1500	±	460	9
Bicarbonate (CaCO3) (mg/L)		4900		5400	1500	to	5500	4000	±	490	9
Organic Carbon (mg/L)		1000		1100	2 U	to	3100	1300	±	310	9
Chloride (mg/L)		11000		25000	8210	to	32600	19000	±	2400	9
Turbidity (field) (NTU)		1.9		7.7	1.2	to	1946	380	±	220	9
Methane (ug/L)				1500	460	to	5560	2200	±	710	7

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

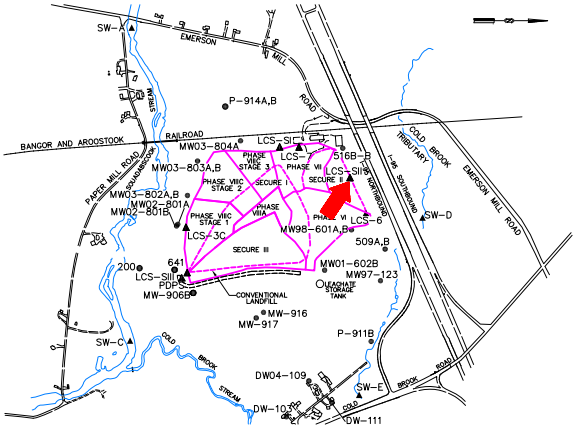
Comments

See summary report in Appendix for specific sample dates.

Q2= 4 - 2018 U = Not Detected above the laboratory reporting limit.
Q4= 10 - 2018 G = Greater than specified amount.

Well Description

Sample collected from the leachate collection system beneath Secure II.



Sampled: **1 Time Annually**

Sampled Since: **2011**

Sampling Method: **Grab**

Chemical Summary

Indicator Parameters	2018 Q1	2018 Q2	2018 Q3	2018 Q4	Historical (1/1/1990 - 12/31/2018) Min		Max	Mean		SE	n
Specific Conductance (µmhos/cm @25°C)				15430	10040	to	17340	14000	±	960	7
pH (STU)				7.3	7.2	to	7.7	7.4	±	0.07	7
Temperature (Deg C)				↑ 19.6	6	to	14.9	13	±	1.1	7
Eh (mV)				216	1	to	290	170	±	36	7
Dissolved Oxygen (mg/L)				1	1	to	3	2.1	±	0.34	7
Arsenic (mg/L)				↓ 0.01	0.026	to	0.064	0.038	±	0.005	8
Calcium (mg/L)				990	800	to	1496	1000	±	120	6
Cobalt (mg/L)				0.01 U	0.01 U	to	0.05 U	0.02	±	0.008	5
Iron (mg/L)				0.37	0.11	to	5.7	1.8	±	0.84	6
Lead (mg/L)				0.003 U	0.003 U	to	0.02	0.011	±	0.003	6
Magnesium (mg/L)				100	57.1	to	190	110	±	19	6
Manganese (mg/L)				1.5	1.07	to	2.7	1.7	±	0.23	6
Nickel (mg/L)				0.019	0.005 U	to	0.039	0.024	±	0.005	6
Potassium (mg/L)				610	460	to	1075	730	±	96	6
Sodium (mg/L)				1300	910	to	2078	1400	±	180	6
Total Dissolved Solids (mg/L)				9686	6129	to	11120	8600	±	750	6
Sulfate (mg/L)				↑ 2100	200 U	to	596	410	±	52	6
Bicarbonate (CaCO3) (mg/L)				300	243	to	378	310	±	24	6
Organic Carbon (mg/L)				5	4.5	to	7	5.8	±	0.33	6
Chloride (mg/L)				↑ 9000	980	to	6660	4400	±	850	6
Turbidity (field) (NTU)				6	0.8	to	33.9	10	±	4.5	7
Methane (ug/L)				500	190	to	2440	870	±	350	6

underlined/bold - values exceed a regulatory standard listed below.

↑ indicates a value greater than the historical maximum value; ↓ indicates a value less than the historical minimum value.

Comments

See summary report in Appendix for specific sample dates.

Q4= 10 - 2018 U = Not Detected above the laboratory reporting limit.

APPENDIX C

MANN-KENDALL TREND ANALYSES RESULTS

SME
SEVEE & MAHER
ENGINEERS

Summary of Mann-Kendall Trend Analysis
95% Confidence (alpha=0.05)
Pinetree Landfill 2018

	Increasing Trends		Decreasing Trends		NoTrends	
LOCATION	3 Year	5 Year	3 Year	5 Year	3 Year	5 Year
200		pH		DO	OC, Spec Cond, Cl, HCO3, SO4, TDS, Na, K, Mg, Ca, As, DO, Eh, Water Elev., pH, Temp, Fe	HCO3, Spec Cond, OC, SO4, TDS, Na, K, Ni, Mn, Pb, Fe, Co, Ca, As, Eh, Temp, Water Elev., Cl, Mg
509A					Temp, DO, Spec Cond, Water Elev., pH, Eh	Temp, DO, Water Elev., pH, Spec Cond, Eh
509B	Fe	Fe	Na		Spec Cond, Cl, OC, HCO3, SO4, TDS, K, pH, Ca, As, DO, Eh, Water Elev., Mg, Temp	Mn, pH, Cl, OC, HCO3, SO4, TDS, Na, K, Ni, Spec Cond, Pb, Co, Ca, As, DO, Eh, Temp, Mg, Water Elev.
516B-B		Fe, DO, Spec Cond			Na, TDS, SO4, HCO3, OC, Ca, K, Cl, pH, Mg, Temp, Eh, DO, As, Spec Cond, Fe	Cl, OC, HCO3, SO4, TDS, Mn, K, Ni, Mg, pH, Pb, Na, Co, Ca, As, Eh, Temp
641		DO, pH	Cl	TDS, HCO3, As, OC	Fe, SO4, TDS, Na, K, Mg, HCO3, As, DO, Eh, Water Elev., Temp, OC, pH, Spec Cond, Ca	Cl, K, SO4, Mg, Na, Methane, Spec Cond, Pb, Fe, Co, Ca, Eh, Water Elev., Temp, Mn, Ni
DW04-109	Eh	Eh		TDS, HCO3, Methane, Spec Cond	DO, Methane, Temp, pH, Spec Cond, Water Elev.	OC, SO4, Mn, Na, K, Ni, Cl, Water Elev., Temp, pH, DO, As, Ca, Co, Fe, Pb, Mg
DW-103	Eh	Spec Cond		As, Methane	DO, Spec Cond, Methane, Temp, pH	Ni, K, Na, SO4, OC, Cl, Mn, TDS, DO, Eh, Mg, HCO3, Ca, pH, Co, Fe, Pb, Temp
LCS-3C	pH	HCO3	Ca	Ca, Mg, K	K, Cl, OC, HCO3, TDS, Na, Fe, Spec Cond, As, Mg, DO, Eh, Temp, SO4	Na, TDS, SO4, OC, Ni, Methane, Cl, Temp, Pb, pH, Mn, Eh, As, Co, Fe, Spec Cond
LCS-6						
LCS-7						
LCS-SI						
LCS-SII		Eh				As, DO, Temp, Spec Cond, pH
LCS-SIII						
MW01-602B					Temp, DO, Water Elev., pH, Spec Cond, Eh	pH, Eh, DO, Temp, Spec Cond, Water Elev.
MW02-801A				Ca, Spec Cond, Cl, OC, HCO3, TDS, Mn, Na, Methane, K, Ni	Ca, K, Cl, OC, HCO3, SO4, TDS, Na, Spec Cond, As, DO, Eh, Water Elev., Temp, pH, Fe, Mg	SO4, Pb, Fe, As, DO, Eh, Water Elev., Temp, pH, Mg, Co
MW02-801B	Eh	pH	Spec Cond	Spec Cond	pH, DO, Temp, Water Elev.	Temp, DO, Water Elev., Eh
MW03-802A		pH, OC, Eh		Spec Cond, As, Fe	TDS, OC, Fe, SO4, Cl, Na, K, Mg, HCO3, As, DO, Eh, Water Elev., Temp, pH, Spec Cond, Ca	Na, HCO3, Methane, SO4, TDS, Mg, Ca, DO, Water Elev., Temp, Cl, K
MW03-802B		DO			Mn, Ni, K, Na, TDS, SO4, Mg, Methane, HCO3, OC, Fe, Co, Ca, As, DO, Eh, Water Elev., Temp, pH, Spec Cond, Cl	pH, Methane, Spec Cond, Temp, Water Elev., Eh
MW03-803A	Spec Cond	DO, Spec Cond	Methane, As	Methane	OC, HCO3, SO4, Mn, TDS, Na, K, Ni, Cl, Mg, Pb, Fe, Co, DO, Eh, Water Elev., Temp, pH, Ca	Temp, pH, Eh, Water Elev.
MW03-803B	K, Mg	pH, Spec Cond, K, DO, Mg	Cl	SO4, As, Methane	Water Elev., Spec Cond, Temp, Eh, DO, As, Ca, Fe, Na, TDS, SO4, pH, HCO3, OC	OC, HCO3, TDS, Na, Cl, Ni, Mn, Pb, Fe, Co, Ca, Water Elev., Temp, Eh
MW03-804A		Spec Cond, DO		Eh	Water Elev., Spec Cond, Eh, pH, Temp, DO	pH, Temp, Water Elev.
MW-906B		pH	HCO3	K, HCO3, SO4, Na, Mg, Ca, TDS, Spec Cond, Water Elev.	Mg, pH, Cl, OC, SO4, TDS, Na, K, Spec Cond, Ca, As, DO, Eh, Temp, Fe, Water Elev.	OC, Cl, As, Temp, Mn, Eh, Pb, Fe, Co, DO, Ni
MW-916		Spec Cond	Mg, Na	Eh, Mg, Na, TDS, As, HCO3	K, TDS, HCO3, SO4, Fe, Cl, pH, Spec Cond, Temp, OC, Water Elev., Eh, DO, As, Ca	Methane, SO4, Cl, K, Ni, OC, pH, Pb, Fe, Co, Ca, DO, Water Elev., Temp, Mn

Summary of Mann-Kendall Trend Analysis
95% Confidence (alpha=0.05)
Pinetree Landfill 2018

	Increasing Trends		Decreasing Trends		NoTrends	
LOCATION	3 Year	5 Year	3 Year	5 Year	3 Year	5 Year
MW-917				TDS, Water Elev., Fe, As, HCO3	Ca, K, Cl, OC, HCO3, SO4, TDS, Na, pH, Mg, Spec Cond, Fe, Temp, Water Elev., Eh, DO, As	K, Ni, Na, Mn, Cl, Methane, SO4, Pb, Co, Ca, DO, Eh, Temp, pH, Spec Cond, OC, Mg
MW97-123			As	As	pH, K, HCO3, Cl, SO4, TDS, Na, OC, Fe, Ca, DO, Eh, Temp, Spec Cond, Water Elev., Mg	Cl, Mn, Ni, K, Na, TDS, SO4, Mg, OC, HCO3, Pb, Fe, Ca, DO, Eh, Water Elev., Temp, pH, Spec Cond, Co
MW98-601A					Temp, DO, Water Elev., pH, Spec Cond, Eh	pH, Eh, DO, Spec Cond, Water Elev., Temp
MW98-601B		DO			Spec Cond, pH, Temp, Water Elev., Eh, DO	Spec Cond, pH, Temp, Water Elev., Eh
P-911B	Eh	Eh			Water Elev., pH, Spec Cond, Temp, DO	Water Elev., pH, Spec Cond, Temp, DO
P-914A	SO4, Na	SO4, Eh, Mn, Spec Cond, Cl, TDS, Na		As	As, Cl, OC, HCO3, TDS, K, Mg, Ca, DO, Eh, Water Elev., Temp, pH, Spec Cond, Fe	Ni, K, OC, HCO3, Mg, Pb, Fe, Co, Ca, DO, Temp, pH, Water Elev.
P-914B		Eh, Spec Cond			Eh, Water Elev., Spec Cond, pH, DO, Temp	Temp, Water Elev., DO, pH
PDPS					Mg, Cl, OC, HCO3, SO4, TDS, K, Spec Cond, Ca, As, DO, Eh, Temp, pH, Fe, Na	Mn, Methane, Cl, OC, HCO3, SO4, TDS, Na, Ni, Mg, pH, K, Spec Cond, Pb, Temp, Eh, DO, As, Ca, Co, Fe
SW-A		pH			Cl, Na, K, SO4, HCO3, Mg, OC, TDS, Fe, Spec Cond, pH, Temp, Eh, DO, As, Ca	Mn, HCO3, Cl, SO4, TDS, Na, K, OC, Eh, Mg, Spec Cond, Temp, DO, As, Ca, Fe
SW-C	Eh	Eh, DO			Ca, K, OC, HCO3, SO4, TDS, Na, Cl, Fe, As, DO, Temp, pH, Spec Cond, Mg	Mg, Na, OC, HCO3, SO4, TDS, Cl, pH, Fe, Ca, As, Temp, Mn, Spec Cond, K
SW-D		Na, Cl, pH			K, Temp, OC, HCO3, SO4, Cl, TDS, Na, Fe, Ca, As, Eh, pH, Spec Cond, DO, Mg	HCO3, SO4, Eh, TDS, K, OC, Mg, Fe, Ca, DO, Temp, Spec Cond, Mn, As
SW-E		pH, DO		Mn	OC, K, Na, TDS, Mg, HCO3, Eh, SO4, Fe, Ca, DO, Temp, pH, Spec Cond, Cl, As	K, Na, TDS, SO4, OC, HCO3, Mg, Fe, Ca, Eh, Temp, Spec Cond, Cl, As

Summary of Mann-Kendall Trend Analysis
95% Confidence (alpha=0.05)
Pinetree Landfill 2018

	Increasing Trends		Decreasing Trends		NoTrends	
LOCATION	3 Year	5 Year	3 Year	5 Year	3 Year	5 Year

M-K 3-Year post-closure: 1/1/2016 to 12/31/2018 M-K 5-Year post-closure: 1/1/2014 to 12/31/2018

Key

As = Arsenic
Ca = Calcium
Cl = Chloride
Co = Cobalt
DO = Dissolved Oxygen
Eh = Eh
Fe = Iron
HCO3 = Bicarbonate (CaCO3)
K = Potassium
Methane = Methane
Mg = Magnesium
Mn = Manganese
Na = Sodium
Ni = Nickel
OC = Organic Carbon
Pb = Lead
pH = pH
SO4 = Sulfate
Spec Cond = Specific Conductance
TDS = Total Dissolved Solids
Temp = Temperature
Turb = Turbidity
Water Elev. = Water Level Elevation

- Values below the laboratory PQL (non-detects) are divided by 2. All other data qualifiers are ignored but any associated value is used.

- Samples collected for data quality control are not analyzed.

- Data sets with less than 5 data points are not analyzed.

- Data sets with a period shorter than the intended period of analysis (e.g. 3-yr analysis or 5-yr analysis) are not analyzed.

- Significant events in historical data can affect the distribution in a way that compromises the assumption of a monotonic data set. Events could include the cessation of filtering, a spill, changing sampling protocols or analytical method changes that alter the detection limit.

REFERENCES:

State of Wisconsin, Department of Natural Resources, Remediation and Redevelopment Program Mann-Kendall Statistical Test, Form 4400-215 (2/2001)

Gilbert, R.O., Statistical Methods for Environmental Pollution Monitoring, Van Nostrand Reinhold, 1987, pp. 204 – 240 and 272.

Hollander, M. and Wolfe, A.M Nonparameteric Statistical Methods, John Wiley Sons, 1999

APPENDIX D

LEAK DETECTION DATA

SME
SEVEE & MAHER
ENGINEERS

Pine Tree Landfill Total Flows 2018 (Gallons)															
Month	**Secure**	**Secure**	**Secure III**		**Perimeter**	**Phase VI**		**Phase VII**		**Phase 8-C**		**VIIIA**		**Bangor**	**Bangor Airport**
	I	**II**	**LC**	**LD**	**Drain**	**LC**	**LD**	**LC**	**LD**	**LC**	**LD**	**LD-(E)**	**LD-(W)**	**System**	**Rainfall (inches)**
January	0	252,574	40,594	449	325,113	39,516	3,318	18,412	5,178	174,084	4,523	0	0	854,436	5.53
February	0	247,416	33,710	1,902	299,819	28,969	2,012	16,945	3,538	154,348	4,527	0	0	738,518	2.99
March	0	299,398	34,842	3,405	782,442	39,609	2,528	17,031	3,449	168,633	4,773	0	0	1,239,227	2.18
April *	0	314,610	31,819	554	596,148	29,689	1,753	28,401	7,385	159,145	4,668	0	0	1,001,138	4.77
May	657	360,869	32,469	556	328,020	24,228	809	14,810	1,729	144,368	0	0	0	1,055,530	2.37
June	466	206,446	31,506	618	247,737	19,414	265	8,223	297	149,255	0	0	0	619,623	5.42
July ***	0	196,394	32,772	717	189,625	19,464	492	0	147	127,443	1	0	0	498,104	2.48
August	0	113,404	31,602	679	146,061	17,669	258	26,480	222	121,877	4,162	0	0	479,505	2.73
September	634	80,622	30,270	636	122,546	15,563	674	11,547	206	109,149	0	0	0	287,162	2.63
October	351	76,287	30,514	539	127,521	21,419	497	13,741	1,649	110,687	0	0	0	279,490	4.66
November **	190	145,838	29,106	107	393,073	30,777	1,954	23,135	8,727	125,128	5,488	0	0	989,086	7.00
December	0	205,582	30,523	348	539,213	26,801	415	16,919	4,505	120,297	4,346	0	0	596,768	4.23
Total Flows (gal)	2,298	2,499,440	389,727	10,510	4,097,318	313,118	14,975	195,644	37,032	1,664,414	32,488	0	0	8,638,587	46.99
Daily Average Flow (gpd)	6	6,848	1,068	29	11,226	858	41	536	101	4,560	89	0	0	23,667	

* Phase VII LD reached ALR 1 in April but came out of it in May. The leachate was tested and it was concluded that it was surface and or groundwater.

** Phase VII LD reached ALR 1 in November but came out of it in December. The leachate was tested and it was concluded that it was surface and or groundwater.

*** Other Notes:

-Secure II storm water repairs were completed on July 20, 2018.

-Secure II old style rail pump replaced with a 2 hp submersible pump with a pitless adapter. Pumping with new pump started on July 23, 2018.

2017 Flow Totals															
Total Flows (gal)	924	2,190,463	512,401	21,774	3,056,334	400,110	30,799	198,766	33,474	2,178,376	41,442	0	0	9,134,711	41.33
Daily Average Flow (gpd)	3	6,001	1,404	60	8,374	1,096	84	545	92	5,968	114	0	0	25,027	

Areas		
	Phase VI=10.5	ALR1 = 210 gpd
	PhaseVII=6.5	ALR1 = 130 gpd
	PhaseVIII-C Stge1,2,3= 16.8	ALR1 = 336 gpd
	Phases I-V and VIII-A=13.52	ALR1 = 676 gpd

APPENDIX E

2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING RESULTS

SME
SEVEE & MAHER
ENGINEERS

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
NORTHEAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-18	Mar-13	-0.8	24.5	8.5	11.0	56.0
	Apr-13	0.1	67.3	29.4	0.1	3.2
	Aug-13	0.1	67.6	28.7	0.3	3.4
	Dec-13	NR	67.1	29.1	0.1	3.7
	Mar-14	-1.150	72.2	25.3	1.0	1.5
	Jun-14	1.167	30.7	15.4	5.2	48.7
	Sep-14	0.094	0.9	0.6	19.0	79.5
	Dec-14	-44.4	11.2	12.7	8.0	67.9
	Mar-15	-0.1	62.7	32.4	0.1	4.8
	May-15	1.9	4.6	3.1	16.7	75.6
	Aug-15	0	65.7	33.6	0.2	0.5
	Dec-15	0.6	65.0	23.9	11.0	0.1
	Jan-16	-2.3	1.7	1.4	19.5	77.4
	Sep-16	0	44.7	30.1	5.3	19.9
	Dec-16	NR	61.0	26.8	0.6	11.6
	Mar-17	-9.5	5.4	2.7	19.0	72.9
	Jun-17	-7.12	2.2	0.2	21.1	76.5
	Sep-17	-2.3	0.0	0.2	21.0	78.8
	Dec-17	-4.9	63.7	30.3	1.7	4.3
	Jan-18	-0.35	48.0	25.4	1.3	25.3
	May-18	-4.84	3.7	1.4	16.9	78.0
	Jul-18	0.23	75.3	20.7	0.4	3.6
	Oct-18	-0.02	58.5	40.5	1.0	0.0
05-GS-19	Mar-13	0.3	0.0	0.2	20.0	79.8
	Apr-13	0.1	0.5	3.5	10.7	85.3
	Aug-13	0.1	0.0	5.5	11.2	83.3
	Dec-13	NR	0.3	3.5	10.7	85.4
	Mar-14	0.400	7.1	1.9	10.1	80.9
	Jun-14	-0.077	0.0	2.6	15.1	82.2
	Sep-14	0.004	0.0	1.3	17.7	81.0
	Dec-14	-13.1	0.0	1.7	13.6	84.5
	Mar-15	-0.1	0.0	1.3	20.1	78.6
	May-15	-0.015	0.3	3.8	9.2	86.7
	Aug-15	0.1	0.0	1.3	19.7	79.0
	Dec-15	0	0.2	1.8	19.6	78.4
	Jan-16	-0.1	0.1	1.2	17.7	81.0
	Sep-16	0	0.3	1.1	20.8	77.8
	Dec-16	NR	0.0	1.6	14.9	83.5
	Mar-17	0	0.0	2.7	9.5	87.8
	Jun-17	-0.1	2.2	3.3	17.0	77.5
	Sep-17	-0.1	0.2	0.3	20.8	78.7
	Dec-17	-0.1	0.1	0.0	21.3	78.6
	Jan-18	-0.33	0.1	1.8	18.3	79.9
	May-18	-0.03	0.0	2.8	14.2	83.0
	Jul-18	-0.74	0.0	5.2	12.7	82.1
	Oct-18	0.04	0.2	0.4	20.5	78.9

Notes: NR = not reported
Gas measurements were reported to SME by New England Waste Services of Maine, Inc.
GEM 2000 multi-gas meter accuracy is ±0.5% for detections ranging 0-5%,
and ±1.0% for detections ranging 5-15%.

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
SOUTH OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
MW02-801B	Mar-13	0	0.0	0.1	20.0	79.9
	Apr-13	0	0.0	0.1	20.0	79.0
	Aug-13	0	0.0	1.4	13.4	85.2
	Dec-13	-15.2	0.2	0.1	20.5	79.2
	Mar-14	-0.11	0.0	0.1	19.4	80.5
	Jun-14	0.010	0.0	0.0	21.3	78.7
	Sep-14	-0.001	0.0	0.1	19.8	80.1
	Dec-14	0	0.2	0.0	20.2	79.5
	Mar-15	0	0.0	0.0	22.2	77.8
	May-15	0.003	0.1	0.0	20.3	79.6
	Aug-15	0.1	0.0	0.0	21.2	78.8
	Dec-15	0	0.0	0.1	21.7	78.2
	Jan-16	0.4	0.2	0.1	21.7	78.0
	Sep-16	NR	0.0	0.0	22.0	78.0
	Dec-16	NR	0.0	0.1	NR	NR
	Mar-17	-32.8	0.0	0.1	21.2	78.7
	Jun-17	-0.01	2.2	0.2	20.7	76.9
	Sep-17	-0.02	0.0	0.1	20.9	79.0
	Dec-17	0	0.1	0.0	23.1	76.8
	Jan-18	0	0.0	0.1	21.6	78.3
	May-18	-0.03	0.0	0.0	19.5	80.5
	Jul-18	-0.06	0.1	0.1	19.0	80.8
	Oct-18	0.04	0.1	0.1	20.7	79.2
MW03-802B	Mar-13	0.7	3.8	3.2	19.7	73.3
	Apr-13	0.9	58.0	46.5	0.1	1.5
	Aug-13	-0.6	24.5	15.2	11.6	48.7
	Dec-13	NR	54.9	33.6	0.1	11.4
	Mar-14	20.543	71.9	16.7	0.2	11.2
	Jun-14	-0.002	3.4	2.4	19.8	78.4
	Sep-14	-0.060	4.4	2.2	18.7	74.7
	Dec-14	0.1	0.0	0.0	20.2	79.7
	Mar-15	0	0.1	0.0	22.1	77.8
	May-15	-0.02	0.1	0.0	20.2	79.7
	Aug-15	0	0.1	0.0	21.4	78.5
	Dec-15	0	5.2	4.3	16.2	74.3
	Jan-16	0	0.1	0.1	20.5	79.3
	Sep-16	0	0.0	0.1	21.9	78.0
	Dec-16	NR	7.4	NR	NR	NR
	Mar-17	-124.4	10.7	8.3	17.4	63.6
	Jun-17	0.05	57.9	42.2	0.0	0.0
	Sep-17	0.07	58.3	41.8	0.0	0.0
	Dec-17	-0.1	0.1	0.0	23.8	76.1
	Jan-18	-0.03	4.1	2.9	19.8	73.2
	May-18	1.22	39.0	30.0	0.2	30.8
	Jul-18	-0.05	45.3	33.9	0.7	20.1
	Oct-18	-0.17	0.1	0.1	21.1	78.7

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
SOUTH OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
MW03-803B	Mar-13	0.1	47.0	38.8	0.0	14.2
	Apr-13	0.1	52.6	40.5	0.2	6.6
	Aug-13	0.2	58.6	41.0	0.0	0.3
	Dec-13	-15.1	58.4	41.5	0.0	0.1
	Mar-14	-0.259	59.5	40.4	0.0	0.1
	Jun-14	-0.121	57.0	42.8	0.1	0.1
	Sep-14	-0.075	44.6	37.9	1.2	16.3
	Dec-14	-2.9	0.1	0.0	20.4	79.5
	Mar-15	0.1	24.6	32.3	1.3	41.8
	May-15	-0.079	38.0	36.9	0.1	24.6
	Aug-15	0.1	22.6	34.3	1.3	41.8
	Dec-15	0.2	0.6	0.7	21.7	77.0
	Jan-16	0	0.1	0.1	20.8	79.0
	Sep-16	0	0.0	0.1	21.9	NR
	Dec-16	NR	23.3	34.9	0.0	41.8
	Mar-17	0	0.1	0.0	20.7	79.2
	Jun-17	0.19	57.3	42.8	0.0	0.0
	Sep-17	0.01	57.6	42.6	0.0	0.0
	Dec-17	-0.2	0.1	0.0	23.3	76.6
	Jan-18	0.17	22.2	33.1	0.0	44.7
	May-18	0.42	55.1	41.0	0.1	3.8
	Jul-18	0.08	50.1	40.2	0.1	9.6
	Oct-18	0.02	0.1	0.2	21.2	78.5
P04-713A	Mar-13	-0.7	0.0	1.1	20.4	78.5
	Apr-13	0	0.0	0.1	20.2	79.6
	Aug-13	-5.8	0.2	0.6	19.0	80.2
	Dec-13	NR	0.4	1.3	20.5	77.8
	Mar-14	26.623	0.2	1.5	18.9	79.4
	Jun-14	10.942	0.0	0.2	21.0	78.8
	Sep-14	13.6	0.0	0.2	20.0	79.8
	Dec-14	-16.9	0.3	2.1	18.3	79.2
	Mar-15	-0.1	0.0	0.2	21.0	78.8
	May-15	13.896	0.1	0.1	20.7	79.0
	Aug-15	-0.1	0.0	0.2	21.1	78.7
	Dec-15	-5.7	0.1	1.0	20.9	78.0
	Jan-16	-1.9	0.1	1.1	20.5	78.3
	Sep-16	-12.3	0.0	0.5	NR	78.8
	Dec-16	NR	NR	NR	NR	NR
	Mar-17	-17.2	0.1	1.2	20.6	78.1
	Jun-17	-2.45	2.2	0.0	20.6	76.9
	Sep-17	-7.98	0.0	0.3	21.2	78.5
	Dec-17	-15.4	0.1	1.3	22.8	75.8
	Jan-18	-26.9	0.1	0.9	21.2	77.7
	May-18	-14.34	0.0	0.2	19.2	80.6
	Jul-18	-8.08	0.0	1.4	16.9	81.7
	Oct-18	-16.01	0.1	1.4	18.7	79.8

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
SOUTH OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
P04-713B	Mar-13	0.7	13.8	14.9	0.0	71.3
	Apr-13	0	15.0	13.5	0.1	71.3
	Aug-13	0.2	13.8	13.3	0.0	72.9
	Dec-13	-15.9	10.1	15.0	6.2	68.7
	Mar-14	-0.176	21.8	14.3	0.0	63.9
	Jun-14	0.270	27.2	13.6	0.2	59.0
	Sep-14	0.013	0.6	4.0	15.5	79.9
	Dec-14	-2.0	7.1	16.1	0.0	76.6
	Mar-15	-0.2	0.0	3.4	17.2	79.4
	May-15	0.452	3.4	13.4	0.1	83.1
	Aug-15	0.1	0.0	3.3	16.9	79.8
	Dec-15	0.0	0.1	7.5	11.2	81.2
	Jan-16	-1.1	0.1	8.7	7.5	83.7
	Sep-16	0.0	0.0	0.6	21.0	78.4
	Dec-16	NR	0.0	NR	NR	NR
	Mar-17	-0.8	0.0	5.2	14.0	80.8
	Jun-17	0.1	2.2	5.5	13.3	79.0
	Sep-17	0.1	0.0	3.7	16.9	79.4
	Dec-17	-0.5	0.1	4.3	15.7	76.9
	Jan-18	0.2	0.1	5.4	14.8	79.7
	May-18	0.5	0.0	12.0	1.9	86.1
	Jul-18	-0.1	0.0	8.0	10.4	81.6
	Oct-18	-0.1	0.1	1.6	18.7	79.6
P04-714	Mar-13	0.7	52.9	36.4	0.0	10.7
	Apr-13	0.9	39.7	33.5	0.1	27.1
	Aug-13	1.4	47.8	37.9	0.0	14.3
	Dec-13	-14.14	45.9	38.0	0.0	16.1
	Mar-14	-1.417	58.2	36.3	0.0	5.5
	Jun-14	-0.599	43.7	36.3	0.0	20.0
	Sep-14	-0.388	7.0	8.1	13.3	71.6
	Dec-14	-0.9	35.7	34.0	0.2	29.9
	Mar-15	0.1	12.5	18.5	1.5	67.5
	May-15	-0.271	14.2	25.6	0.2	60.0
	Aug-15	0.3	11.4	20.5	1.3	66.8
	Dec-15	0.4	16.6	23.6	0.1	59.7
	Jan-16	-1.8	0.2	0.3	21.1	78.4
	Sep-16	NR	0.0	0.8	20.9	78.3
	Dec-16	NR	31.8	32.7	NR	NR
	Mar-17	-1.3	30.3	28.8	1.2	39.7
	Jun-17	0.49	33.0	28.3	0.0	38.7
	Sep-17	0.15	58.6	38.7	0.0	2.7
	Dec-17	-0.6	0.2	3.9	22.6	73.3
	Jan-18	0.82	37.6	33.4	0.0	29.0
	May-18	2.15	30.2	28.1	0.0	41.8
	Jul-18	0.52	36.0	29.4	0.0	34.6
	Oct-18	-0.15	0.1	5.4	17.1	77.4

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
SOUTH OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
P04-715	Mar-13	-0.2	58.2	35.6	0.0	6.2
	Apr-13	-0.2	57.9	36.5	0.1	5.5
	Aug-13	0.1	56.6	40.9	0.0	2.5
	Dec-13	-15.2	59.0	40.9	0.0	0.1
	Mar-14	-0.225	60.8	39.0	0.0	0.2
	Jun-14	-0.085	56.4	43.4	0.1	0.1
	Sep-14	-0.075	17.1	32.7	0.2	50.0
	Dec-14	-10.4	39.2	30.8	0.2	29.6
	Mar-15	0	7.8	32.6	0.2	59.4
	May-15	-0.8	52.1	35.4	0.2	11.8
	Aug-15	0	8.3	31.2	0.1	60.4
	Dec-15	-0.2	20.9	25.1	1.8	52.2
	Jan-16	-0.2	22.9	29.0	0.7	47.4
	Sep-16	0	0.0	0.9	21.2	77.9
	Dec-16	NR	0.7	14.1	11.3	73.9
	Mar-17	-0.3	21.3	25.3	3.1	50.3
	Jun-17	0.01	57.3	42.3	0.0	0.4
	Sep-17	-0.01	4.2	14.6	2.1	79.1
	Dec-17	0	0.2	0.5	22.7	76.6
	Jan-18	-0.15	18.5	28.5	0.0	53.0
	May-18	0.02	40.9	30.1	0.5	28.5
	Jul-18	-0.07	50.6	39.6	0.1	9.7
	Oct-18	0.01	0.1	10.3	13.4	76.3
P04-716	Mar-13	NR	NR	NR	NR	NR
	Apr-13	NR	NR	NR	NR	NR
	Aug-13	NR	NR	NR	NR	NR
	Dec-13	NR	NR	NR	NR	NR
	Mar-14	NR	NR	NR	NR	NR
	Jun-14	NR	NR	NR	NR	NR
	Sep-14	NR	NR	NR	NR	NR
	Dec-14	NR	NR	NR	NR	NR
	Mar-15	NR	NR	NR	NR	NR
	May-15	NR	NR	NR	NR	NR
	Aug-15	NR	NR	NR	NR	NR
	Dec-15	NR	NR	NR	NR	NR
	Jan-16	NR	NR	NR	NR	NR
	Sep-16	NR	NR	NR	NR	NR
	Dec-16	NR	NR	NR	NR	NR
	Mar-17	NR	NR	NR	NR	NR
	Jun-17	NR	NR	NR	NR	NR
	Sep-17	NR	NR	NR	NR	NR
	Dec-17	NR	NR	NR	NR	NR
	Jan-18	NR	NR	NR	NR	NR
	May-18	NR	NR	NR	NR	NR
	Jul-18	NR	NR	NR	NR	NR
	Oct-18	NR	NR	NR	NR	NR

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
SOUTH OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-16	Mar-13	-0.2	0.0	3.3	18.1	78.6
	Apr-13	0	0.0	2.7	18.1	79.2
	Aug-13	0.3	0.0	3.7	15.9	80.4
	Dec-13	-15	0.2	4.9	14.6	80.3
	Mar-14	0.027	0.0	0.1	20.6	79.3
	Jun-14	0.156	0.0	3.4	17.5	79.0
	Sep-14	-0.093	0.0	3.4	16.6	80.0
	Dec-14	-0.6	0.2	3.2	19.1	77.5
	Mar-15	0	0.0	3.2	19.9	76.9
	May-15	0.144	0.2	2.4	18.9	78.5
	Aug-15	0.1	0.0	2.3	18.5	79.2
	Dec-15	0.3	0.1	3.5	18.0	78.4
	Jan-16	0.1	0.1	3.1	17.9	78.9
	Sep-16	0	0.0	0.4	22.1	77.5
	Dec-16	NR	0.0	4.2	16.9	78.9
	Mar-17	-0.3	0.0	3.7	18.8	77.5
	Jun-17	-0.04	2.1	3.3	17.5	77.1
	Sep-17	0	0.0	3.2	17.9	78.9
	Dec-17	-0.3	0.1	4.8	19.4	75.7
	Jan-18	-0.22	0.1	4.5	18.0	77.4
	May-18	0.4	0.0	2.9	16.2	80.9
	Jul-18	-0.23	0.0	3.4	15.7	80.9
	Oct-18	-0.04	0.1	2.6	15.1	82.2
05-GS-17	Mar-13	0	0.4	0.6	20.0	79.0
	Apr-13	0	0.4	0.2	19.9	79.4
	Aug-13	0.2	3.2	3.4	17.3	76.1
	Dec-13	-15.2	52.9	26.4	3.9	16.8
	Mar-14	-0.5	52.6	23.4	4.2	19.8
	Jun-14	0.039	11.8	7.9	11.9	68.4
	Sep-14	-0.025	0.1	7.1	14.0	78.8
	Dec-14	0.1	0.1	0.0	20.2	79.7
	Mar-15	-0.1	51.2	26.1	3.2	19.2
	May-15	0.035	0.2	3.3	14.9	81.7
	Aug-15	NR	NR	NR	NR	NR
	Dec-15	0	4.3	6.9	10.3	78.5
	Jan-16	NR	NR	NR	NR	NR
	Sep-16	NR	NR	NR	NR	NR
	Dec-16	NR	1.6	8.7	8.3	81.4
	Mar-17	-0.1	0.0	0.2	22.2	77.6
	Jun-17	NR	NR	NR	NR	NR
	Sep-17	NR	NR	NR	NR	NR
	Dec-17	NR	NR	NR	NR	NR
	Jan-18	-0.11	19.2	17.1	1.1	62.6
	May-18	-0.5	2.2	4.8	13.7	79.3
	Jul-18	-0.18	9.7	4.1	6.9	79.3
	Oct-18	0.01	0.1	8.0	14.2	77.7

Notes: NR = not reported
Gas measurements were reported to SME by New England Waste Services of Maine, Inc.
GEM 2000 multi-gas meter accuracy is ±0.5% for detections ranging 0-5%,
and ±1.0% for detections ranging 5-15%.

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
MW-916	Mar-13	1.1	0.0	0.1	20.6	79.3
	Apr-13	-1.1	0.0	0.0	20.5	79.5
	Aug-13	0.2	0.0	0.0	20.2	79.8
	Dec-13	-15.2	4.8	1.0	15.1	79.1
	Mar-14	0.010	13.6	3.8	15.3	67.3
	Jun-14	0.026	0.0	0.0	20.8	79.2
	Sep-14	0.003	0.0	0.1	20.0	79.9
	Dec-14	0.1	0.1	0.0	20.2	79.6
	Mar-15	0.1	0.0	0.0	22.1	77.9
	May-15	-0.013	0.2	0.0	20.7	79.2
	Aug-15	0.2	0.0	0.0	21.5	78.5
	Dec-15	0	0.1	0.1	21.3	78.5
	Jan-16	0.3	0.2	0.2	15.9	83.7
	Sep-16	0	0.0	0.0	21.2	78.8
	Dec-16	NR	0.0	0.2	20.5	79.3
	Mar-17	-97.2	0.0	0.1	21.1	78.8
	Jun-17	-0.04	2.2	0.9	17.1	79.8
	Sep-17	0	25.2	5.8	6.4	62.6
	Dec-17	0.1	0.1	0.0	23.1	76.8
	Jan-18	-0.02	5.4	1.4	20.0	73.2
	May-18	-0.04	0.4	0.1	19.1	80.4
	Jul-18	-0.12	0.0	0.0	18.9	81.1
	Oct-18	0.02	0.1	0.1	21.6	78.3
MW-917	Mar-13	NR	NR	NR	NR	NR
	Apr-13	NR	NR	NR	NR	NR
	Aug-13	NR	NR	NR	NR	NR
	Dec-13	NR	NR	NR	NR	NR
	Mar-14	NR	NR	NR	NR	NR
	Jun-14	NR	NR	NR	NR	NR
	Sep-14	NR	NR	NR	NR	NR
	Dec-14	NR	NR	NR	NR	NR
	Mar-15	NR	NR	NR	NR	NR
	May-15	NR	NR	NR	NR	NR
	Aug-15	NR	NR	NR	NR	NR
	Dec-15	NR	NR	NR	NR	NR
	Jan-16	NR	NR	NR	NR	NR
	Sep-16	NR	NR	NR	NR	NR
	Dec-16	NR	NR	NR	NR	NR
	Mar-17	NR	NR	NR	NR	NR
	Jun-17	NR	NR	NR	NR	NR
	Sep-17	NR	NR	NR	NR	NR
	Dec-17	NR	NR	NR	NR	NR
	Jan-18	NR	NR	NR	NR	NR
	May-18	NR	NR	NR	NR	NR
	Jul-18	NR	NR	NR	NR	NR
	Oct-18	NR	NR	NR	NR	NR

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
P04-707	Mar-13	0.5	0.0	6.5	0.0	93.5
	Apr-13	0.4	0.0	6.0	0.0	94.0
	Aug-13	0.16	0.0	3.2	17.3	79.5
	Dec-13	-14.4	0.2	8.3	1.0	90.5
	Mar-14	-0.976	17.2	7.9	0.1	74.8
	Jun-14	1.477	0.0	6.1	12.9	81.0
	Sep-14	0.005	0.0	1.9	17.7	80.4
	Dec-14	-5.2	0.0	4.3	2.6	93.0
	Mar-15	-0.8	0.0	1.5	18.2	80.3
	May-15	8.53	0.2	4.2	2.0	93.7
	Aug-15	-0.9	0.0	1.4	19.9	78.7
	Dec-15	0.3	0.1	4.1	8.4	87.4
	Jan-16	-0.3	0.0	3.7	2.8	93.5
	Sep-16	NR	0.0	2.5	19.8	NR
	Dec-16	NR	0.0	NR	15.9	NR
	Mar-17	-16.5	0.0	2.9	8.1	89.0
	Jun-17	-0.67	2.3	4.5	2.9	90.3
	Sep-17	0.02	0.0	4.3	16.2	79.5
	Dec-17	-0.2	0.2	5.7	10.2	83.9
	Jan-18	0.06	0.0	6.7	4.1	89.1
	May-18	-17.01	0.0	3.0	0.7	96.3
	Jul-18	-0.15	0.0	3.0	15.8	81.2
	Oct-18	0.02	0.0	3.6	16.6	79.7
P04-709	Mar-13	-0.2	0.2	0.9	17.1	81.8
	Apr-13	0.1	0.1	0.8	17.3	81.8
	Aug-13	0.01	0.0	0.4	18.8	80.8
	Dec-13	NR	0.2	3.6	4.6	91.6
	Mar-14	-52.9	0.0	0.6	18.0	81.4
	Jun-14	29.0	0.0	0.1	20.6	79.3
	Sep-14	NR	0.0	0.4	17.8	81.8
	Dec-14	-54.1	0.7	0.5	17.7	81.0
	Mar-15	0	0.0	0.4	18.0	81.6
	May-15	17.3	0.1	0.2	18.5	81.8
	Aug-15	0	0.0	0.4	19.6	80.0
	Dec-15	-0.1	1.7	1.8	8.3	88.2
	Jan-16	-1.2	1.2	0.9	17.1	80.8
	Sep-16	-0.4	0.0	NR	NR	78.7
	Dec-16	NR	0.0	NR	NR	NR
	Mar-17	-0.8	50.7	14.1	1.1	34.1
	Jun-17	0.01	73.4	19.0	0.3	7.3
	Sep-17	0.16	60.4	39.8	0.0	0.0
	Dec-17	-65.9	14.6	2.9	5.6	76.9
	Jan-18	-0.02	73.7	23.4	0.0	2.9
	May-18	-0.1	0.0	0.1	19.1	80.8
	Jul-18	-0.05	0.0	0.0	18.4	81.6
	Oct-18	0.02	0.1	0.1	20.6	79.3

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-4	Mar-13	0.9	3.2	11.3	0.3	85.2
	Apr-13	0	0.3	10.5	1.1	88.0
	Aug-13	0	22.3	10.4	0.1	67.2
	Dec-13	NR	25.1	13.6	0.0	61.4
	Mar-14	-6.25	30.3	11.7	0.1	57.9
	Jun-14	0.061	36.4	12.7	0.2	50.7
	Sep-14	0.181	21.1	11.7	0.3	66.9
	Dec-14	-0.7	9.3	13.9	0.1	76.5
	Mar-15	0	0.1	9.8	0.6	89.5
	May-15	0.076	1.8	11.3	0.3	86.7
	Aug-15	0.1	0.1	10.9	0.4	88.6
	Dec-15	0	0.3	10.6	0.3	88.8
	Jan-16	-0.2	0.1	9.4	10.1	80.4
	Sep-16	0	0.0	0.3	2.0	NR
	Dec-16	NR	0.0	9.1	3.5	87.4
	Mar-17	-0.1	0.0	8.3	4.4	87.3
	Jun-17	0.07	2.2	9.8	2.0	86.0
	Sep-17	0.07	0.1	8.1	4.6	87.2
	Dec-17	0	0.1	8.9	3.6	87.4
	Jan-18	0.02	0.0	10.8	1.2	88.0
	May-18	0.83	0.5	8.5	0.5	90.5
	Jul-18	-0.1	0.0	8.4	0.4	91.2
	Oct-18	0.03	0.1	9.5	3.0	87.4
05-GS-5	Mar-13	0.8	0.0	0.1	21.0	78.9
	Apr-13	0	0.0	5.0	13.0	82.0
	Aug-13	0	0.0	3.5	15.5	81.0
	Dec-13	NR	6.0	10.6	0.0	83.4
	Mar-14	-0.800	5.2	9.8	0.8	84.2
	Jun-14	0.148	7.7	7.5	6.2	78.6
	Sep-14	0.218	4.2	8.7	2.4	84.7
	Dec-14	-1.0	0.1	7.2	9.2	83.4
	Mar-15	0.1	0.0	0.1	22.8	77.1
	May-15	0.117	0.1	6.8	13.7	79.4
	Aug-15	0.1	0.0	0.3	20.8	78.9
	Dec-15	-0.1	0.1	6.7	14.4	78.8
	Jan-16	-0.1	0.1	2.3	20.3	77.3
	Sep-16	-0.1	0.0	1.5	20.5	NR
	Dec-16	NR	0.0	7.5	10.5	NR
	Mar-17	-0.2	0.0	9.9	7.3	82.8
	Jun-17	-10.7	2.1	8.4	11.0	78.2
	Sep-17	-0.1	0.0	6.1	12.9	81.0
	Dec-17	0.0	0.1	3.3	19.3	77.3
	Jan-18	0.3	0.0	8.8	5.2	86.0
	May-18	-15.1	0.0	6.9	12.6	80.5
	Jul-18	-0.2	0.0	4.9	12.4	82.7
	Oct-18	-0.3	0.1	3.0	17.8	79.1

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-6	Mar-13	NR	NR	NR	NR	NR
	Apr-13	NR	NR	NR	NR	NR
	Aug-13	NR	NR	NR	NR	NR
	Dec-13	NR	NR	NR	NR	NR
	Mar-14	NR	NR	NR	NR	NR
	Jun-14	NR	NR	NR	NR	NR
	Sep-14	NR	NR	NR	NR	NR
	Dec-14	NR	NR	NR	NR	NR
	Mar-15	NR	NR	NR	NR	NR
	May-15	NR	NR	NR	NR	NR
	Aug-15	NR	NR	NR	NR	NR
	Dec-15	NR	NR	NR	NR	NR
	Jan-16	NR	NR	NR	NR	NR
	Sep-16	NR	NR	NR	NR	NR
	Dec-16	NR	NR	NR	NR	NR
	Mar-17	NR	NR	NR	NR	NR
	Jun-17	NR	NR	NR	NR	NR
	Sep-17	NR	NR	NR	NR	NR
	Dec-17	NR	NR	NR	NR	NR
	Jan-18	NR	NR	NR	NR	NR
	May-18	NR	NR	NR	NR	NR
	Jul-18	NR	NR	NR	NR	NR
	Oct-18	NR	NR	NR	NR	NR
05-GS-7	Mar-13	2.8	0.0	0.1	21.0	78.9
	Apr-13	-3.3	0.0	0.0	20.2	79.8
	Aug-13	1	0.0	0.0	20.2	79.8
	Dec-13	-14.8	26.7	0.7	5.2	67.4
	Mar-14	-0.306	64.1	35.7	0.0	0.1
	Jun-14	1.622	0.0	0.0	21.3	78.7
	Sep-14	2.313	0.0	0.0	19.6	80.4
	Dec-14	-1.7	0.0	0.0	19.9	80.0
	Mar-15	0.1	0.0	0.0	22.4	77.6
	May-15	0.022	0.1	0.0	20.3	79.6
	Aug-15	0.2	0.0	0.0	21.7	78.3
	Dec-15	0	0.1	0.1	21.8	78.0
	Jan-16	-0.3	0.1	0.0	20.7	79.2
	Sep-16	0.1	0.0	0.0	22.2	77.8
	Dec-16	NR	0.0	0.0	22.1	NR
	Mar-17	0	0.0	0.0	21.7	78.3
	Jun-17	0	48.4	21.6	0.0	30.0
	Sep-17	0	65.1	35.0	0.0	0.0
	Dec-17	0	51.2	24.4	5.2	19.2
	Jan-18	-0.01	15.1	10.0	17.0	58.0
	May-18	-0.01	1.2	0.1	18.5	80.2
	Jul-18	-0.09	0.0	0.0	18.8	81.2
	Oct-18	-0.04	0.1	0.1	21.2	78.7

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-8	Mar-13	-0.3	0.0	0.1	20.7	79.2
	Apr-13	-1	0.0	0.0	20.2	79.8
	Aug-13	0	0.0	0.0	19.8	80.2
	Dec-13	-15.1	0.2	0.1	20.4	79.3
	Mar-14	0.001	0.0	0.1	20.3	79.6
	Jun-14	0.050	0.0	0.0	20.9	79.1
	Sep-14	0.384	0.0	0.0	19.6	80.4
	Dec-14	-0.9	0.1	0.0	19.9	79.9
	Mar-15	0.2	0.0	0.0	23.4	76.6
	May-15	0.024	0.2	0.0	21.1	78.8
	Aug-15	-0.6	0.0	0.0	22.3	77.7
	Dec-15	0	0.1	0.1	22.1	77.7
	Jan-16	-0.1	0.1	0.0	20.9	79.0
	Sep-16	-0.3	0.0	0.0	22.1	77.9
	Dec-16	NR	0.0	0.1	22.0	77.9
	Mar-17	0	0.0	0.1	21.5	78.4
	Jun-17	0.01	2.1	0.2	20.4	77.3
	Sep-17	0.02	15.0	5.0	14.8	65.2
	Dec-17	-0.1	0.1	2.0	24.0	73.8
	Jan-18	0.01	1.4	1.7	17.5	79.4
	May-18	-0.04	0.0	0.0	19.5	80.5
	Jul-18	-0.06	0.0	0.0	19.0	81.0
	Oct-18	0.01	0.1	0.1	21.6	78.3
05-GS-9	Mar-13	-0.3	0.0	0.1	20.7	79.2
	Apr-13	-0.9	26.8	25.0	3.8	46.5
	Aug-13	0.2	26.8	18.6	1.6	53.0
	Dec-13	-13.1	61.7	36.1	0.0	2.2
	Mar-14	-0.199	55.3	21.7	0.0	23.0
	Jun-14	0.453	26.8	19.6	1.5	52.1
	Sep-14	1.29	9.3	10.9	7.4	72.4
	Dec-14	-3.6	5.4	6.0	15.0	73.4
	Mar-15	-0.5	1.6	2.4	22.5	73.5
	May-15	0.946	11.3	16.7	5.0	67.1
	Aug-15	-0.8	1.8	2.5	21.0	74.7
	Dec-15	-0.2	0.7	2.3	18.8	78.2
	Jan-16	-1.7	2.8	5.8	14.3	77.1
	Sep-16	-1.4	2.3	4.5	7.3	NR
	Dec-16	NR	26.0	23.1	1.9	49.0
	Mar-17	-0.9	2.7	7.9	12.2	77.2
	Jun-17	0.16	15.6	15.7	0.1	68.6
	Sep-17	0.8	27.1	14.9	0.0	58.0
	Dec-17	0.4	52.1	13.6	0.1	34.2
	Jan-18	0.94	69.3	17.8	0.0	12.9
	May-18	1.67	34.9	23.5	0.1	41.5
	Jul-18	-0.77	23.6	21.7	0.6	54.1
	Oct-18	-1.13	25.0	25.7	1.0	48.2

SUMMARY OF 2018 AND HISTORICAL SUBSURFACE LANDFILL GAS MONITORING
EAST OF CONVENTIONAL LANDFILL
PINE TREE LANDFILL

Location	Date	Gas Pressure (inches-H2O, static)	Methane %	Carbon Dioxide %	Oxygen %	Balance %
05-GS-10	Mar-13	0	0.0	0.4	19.3	80.3
	Apr-13	-0.1	0.0	0.6	17.8	81.6
	Aug-13	0.4	0.0	1.3	11.9	86.8
	Dec-13	-12.4	0.2	2.2	13.7	83.9
	Mar-14	0.561	0.0	1.7	14.6	83.2
	Jun-14	0.470	0.0	1.1	14.4	84.5
	Sep-14	0.498	0.0	0.6	13.5	85.9
	Dec-14	-3.0	0.1	0.5	18.2	81.1
	Mar-15	0.1	0.0	0.5	16.0	83.5
	May-15	0.021	0.1	0.7	16.2	83.1
	Aug-15	0.2	0.0	0.6	15.8	83.6
	Dec-15	1.0	0.1	2.2	16.6	81.1
	Jan-16	-1.6	0.2	0.1	20.6	79.1
	Sep-16	-0.1	NR	1.3	18.3	80.4
	Dec-16	NR	0.0	2.7	15.9	81.4
	Mar-17	-1.2	0.0	1.2	17.2	81.6
	Jun-17	0.2	2.5	2.8	11.1	83.6
	Sep-17	0.4	0.0	2.6	10.4	87.0
	Dec-17	0.7	0.1	3.8	13.0	83.1
	Jan-18	0.3	0.0	3.5	8.9	87.5
	May-18	2.7	0.0	1.9	8.7	89.4
	Jul-18	-0.5	0.0	1.5	7.5	91.0
	Oct-18	-0.2	0.1	2.2	15.6	82.1

Notes: NR = not reported
Gas measurements were reported to SME by New England Waste Services of Maine, Inc.
GEM 2000 multi-gas meter accuracy is ±0.5% for detections ranging 0-5%,
and ±1.0% for detections ranging 5-15%.

APPENDIX F

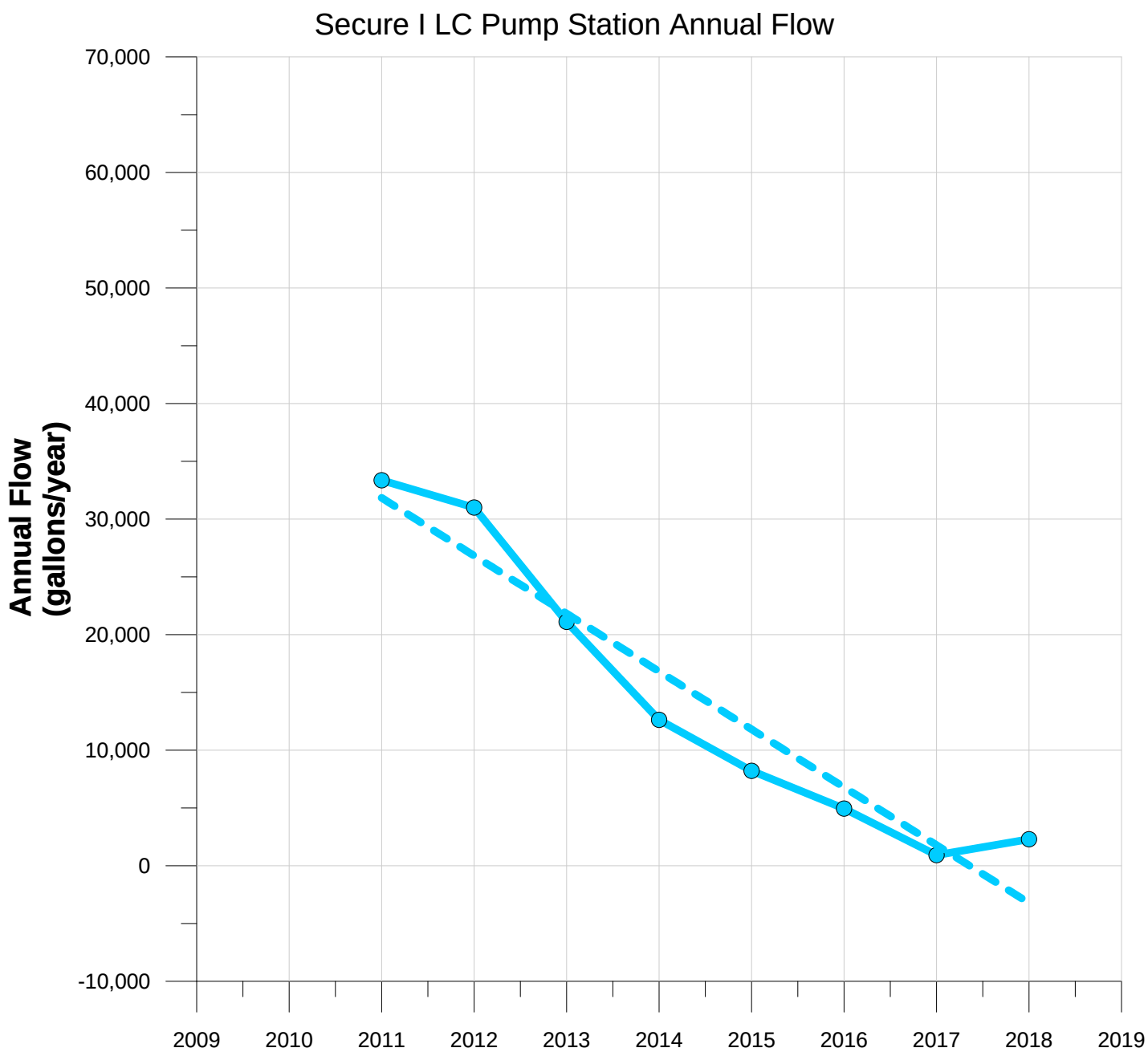
2018 AND HISTORICAL PUMP STATION FLOWS

SME
SEVEE & MAHER
ENGINEERS

LEACHATE COLLECTION

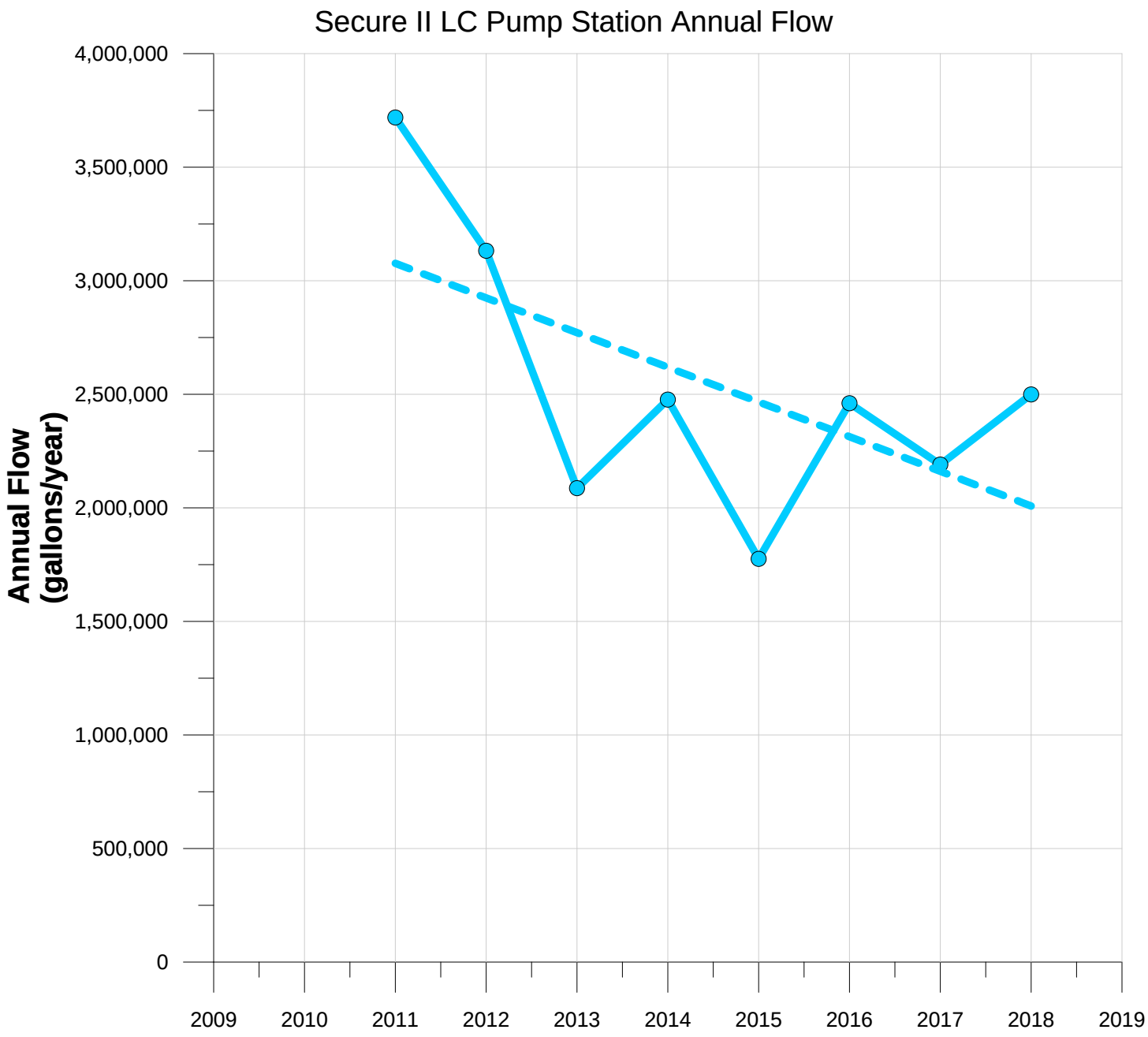
SME
SEVEE & MAHER
ENGINEERS

Pine Tree Landfill Pump Station Flows Leachate Collection (Gallons/Year)								
Year	**Secure I**	**Secure II**	**Secure III**	**Perimeter Drain**	**Phase VI**	**Phase VII**	**Phase VIII-C**	**Precipitation (inches/year)**
2011	33,354	3,718,854	2,052,055	4,023,579	1,168,270	275,919	2,557,493	44.30
2012	31,004	3,132,141	1,087,952	4,159,038	384,811	208,089	2,418,507	42.25
2013	21,109	2,086,625	585,684	3,720,999	797,371	259,923	3,483,283	40.06
2014	12,631	2,476,954	1,575,223	3,283,659	475,569	241,300	2,853,408	43.92
2015	8,209	1,775,297	592,119	3,356,269	420,962	194,927	3,147,150	35.53
2016	4,945	2,460,639	491,930	2,705,609	537,941	206,462	2,822,536	34.35
2017	924	2,190,463	512,401	3,056,334	400,110	198,766	2,178,376	41.33
2018	2,298	2,499,440	389,727	4,097,318	313,118	195,644	1,664,414	46.99



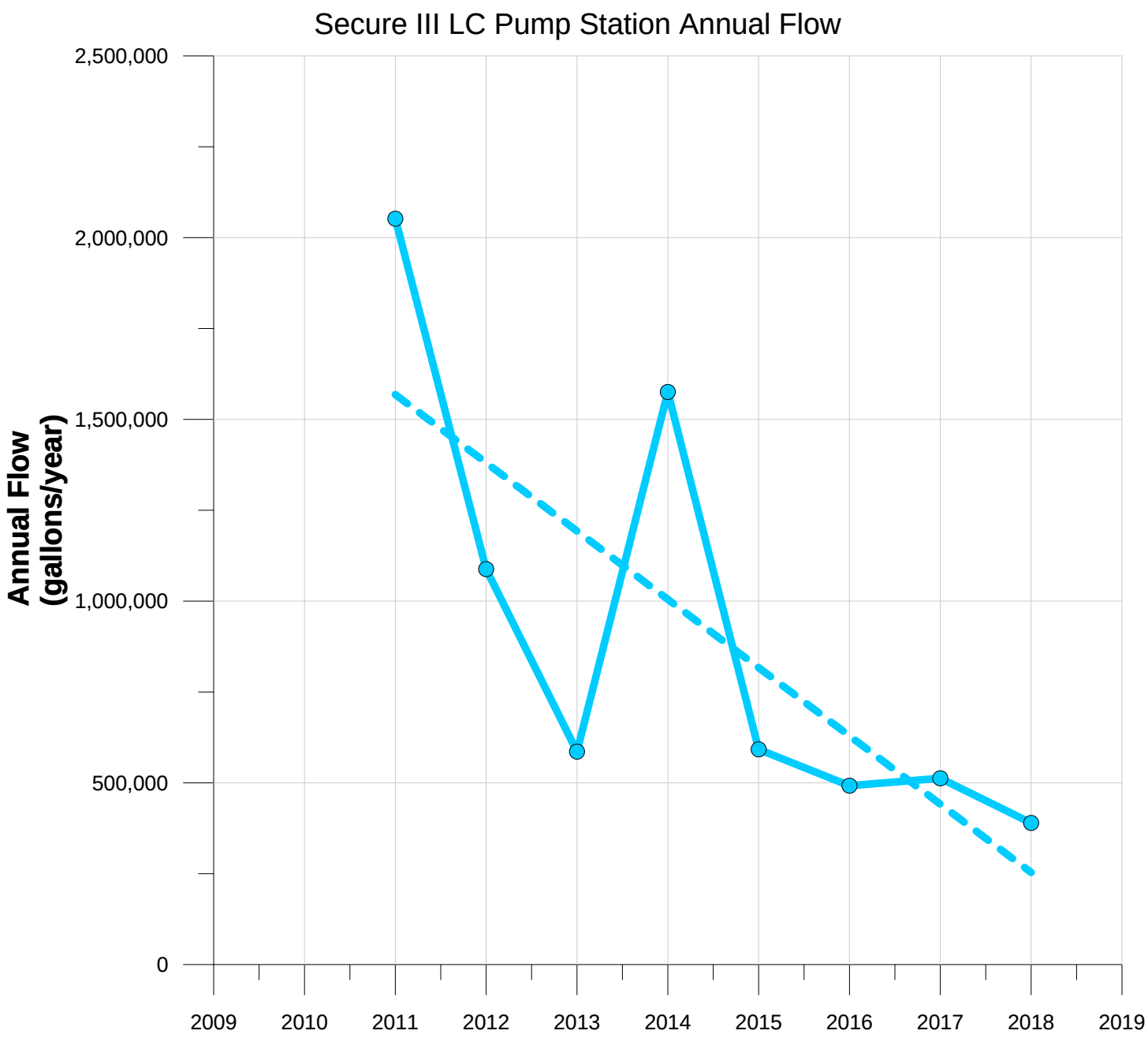
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



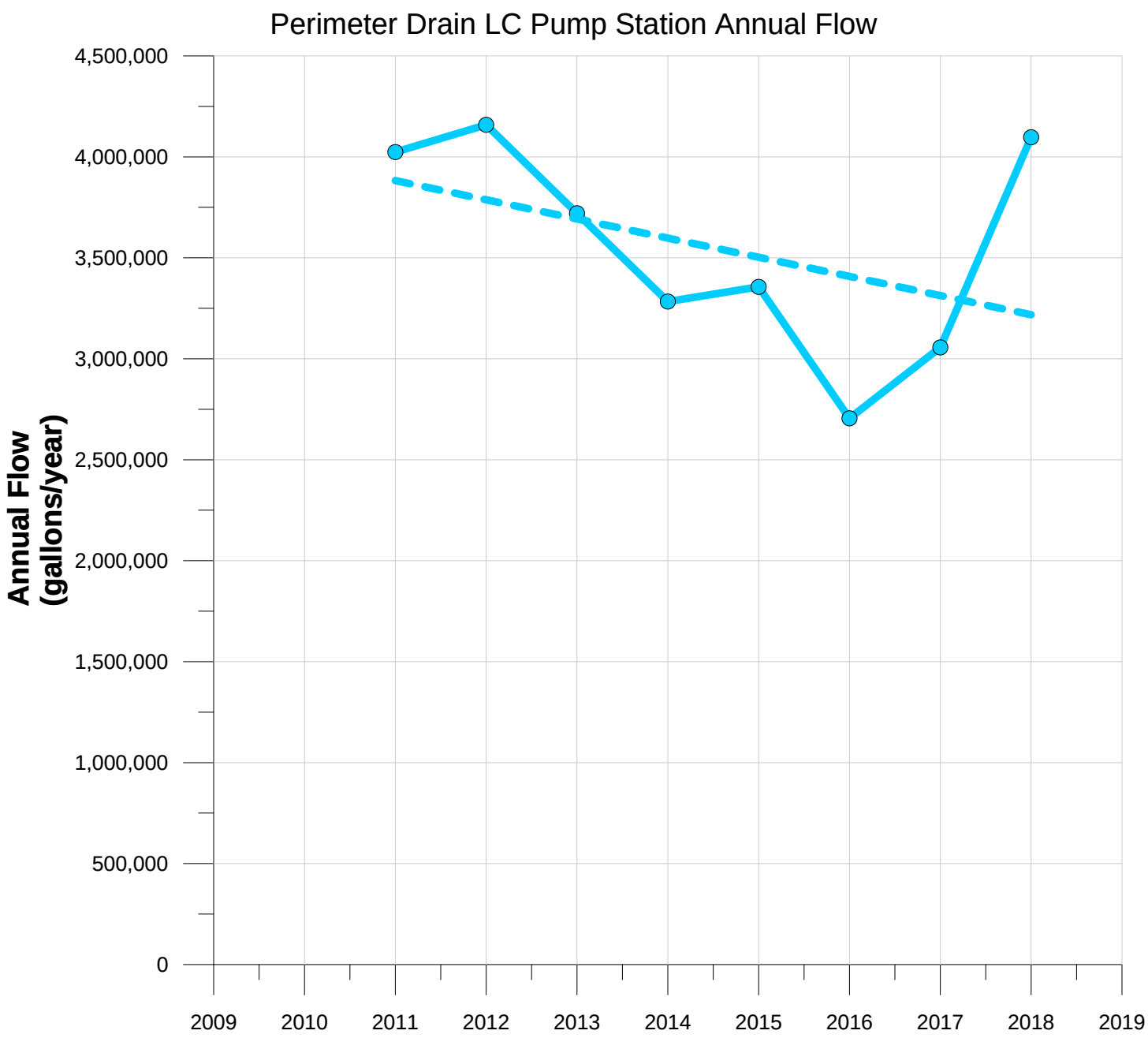
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



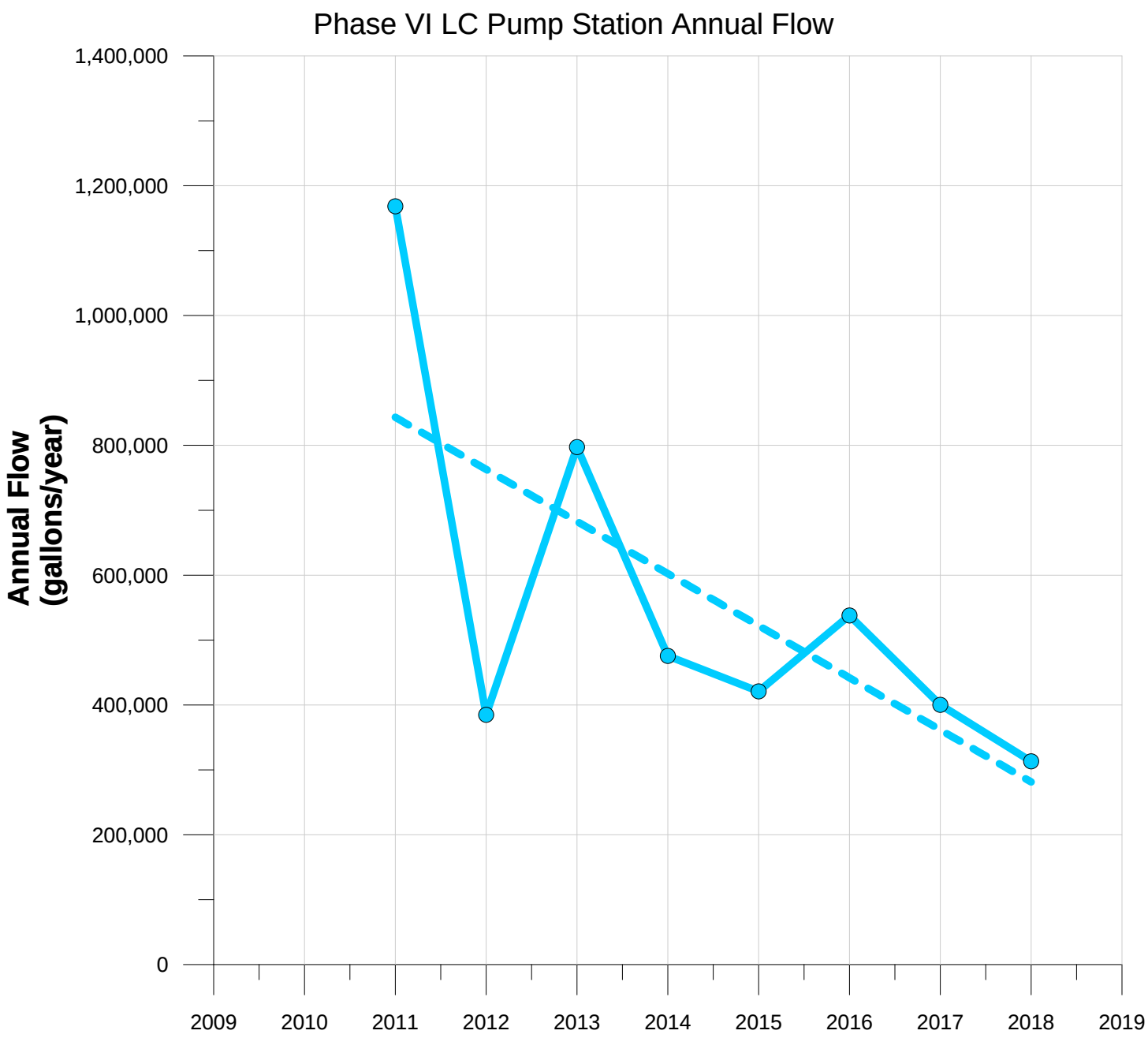
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



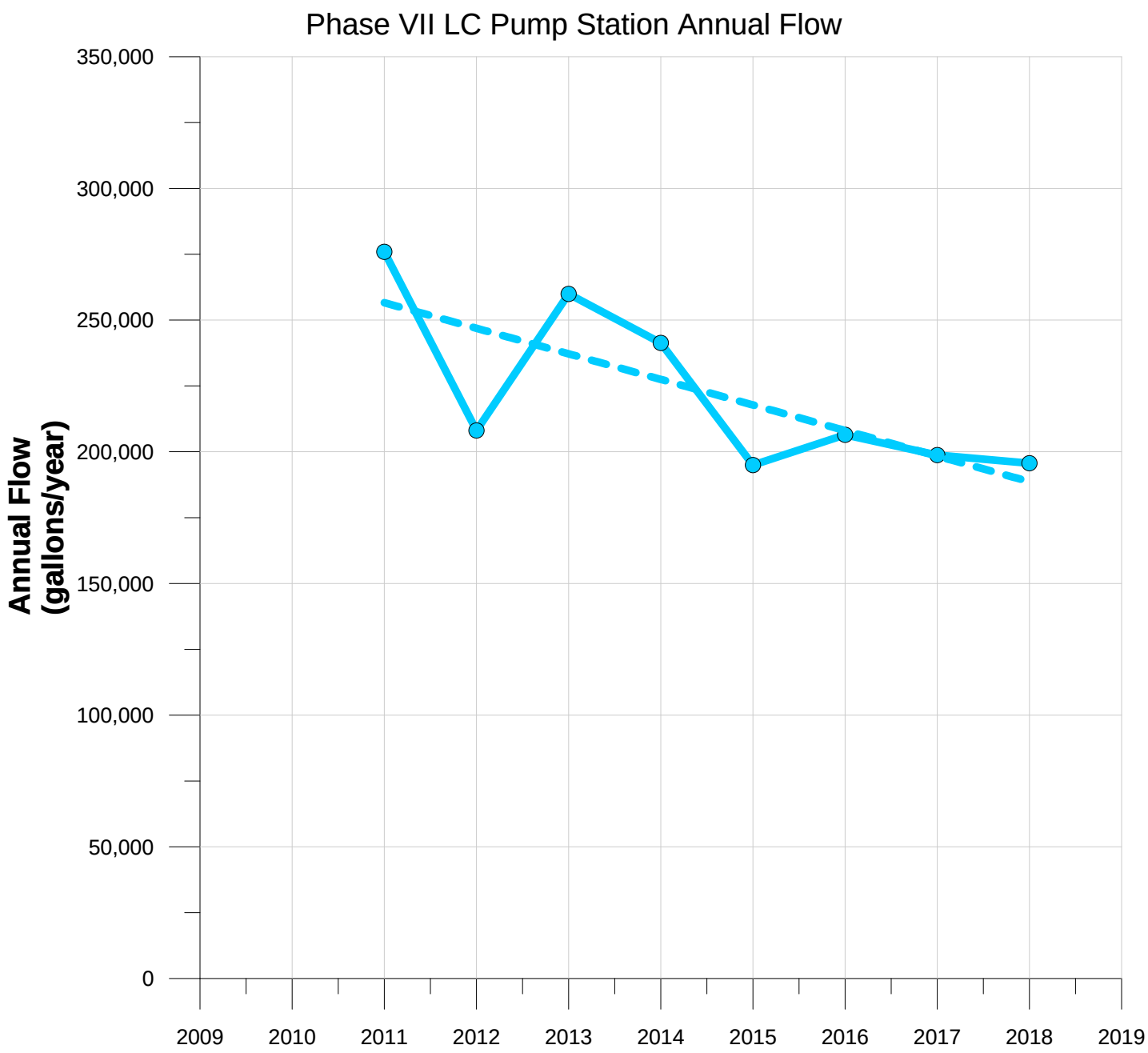
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



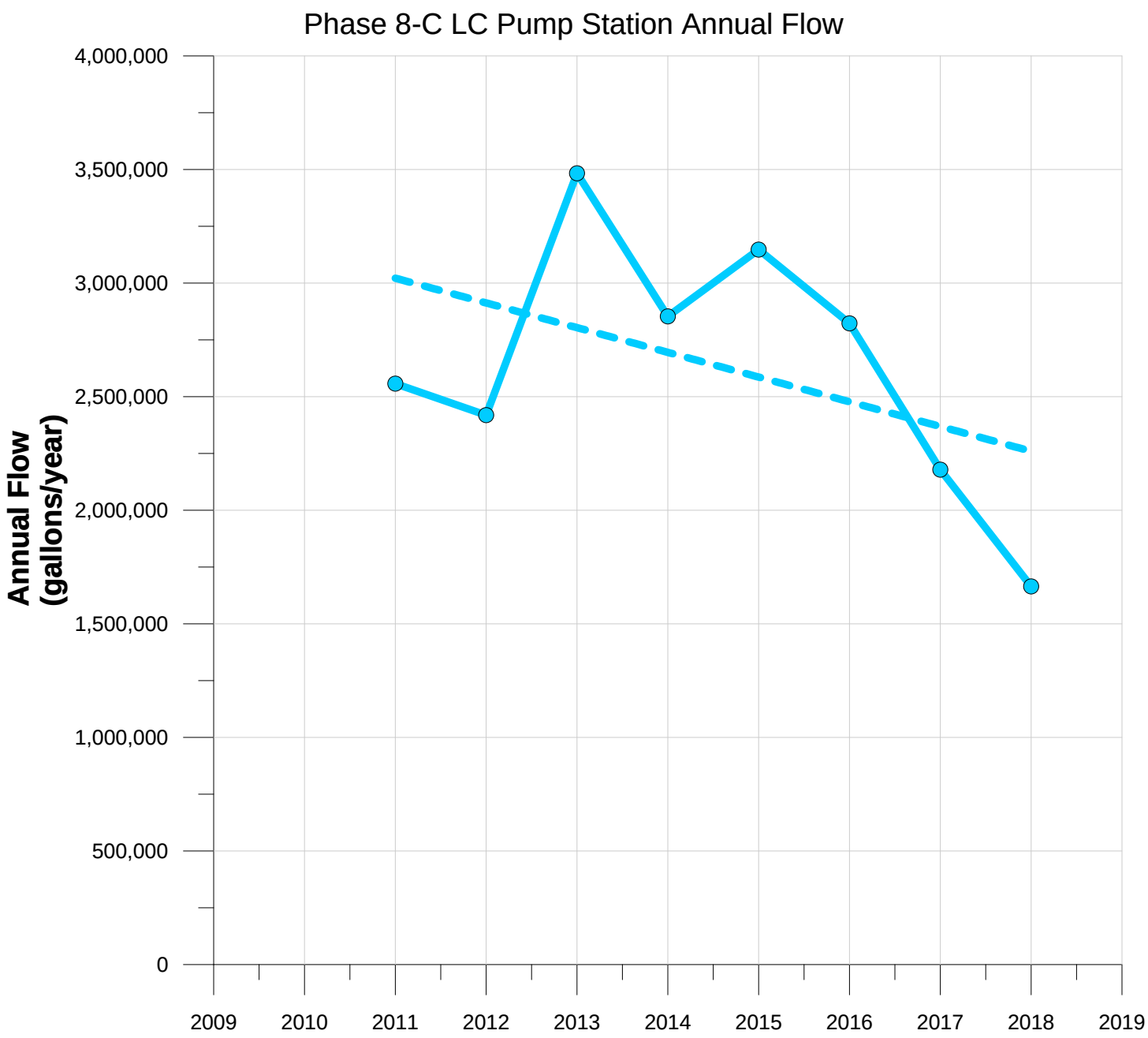
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



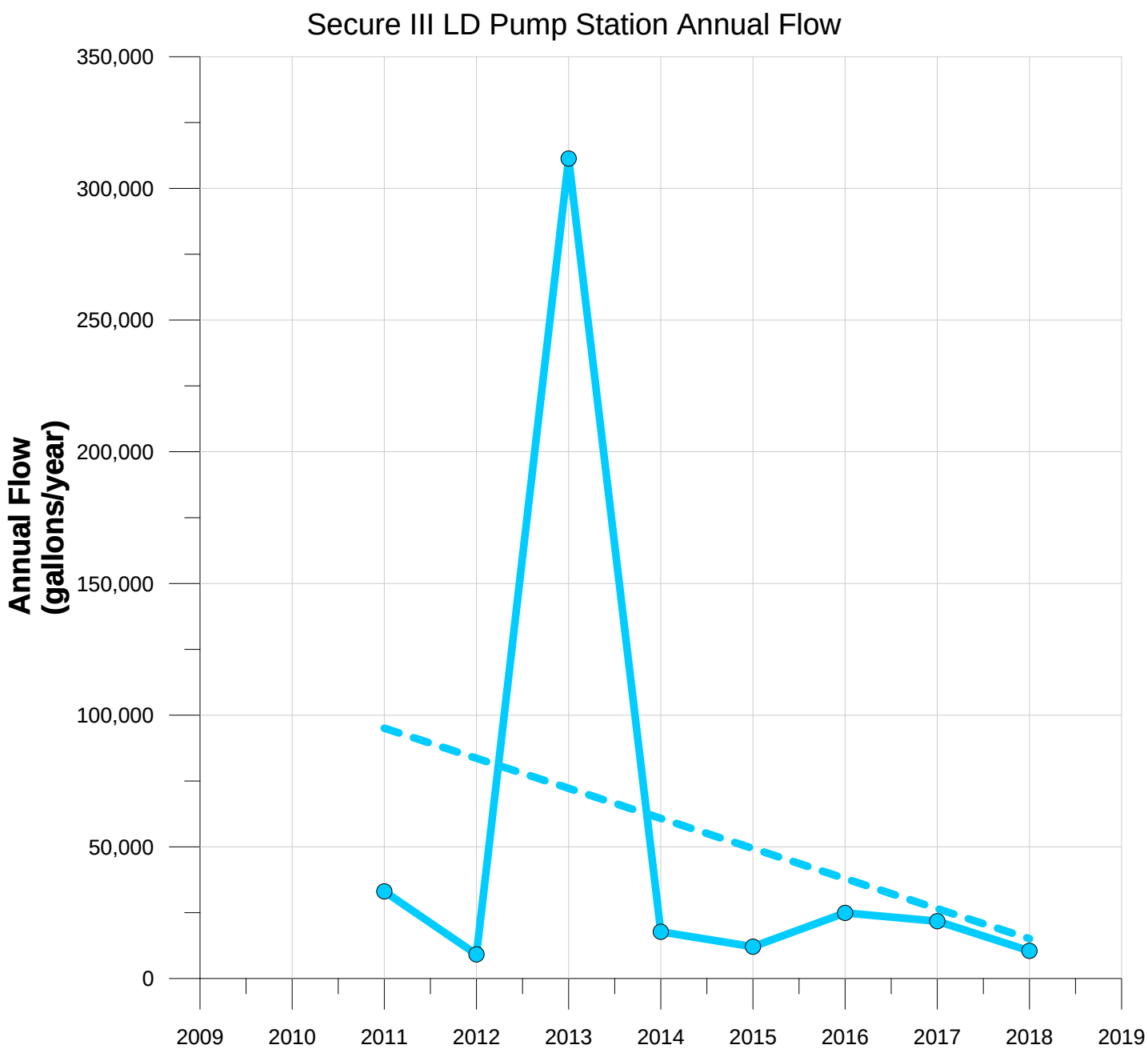
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS

LEAK DETECTION

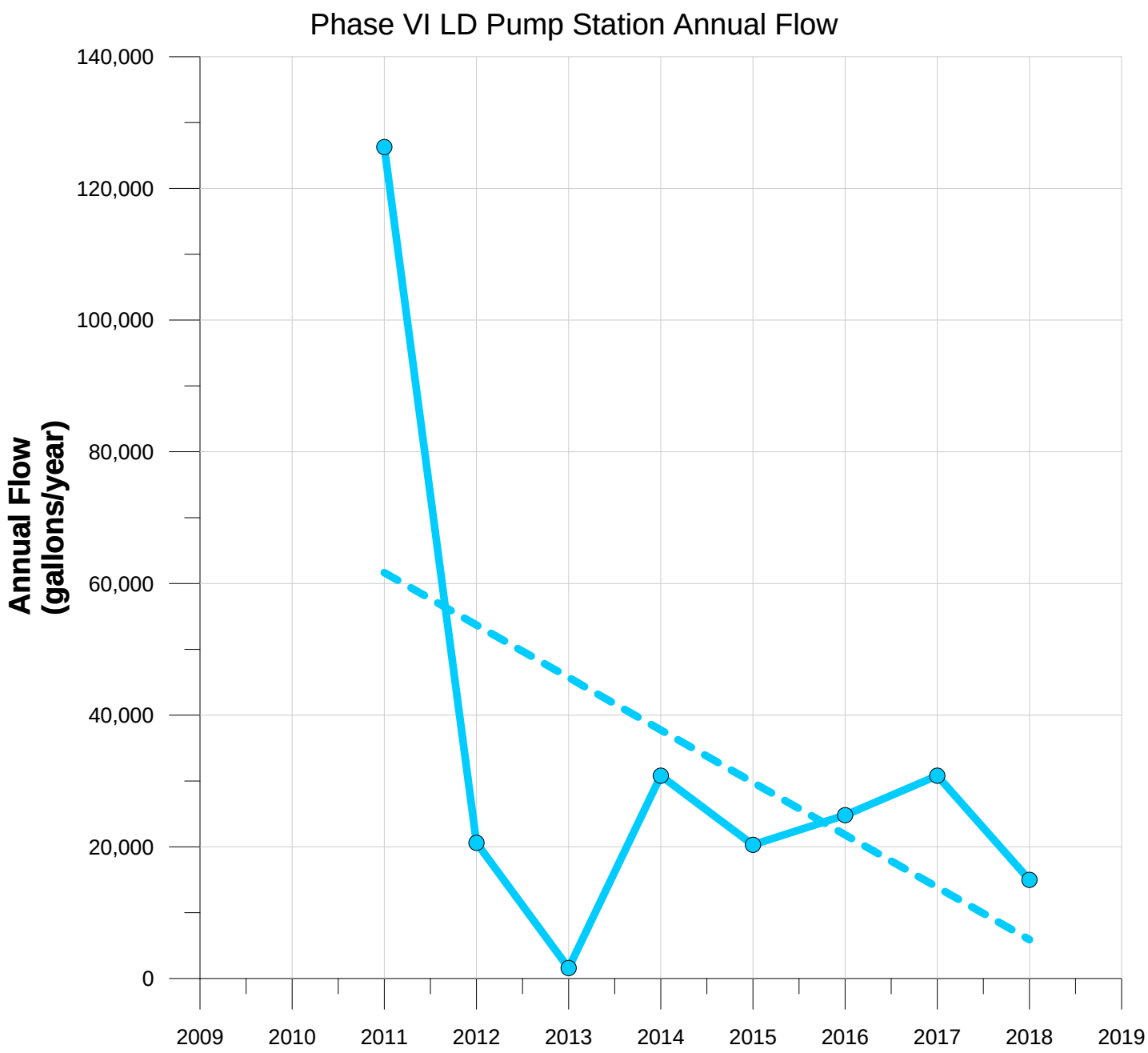
SME
SEVEE & MAHER
ENGINEERS

Pine Tree Landfill Pump Station Flows Leak Detection (Gallons/Year)					
Year	**Secure III**	**Phase VI**	**Phase VII**	**Phase VIII-C**	**Precipitation (inches/year)**
2011	33,050	126,279	38,235	25,786	44.30
2012	9,153	20,599	25,088	33,945	42.25
2013	311,336	1,588	18,812	6,400	40.06
2014	17,733	30,808	26,775	1,397	43.92
2015	12,096	20,310	18,056	24,687	35.53
2016	24,917	24,794	23,472	33,107	34.35
2017	21,774	30,799	33,474	41,442	41.33
2018	10,510	14,975	37,032	32,488	46.99



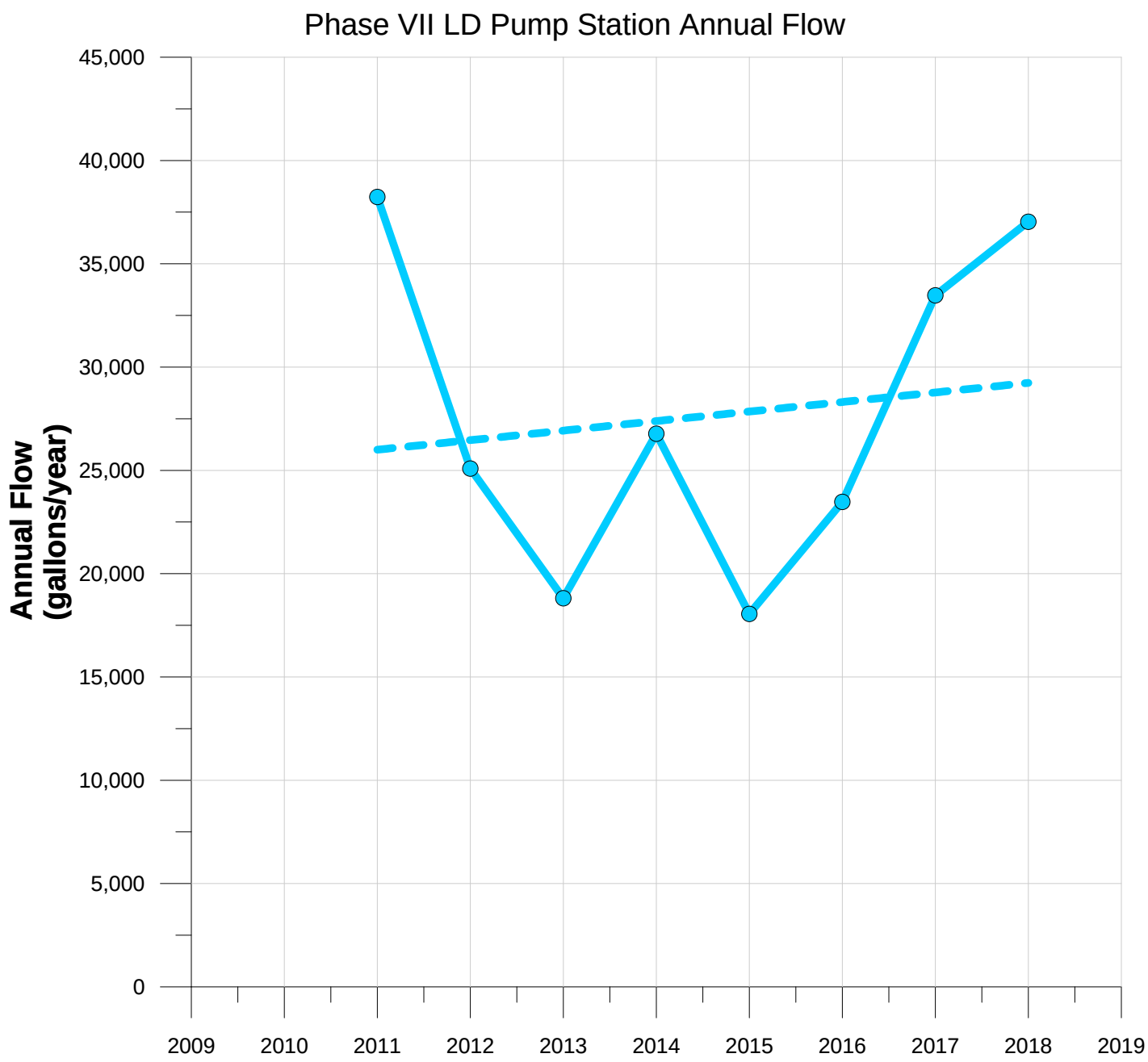
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



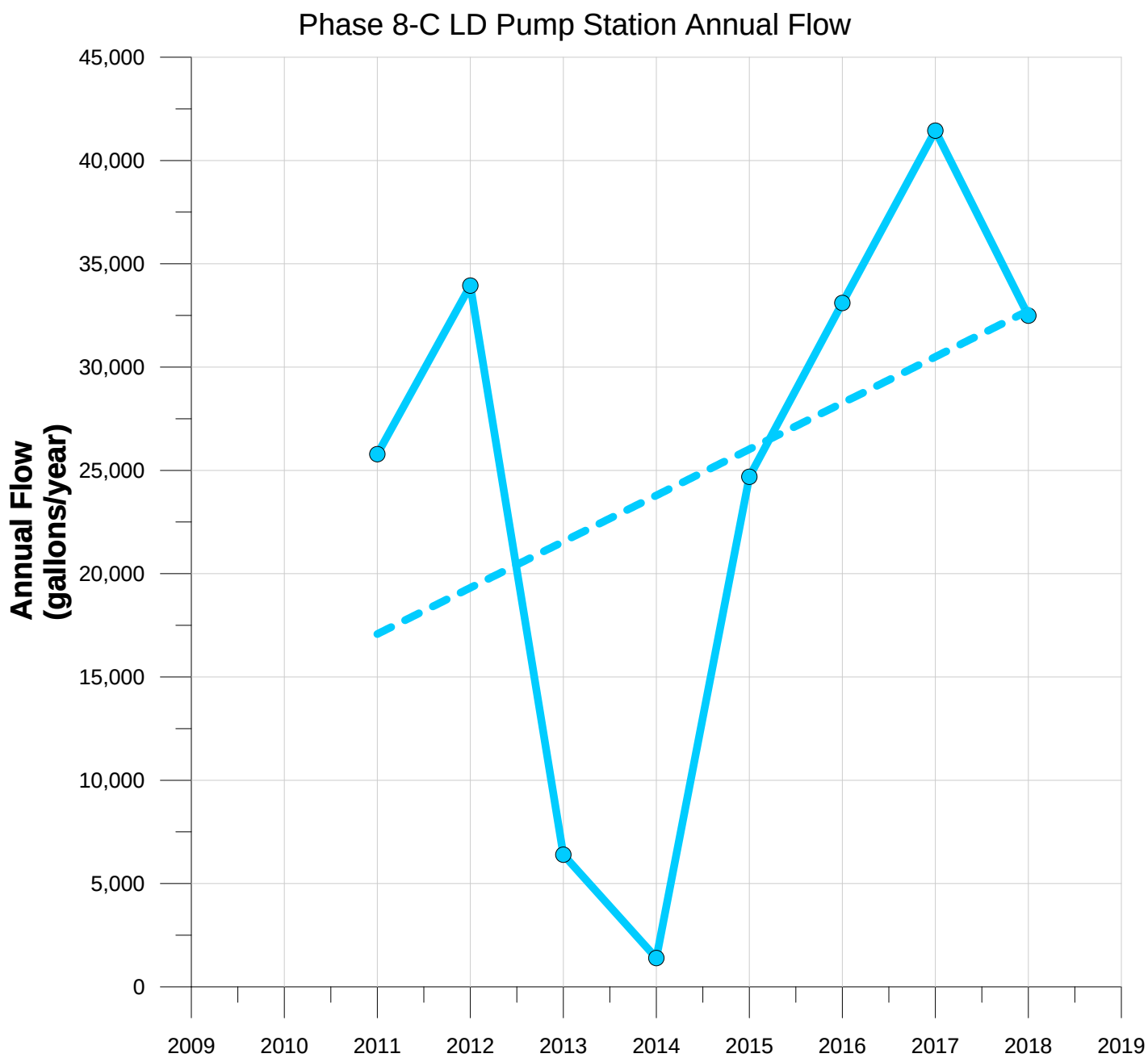
Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER ENGINEERS



Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER
ENGINEERS



Dotted lines are Linear Trendlines from Excel.

SME
SEVEE & MAHER
ENGINEERS

ATTACHMENT D

LANDFILL GAS MONITORING EVALUATION

PINE TREE LANDFILL

2018 ANNUAL GAS MONITORING EVALUATION

Owned by New England Waste Services of ME, Inc.

358 Emerson Mill Rd, Hampden, Maine 04444 • (207) 862-4200

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION	1
2.0	WELL FIELD ACTIVITY	1
2.1	Active, New, and Discontinued Well Heads	1
2.2	Changes and Anomalies in Well Field	1
2.3	External Soil Gas Extraction Wells	1
3.0	LANDFILL GAS COMPOSITION	3
4.0	LANDFILL GAS FLOW / ENERGY CONTENT OF METHANE COLLECTION	4
5.0	SUMMARY	6

LIST OF TABLES

Table No.	Title	Page No.
2-1	Well Heads Monitored at PTL, 2018	2
2-2	External Soil Gas Extraction Well Totals, 2017 & 2018	2
4-1	LFG Flows / Energy Content of CH_4 Collection at PTL, 2017 & 2018	4

LIST OF FIGURES

Figure No.	Title	Page No.
3-1	Monthly Average CH_4 and O_2 Concentrations at PTL, 2017 & 2018	3
4-1	Monthly Average Landfill Gas Flow Rate at PTL, 2017 & 2018	5
4-2	Avg. Daily Energy Generated by CH_4 Combustion at PTL, 2017 & 2018	5

1.0 INTRODUCTION

In accordance with the MEDEP Chapter 401, Solid Waste Management Rules, item 401.6.C, an evaluation of the gas monitoring results for Pine Tree Landfill's (PTL) past year, including a comparison of the past year's results to the previous year's results is provided below.

Throughout 2018, the following regular landfill gas (LFG) monitoring activities occurred at PTL: (1) well-tuning of the landfill gas collection trenches and wells, (2) continuous flow monitoring at the inlet to the landfill gas–to-energy (GTE) facility, and (3) LFG composition measurements taken during well-tuning activities at the inlet to the GTE facility.

2.0 WELL FIELD ACTIVITY

During 2018, well field activities remained relatively the same as 2017. Anomalies associated with routine operation of the well-field were also monitored, a summary is provided below.

2.1 Active, New, and Discontinued Well Heads

At the beginning of 2018, the PTL well field consisted of 69 active well heads. On November 27, 2018 the MEDEP granted permission to discontinue 13 of those active well heads due to poor performance. At the end of 2018, 56 well heads remained active. Table 2-1 shows well heads that were monitored during 2018 and their status as of the end of the year.

2.2 *Changes and Anomalies in Well Field*

There were no notable changes or anomalies that occurred in the well field during 2018. No temperature readings during 2018 exceeded 150 degrees Fahrenheit. Multiple readings of temperature were between 131 and 150 degrees Fahrenheit, consistent with historical readings and typical of temperatures present in construction and demolition debris landfills.

2.3 *External Soil Gas Extraction Wells*

Collection of migrating LFG from the unlined Conventional Landfill continued at external soil gas extraction wells during 2018. Five extraction wells were active at the beginning of 2018 and remained active at the end of 2018. Average CH_4, total flow, and total energy extraction at all five locations for 2017 & 2018 are provided in Table 2-2. Total flow and energy extracted increased overall throughout 2018.

Table 2-1 Well Heads Monitored at PTL, 2018

Well ID	Well Type	Well Status	Well ID	Well Type	Well Status	Well ID	Well Type	Well Status
PT-GCT02	Horizontal	Discontinued	PT-GW042	Gas Well	Active	PT-GW126	Gas Well	Active
PT-GCT03	Horizontal	Discontinued	PT-GW053	Gas Well	Active	PT-GW127	Gas Well	Active
PT-GCT05	Horizontal	Active	PT-GW054	Gas Well	Active	PT-GW128	Gas Well	Active
PT-GCT08	Horizontal	Active	PT-GW101	Gas Well	Active	PT-GW129	Gas Well	Discontinued
PT-GCT09	Horizontal	Active	PT-GW105	Gas Well	Active	PTGW08-1	Gas Well	Active
PT-GCT10	Horizontal	Active	PT-GW106	Gas Well	Active	PTGW08-9	Gas Well	Active
PTGCT108	Horizontal	Discontinued	PT-GW108	Gas Well	Active	PTGW8-11	Gas Well	Active
PTGCT110	Horizontal	Discontinued	PT-GW109	Gas Well	Active	PTGW8-12	Gas Well	Active
PTGCT115	Horizontal	Active	PT-GW110	Gas Well	Discontinued	PTGW8-13	Gas Well	Active
PT-GCT7E	Horizontal	Active	PT-GW111	Gas Well	Active	PT-GW-8B	Gas Well	Active
PT-GCT7F	Horizontal	Active	PT-GW112	Gas Well	Active	PT-GW-8C	Gas Well	Discontinued
PT-GCT7G	Horizontal	Active	PT-GW113	Gas Well	Active	PT-GW-8D	Gas Well	Active
PT-GCT7H	Horizontal	Active	PT-GW114	Gas Well	Active	PT-GW-8E	Gas Well	Active
PT-GCT7I	Horizontal	Active	PT-GW115	Gas Well	Active	PT-GW-8G	Gas Well	Active
PT-GCT7J	Horizontal	Active	PT-GW116	Gas Well	Active	PT-HCT1B	Horizontal	Active
PT-GW006	Gas Well	Active	PT-GW117	Gas Well	Discontinued	PT-HCT1C	Horizontal	Active
PT-GW007	Gas Well	Discontinued	PT-GW118	Gas Well	Active	PT-LGV02	Vent	Active
PT-GW008	Gas Well	Active	PT-GW120	Gas Well	Active	PT-PDMH1	Other	Discontinued
PT-GW009	Gas Well	Active	PT-GW121	Gas Well	Active	PT-PDMH3	Other	Active
PT-GW017	Gas Well	Active	PT-GW122	Gas Well	Active	PT-SGV03	Vent	Active
PT-GW019	Gas Well	Active	PT-GW123	Gas Well	Active	PT-SGV04	Vent	Discontinued
PT-GW021	Gas Well	Active	PT-GW124	Gas Well	Active	PT-SGV05	Vent	Discontinued
PT-GW038	Gas Well	Discontinued	PT-GW125	Gas Well	Active	PT-SGV06	Vent	Active

Table 2-2 External Soil Gas Extraction Well Totals, 2017 & 2018

	AVERAGE METHANE (%)		TOTAL FLOW (MMSCF)		ENERGY EXTRACTED (MMBTU)	
WELL	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**
PTGW08-1	52.7	56.2	12.6	8.6	6640	4846
PTGW08-9	0.3	0.5	0.0	0.0	0	0
PTGW8-11	33.1	32.2	7.1	3.5	2350	1126
PTGW8-12	28.8	31.7	5.5	1.8	1584	559
PTGW8-13	21.6	2.1	3.7	0.2	788	4

**Data is from average of readings taken and is not time weighted based on reading interval*

3.0 LANDFILL GAS COMPOSITION

During well-tuning activities, the gas composition of the LFG supplied to the PTL GTE facility was measured and concentrations of methane, carbon dioxide, oxygen (CH_4, CO_2, O_2 respectively), and balance gas (primarily nitrogen) were recorded. During 2018, PTL staff tuned the wells with the intent of maintaining CH_4 concentrations in the range of 40-50% (by volume) at each collection location, and an acceptable range to operate the engines at the PTL GTE facility. In order to maintain a highly efficient vacuum system and prevent possible landfill complications associated with oxygen infiltration, PTL staff strived to maintain satisfactory low levels of O_2 and balance gas concentrations within the landfill. Concentrations of CO_2 are not of great concern but are measured in addition to the more important levels of CH_4, O_2, and balance gas.

Monthly average gas compositions for 2018 (and 2017 for comparison) of the PTL GTE facility were computed using continuous readings from an online gas analyzer. The monthly average concentrations of CH_4 and O_2 are shown in Figure 3-1.

CH_4 concentrations in 2018 were slightly higher on average to those of 2017. Concentrations ranged from 36-42% methane, with an annual average concentration of 39.5%. This was a 10% improvement of the 2017 CH_4 annual average of 36.0%. O_2 concentrations remained at relatively low levels for all of 2018 with an annual average concentration of 0.9%, consistent with 2017 concentrations.

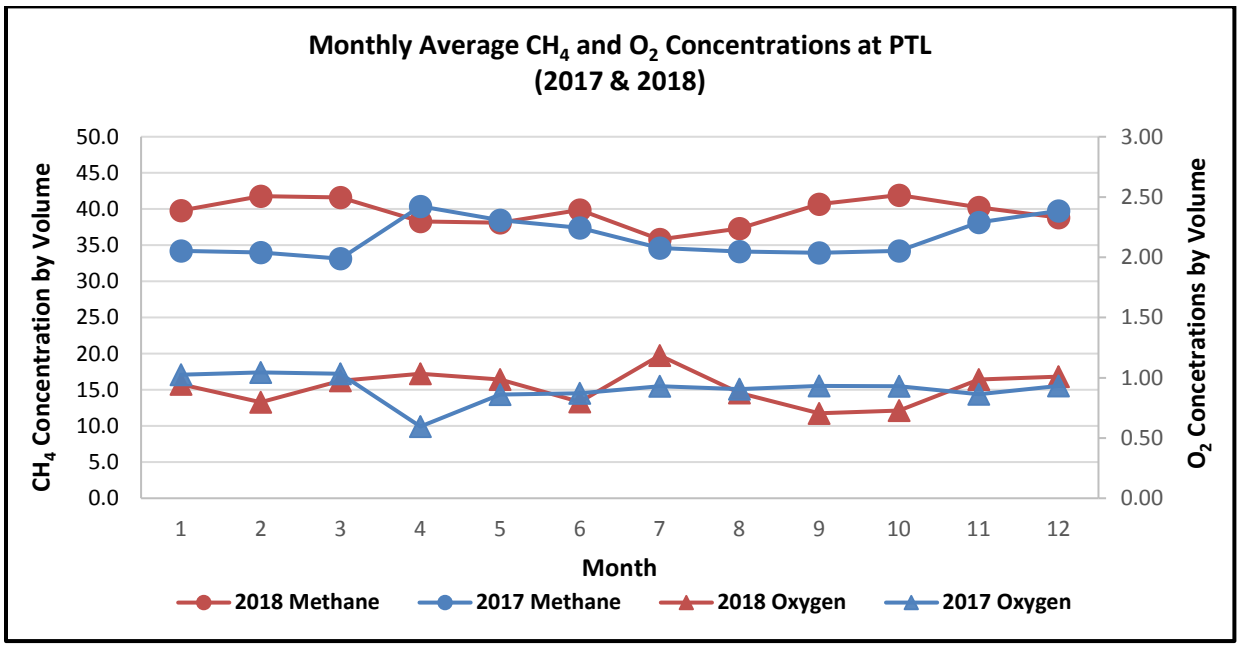


Figure 3-1 Monthly Average CH_4 and O_2 Concentrations at PTL, 2017 & 2018

4.0 LANDFILL GAS FLOW / ENERGY CONTENT OF METHANE COLLECTION

Throughout 2018, the total LFG flow supplied to the PTL GTE facility was measured and recorded on a continuous basis. Using this data, along with an approximate heating value of 1009 BTU/SCF (BTU per standard cubic foot) for CH_4, flow data and energy content was calculated. Data results for 2018 (and 2017 for comparison) are listed in Table 4-1.

Figure 4-1 shows the monthly average flows of LFG during each month of 2018 (and 2017 for comparison) in graph format. As expected, the closed landfill saw a decrease in average daily LFG flow for 2018. The total flow during 2018 was 231.4 million standard cubic feet (MMSCF), a decrease of 13% from 2017.

Figure 4-2 shows the average daily LFG energy content during each month of 2018 (and 2017 for comparison) in graph format. The total energy content at PTL during 2018 was 91,248 MMBTUs, a decrease of 4% from 2017. Although flow rates did decreased in 2018, CH_4 concentrations increased by 10%, resulting in a less severe reduction in total MMBTU's combusted when compared to years past.

Table 4-1 LFG Flows / Energy Content of CH_4 Collection at PTL, 2017 & 2018

	MONTHLY FLOW (MMSCF)		MONTHLY TOTAL (MMBTUs)		AVERAGE FLOW RATE (SCFM)		AVERAGE (MMBTUs/day)	
MONTH	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**
JANUARY	19.26	22.93	7,669	7,847	432	514	247	253
FEBRUARY	16.30	21.32	6,810	7,248	404	529	243	259
MARCH	20.15	23.86	8,383	7,908	451	535	270	255
APRIL	20.67	14.91	7,918	6,021	479	345	264	201
MAY	19.64	22.26	7,485	8,559	440	499	241	276
JUNE	18.60	22.60	7,416	8,451	430	523	247	282
JULY	22.29	26.25	7,981	9,083	499	588	257	293
AUGUST	19.78	24.54	7,380	8,378	443	550	238	270
SEPTEMBER	17.90	23.90	7,278	8,117	414	553	243	271
OCTOBER	18.46	22.91	7,741	7,843	414	513	250	253
NOVEMBER	19.39	20.51	7,803	7,826	449	475	260	261
DECEMBER	19.02	19.59	7,383	7,789	426	439	238	251
TOTAL	**231.47**	**265.58**	**91,248**	**95,070**				
AVERAGE					**440**	**505**	**250**	**260**

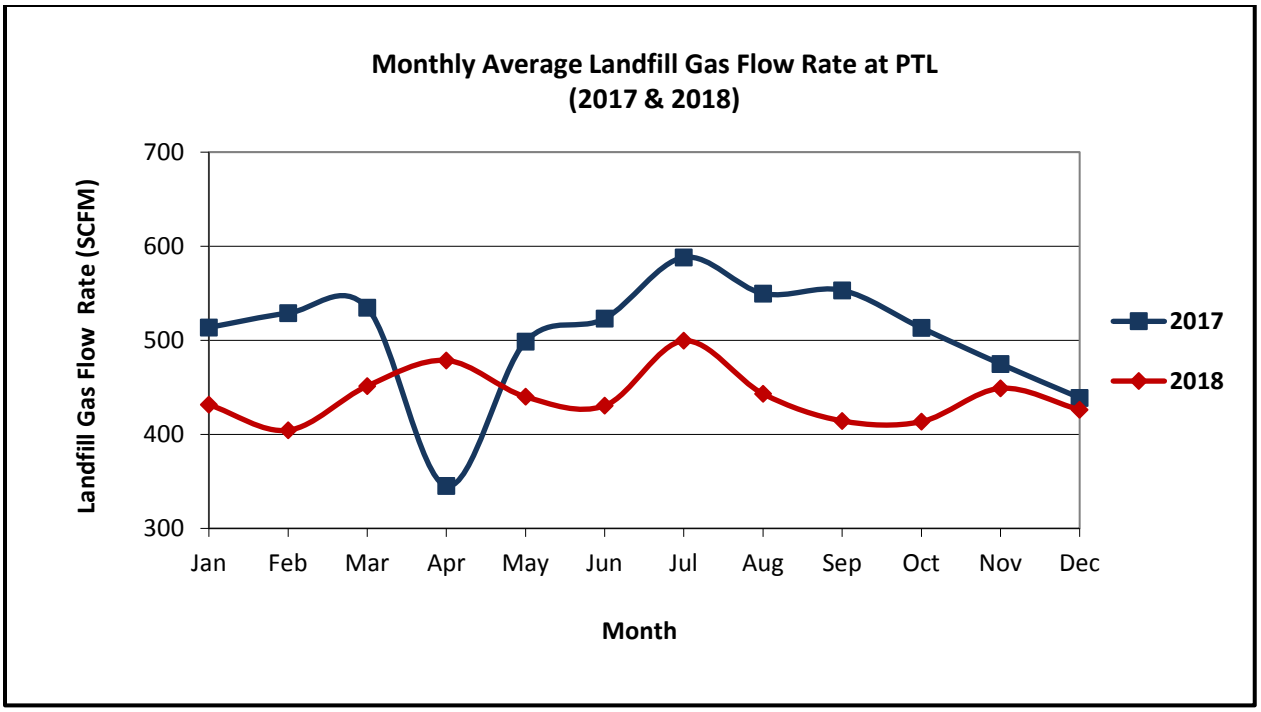


Figure 4-1 Monthly Average Landfill Gas Flow Rate at PTL, 2017 & 2018

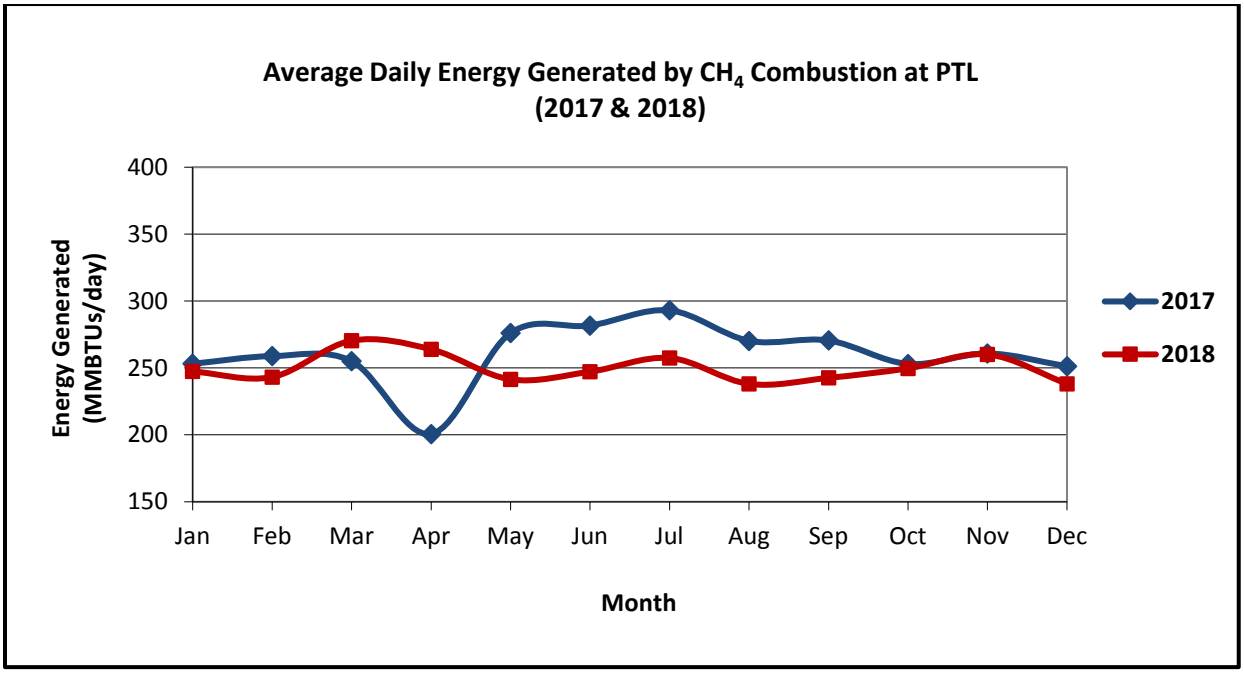


Figure 4-2 Average Daily Energy Generated by CH_4 Combustion at PTL, 2017 & 2018

5.0 SUMMARY

In accordance with the MEDEP Chapter 401, Solid Waste Management Rules, item 401.6.C, an evaluation of the gas monitoring results for Pine Tree Landfill's (PTL) past year, including a comparison of the past year's results to the previous year's results is provided below.

Throughout 2018, the following regular landfill gas (LFG) monitoring activities occurred at PTL: (1) well-tuning of the landfill gas collection trenches and wells, (2) continuous flow monitoring at the inlet to the landfill gas–to-energy (GTE) facility, and (3) LFG composition measurements taken during well-tuning activities at the inlet to the GTE facility.

LFG continued to be actively collected at PTL during 2018. No notable anomalies or conditions occurred during the course of the year, with no temperature readings exceeding 150 degrees Fahrenheit.

At the beginning of 2018, the PTL well field consisted of 69 active well heads. On November 27, 2018 the MEDEP granted permission to discontinue 13 of those active well heads due to poor performance. At the end of 2018, 56 well heads remained active.

Collection of migrating LFG from the unlined Conventional Landfill continued at external soil gas extraction wells during 2018. Five extraction wells were active at the beginning of 2018 and remained active at the end of 2018. Total flow and energy extracted increased overall throughout 2018.

CH_4 concentrations in 2018 were slightly higher on average to those of 2017. Concentrations ranged from 36-42% methane, with an annual average concentration of 39.5%. This was a 10% improvement of the 2017 CH_4 annual average of 36.0%. O_2 concentrations remained at relatively low levels for all of 2018 with an annual average concentration of 0.9%, consistent with 2017 concentrations.

As expected, the closed landfill saw a decrease in average daily LFG flow for 2018. The total flow during 2018 was 231.4 million standard cubic feet (MMSCF), a decrease of 13% from 2017. The total energy content at PTL during 2018 was 91,248 MMBTUs, a decrease of 4% from 2017. Although flow rates did decreased in 2018, CH_4 concentrations increased by 10%, resulting in a less severe reduction in total MMBTU's combusted when compared to years past.

ATTACHMENT E

LANDFILL AIR MONITORING EVALUATION

PINE TREE LANDFILL

2018 ANNUAL AIR MONITORING EVALUATION

Operated by New England Waste Services of ME, Inc.

358 Emerson Mill Road, Hampden, Maine 04444 • (207) 862-4200

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	INTRODUCTION	1
2.0	ODOR COMPLAINTS	2
3.0	CH_4 SURFACE SCANS	3
4.0	SUMMARY	5

LIST OF TABLES

Table No.	Title	Page No.
2-1	Summary of Complaints at Pine Tree Landfill, 2017 & 2018	2
3-1	Readings above 500 ppm found during 2017 & 2018 CH_4 Surface Scans	3

LIST OF FIGURES

Figure No.	Title	Page No.
3-1	Surface Scan Record Log for 2018	4

1.0 INTRODUCTION

In accordance with closure order #S-001987-WN-HC-N, conditions #11 and #16, an evaluation of the air monitoring results for the past year, including a comparison of the past year's results to the previous year's results is provided below.

Abiding by the Pine Tree Landfill (PTL) Post Closure Monitoring and Maintenance Manual, methane (CH_4) scans were performed using a MicroFID® (flame ionizing detector) or similar mobile device, and completed by walking an approximate 100 ft spacing grid over the entire landfill cover system. Cover penetrations (i.e. gas collection infrastructure) were also checked in addition to the grid walk.

Hydrogen sulfide (H_2S) monitoring with the single remaining stationary continuous monitor was discontinued during 2016 as discussed in the 2015 Annual Report. Approved by the MEDEP, this topic will not be discussed in this report.

Additionally, odor complaints from the 24-hour PTL odor complaint hotline provide an opportunity to evaluate the effectiveness of the cover system at the PTL.

2.0 ODOR COMPLAINTS

Odor Complaint history via the 24-hour PTL complaint hotline was recorded and provided in Table 2-1 below for 2017 and 2018. PTL did not receive any complaints during 2018 similar to 2017; confirming that odors are not a concern with the closed landfill.

Table 2-1 Summary of Complaints at Pine Tree Landfill, 2017 & 2018

2017	-OBJECT OF COMPLAINT-							MONTH
MONTH	ODOR	NOISE	LIGHTS	DUST	TRAFFIC	BIRDS	OTHER	TOTAL
JAN.	0	0	0	0	0	0	0	0
FEB.	0	0	0	0	0	0	0	0
MAR.	0	0	0	0	0	0	0	0
APR.	0	0	0	0	0	0	0	0
MAY	0	0	0	0	0	0	0	0
JUN.	0	0	0	0	0	0	0	0
JUL.	0	0	0	0	0	0	0	0
AUG.	0	0	0	0	0	0	0	0
SEP.	0	0	0	0	0	0	0	0
OCT.	0	0	0	0	0	0	0	0
NOV.	0	0	0	0	0	0	0	0
DEC.	0	0	0	0	0	0	0	0
TOTALS	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***

2018	-OBJECT OF COMPLAINT-							MONTH
MONTH	ODOR	NOISE	LIGHTS	DUST	TRAFFIC	BIRDS	OTHER	TOTAL
JAN.	0	0	0	0	0	0	0	0
FEB.	0	0	0	0	0	0	0	0
MAR.	0	0	0	0	0	0	0	0
APR.	0	0	0	0	0	0	0	0
MAY	0	0	0	0	0	0	0	0
JUN.	0	0	0	0	0	0	0	0
JUL.	0	0	0	0	0	0	0	0
AUG.	0	0	0	0	0	0	0	0
SEP.	0	0	0	0	0	0	0	0
OCT.	0	0	0	0	0	0	0	0
NOV.	0	0	0	0	0	0	0	0
DEC.	0	0	0	0	0	0	0	0
TOTALS	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***

3.0 CH_4 SURFACE SCANS

Landfill methane (CH_4) emission surface scans are performed to determine the effectiveness of final landfill cover system in controlling CH_4 migration. In accordance with Condition #16 of the Closure Order and the post-closure operations manual, an annual surface scan was performed on August 24, 2018. A copy of the 2018 surface scan is kept on file in the Environmental Manager's office.

Surface scans were completed in general accordance with the New Source Performance Standard (NSPS) for municipal solid waste (MSW) landfills contained in 40 Code of Federal Regulations (CFR) Part 60, Subpart WWW, specifically Section 60.753(d) which states that each owner or operator of a MSW landfill with a gas collection and control system shall: *"Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage…"* In addition, in accordance with MEDEP requests, each penetration through the cover system was also scanned to monitor if boots are functioning properly.

Surface scans were completed using a Micro FID® (flame ionizing detector) or similar mobile device that has a detection limit of 0.5 parts per million (ppm) and a concentration range of 0.5 to 50,000 ppm. During the 2018 scan, PTL staff did not encounter any locations that had CH_4 readings above the 500 ppm throughout the entire landfill cover system and all of its penetrations. This is compared to 3 locations that had been discovered the year prior. A breakdown of the number of readings above 500 ppm during 2017 and 2018 is listed in Table 3-1. A copy of the surface scan record log for 2018 is also shown in Figure 3-1.

Table 3-1 Readings above 500 ppm found during 2017 & 2018 CH_4 Surface Scans

Year	Total CH4 Readings Found >500 ppm
2017	3
2018	0

As the topography at PTL continues to settle and stabilize, gaps around the boots will occur, resulting in a need to continually check boots to prevent methane migration. Boots are checked routinely during well tuning activities.

Surface Scan

Date: 08/24/18	**Site Location: Pine Tree Landfill**
Employee: B. Awalt	**Equipment Used: Thermo TVA1000**

Time:	Location Description:	Northing:	Easting:	Exceedence:	Corrective Action:

NO Exceedences Found

Authorized Signature: JeffR **Date:** 08/24/18

Figure 3-1 Surface Scan Record Log for 2018

4.0 SUMMARY

In accordance with Conditions #11 and #16 of the closure order #S-001987-WN-HC-N, an annual Methane (CH_4) emission surface scan on the landfill final cover was completed. Additionally, review of the number of odor complaints from the 24-hour PTL odor complaint hotline provided an opportunity to evaluate the effectiveness of odor control measures at the PTL. Since no odor related complaints occurred in 2018 similar or 2017; this confirms that the final cover system is functioning properly in terms of odor control.

A surface scan were completed in August of 2018 using a Micro FID® (flame ionizing detector) or similar mobile device. During the 2018 scan, PTL staff did not encounter any locations that had CH_4 readings above the 500 ppm throughout the entire landfill cover system and all of its penetrations. This is compared to 3 locations that had been discovered the year prior.

ATTACHMENT F

GEOTECHNICAL MONITORING REPORT

RICHARD E. WARDWELL, P.E., Ph.D.
Geotechnical and Groundwater Engineer
19 Old Lake Rd., P.O. Box 169, Lake George, NY 12845

(518) 668-2406 office
arrew1@gmail.com

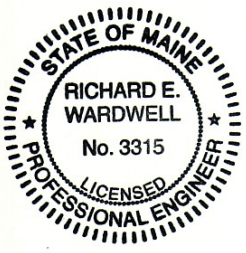
2018 Post-Closure Geotechnical Monitoring Report
Pine Tree Landfill Facility
Hampden, Maine

April 2019

Report to:

Pine Tree Landfill Facility
Hampden, Maine

Casella Waste Systems, Inc.
Saco, Maine



Richard E. Wardwell, P.E., Ph.D.
Lake George, NY 12845

A corporation providing hydrogeotechnical consulting services for engineering and environmental applications.

EXECUTIVE SUMMARY

This Geotechnical Monitoring Report has been prepared to summarize the results from post-closure monitoring that was performed for the Pine Tree Landfill during 2019. Final closure construction for the landfill was completed in 2010 with the placement of the cap over the top of Phase VIII-A/B and Phase VIII-C/Stage 1&2 – an activity that augmented the final cover that had been placed over Phases V, VI, VII, and VIII-C/Stage 3 during previous years.

Procedures that were implemented at the site in 2011 continued through 2018 as described in the Post-Closure Geotechnical Monitoring Plan (PCGMP, REW 2010b). Observational methodology was used to assure that the geotechnical performance of the landfill cover was consistent with the design analyses. To address the interrelationship between infiltration and cover stability, the performance of drainage features during the post-closure period was assessed by inspecting the condition of: 1) the cover surface, 2) the invert grades of the surface terraces, and 3) pipe outlets from the cover drainage layer. In the past, these observations were supplemented with topographic surveys of the landfill surface and drainage terraces.

To further augment these landfill observations, additional monuments, established in each phase of the landfill after closure, were tracked to assess the large-scale pattern of topographic variations across the landfill cover and to confirm settlement estimates. The horizontal and vertical movements of these monuments were measured to track displacements associated with potential instabilities and excessive strains that may affect the integrity of the cover system's drainage performance.

Consistent with operational and closure monitoring performed at the site since 1993, landfill observations indicate that the waste mass is stable, foundation soils are providing adequate support, and the cover is performing in accordance with design. There is no indication that there are excessive lateral displacements in the cover materials. Settlements are within tolerable limits and there is no indication that differential movements have impacted the ability of the landfill to shed surface water. Calculated cover strains derived from the observed displacements are de minimis and there are no indications that the internal drainage facilities are not collecting and discharging infiltration. Projections of the deformation rates through the 30-year post-closure period indicate the strains are consistent with design values.

Table of Contents

Executive Summary i
1. Introduction 1
2. Post-Closure Monitoring Program 4
  2.1 Closure Construction 4
  2.2 General Monitoring Program 4
  2.3 Large-Scale Cover Stability Monitoring 5
  2.4 Localized Cover Stability Monitoring 5
  2.5 Global Waste Mass/Foundation Stability Monitoring 7
3. Cover, Waste Mass, and Foundation Stability Monitoring 8
  3.1 Landfill Observations 8
  3.2 Post-Closure Survey of Drainage Terraces 8
  3.3 Waste Mass and Foundation Stability Data 9
  3.4 Cover Stability Data 11
    3.4.1 Overall Assessment of Cover Stability 11
    3.4.2 Phase VI Cover Stability 11
    3.4.3 Phase VII Cover Stability 13
    3.4.4 Phase VIII-A/B Cover Stability 13
    3.4.5 Phase VIII-C/Stage 1&2 Cover Stability 13
    3.4.6 Phase VIII-C/Stage 3 Cover Stability 15
    3.4.7 Overall Cover Stability Conclusions 15
4. Cover Strain Monitoring 17
  4.1 General Procedure for Evaluating Cover Strain 17
  4.2 Phase VI 19
    4.2.1 Historic Monitoring 19
    4.2.2 Phase VI Post-Closure Monitoring 19
  4.3 Phase VII 19
  4.4 Phase VIII-A/B 22
  4.5 Phase VIII-C/Stage 1&2 24
  4.6 Phase VIII-C/Stage 3 27
  4.7 Overall Cover Integrity 27
5. Summary 30
References 31

List of Figures & Table

Figure 1-1: Site Plan, Pine Tree Landfill, Hampden, Maine 2
Figure 2-1: Location of Monitoring Instruments and Survey Monuments 6
Figure 3-1: Phase I-V Displacement Monuments 10
Figure 3-2: Phase VI & VII Monuments, Horizontal Displacement 12
Figure 3-3: Phase VIII-A/B Monuments, Horizontal Displacement 14
Figure 3-4: Phase VIII-C, Stage 1&2, Stage 3 Monuments, Horizontal Displacement 16
Table 4-1: Displacement Monuments - Location & Secondary Compression Rates 18
Figure 4-1: Phase VI Post-Closure Grades 20
Figure 4-2: Phase VII Post-Closure Grades 21
Figure 4-3: Phase VIII-A/B Post-Closure Grades 23
Figure 4-4: Transitional Phase I-V to VIII-A/B Post-Closure Grades 25
Figure 4-5: Phase VIII-C/Stage 1&2 Post-Closure Grades 26
Figure 4-6: Phase VIII-C/Stage 3 Post-Closure Grades 28

2018 Post-Closure Geotechnical Monitoring Report
Pine Tree Landfill Facility, Hampden, Maine

1. INTRODUCTION

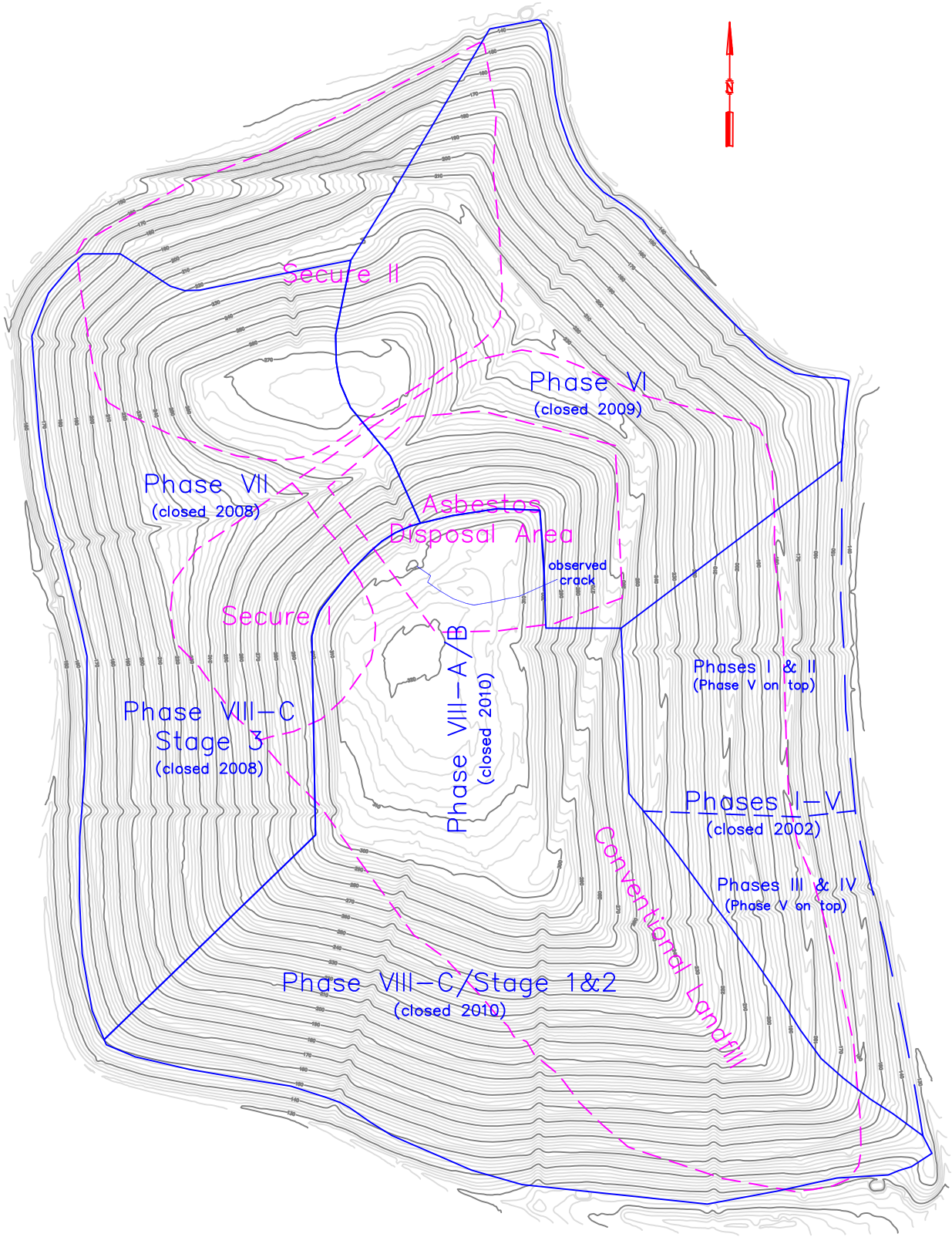
This 2018 Post-Closure Geotechnical Monitoring Report (PCGMR) describes the stability and settlement monitoring activities that were conducted during the past year at the Pine Tree Landfill (PTL) facility in Hampden, Maine. Figure 1-1 presents a site map for the PTL facility and shows the historic landfill areas (i.e. Conventional, asbestos, Secure I, and Secure II landfills), and the development phases for the Secure III expansion. Phases VII and VIII-C/Stage 3 were covered in 2008 and subsequently monitored to assure consistency with anticipated post-closure behavior. Phase VI reached final grade and was capped in 2009. Subsequent to this, waste was placed in Phases VIII-A/B and VIII-C/Stage 1&2 until final grade was attained by the end of 2009 and the area was covered in 2010.

In accordance with the Post-Closure Geotechnical Monitoring Plan (PCGMP, REW 2010b), site observations and displacement monitoring of the cover system were emphasized in 2018. Post-closure activities included additional tasks and schedules for topographic surveying and performance monitoring of surface drainage features and internal collection pipes provided in the cover system. The PCGMP is based in part on the cover stability analysis (SME 2007, 2008) and settlement assessment (REW 2007b). It is consistent with the Closure Geotechnical Monitoring Plan (CGMP) that was part of the Closure Application approved by the Maine Department of Environmental Protection (MEDEP) in Closure Order #S-001987-WN-HC-N (MEDEP 2008). In developing the PCGMP, the closure plan was updated to address Conditions 14, 22, and 23 of the Closure Order that required the PCGMP to monitor the geotechnical behavior of the cover system and to provide an evaluation of the data in the Annual Report.

As discussed further herein, the integrity of the drainage system installed in the final cover system is a key component necessary to maintain stability through the post-closure period. Based on these considerations, post-closure monitoring focused on the physical observations of the performance of the cover system by inspecting the condition of the vegetative layer, the integrity of the slope grades, and the flow characteristics of the drainage pipes. To supplement these observations, the overall surface elevation of the landfill was conducted up to 2015 with the terrace surveys performed in subsequent years. In addition, the horizontal and vertical movements of survey monuments at specific locations over the landfill surface were tracked to measure displacements that might be indicative of cover instabilities and excessive strains that could impact the integrity of drainage facilities for the cap system.

A summary of specific monitoring tasks for the landfill during 2018 included:

- periodic visual observations of the landfill cover;
- terrace survey (SME 2018b);
- monitoring of foundation and waste mass stability with VDMs;
- measurements of surface displacement monuments that have been established to detect movements indicative of cover instabilities and differential settlements;
- data evaluation, interpretation, and reporting.



(Ref: 09-17-15 aerial survey by SME)

Richard E. Wardwell, P.E., Ph.D. 19 Old Lake RD, PO Box 169 Lake George, NY 12845	Project: 2018 Post-Closure Monitoring Report	Title: Site Plan - Pine Tree Landfill Hampden, Maine		By: REW Checked: REW Date: March 2019
	Client: Pine Tree Landfill, Hampden, ME	Project No: 1750	Scale: 1" = 250'	Fig. No: 1-1

To comply with Condition 23 of the Closure Order (MEDEP 2009), cover strains between adjacent monuments have been calculated and foundation soil movements have been tracked using the existing vertical displacement monuments (VDMs).

General observations of the cover system and results from the survey measurements of the displacement monuments are summarized in this report. This information supplements the results from the inspections of the surface and subsurface drainage facilities installed in the cover system that are summarized in other sections of the annual report.

As discussed in detail within this report, cover deformations are within tolerable limits, thus demonstrating that resulting strains are acceptable and that the integrity of the drainage facilities within the cover system have not likely been compromised to date. Furthermore, ongoing surveys and observations verified that stability of the landfill and its cover have been achieved during the post-closure period.

2. POST-CLOSURE MONITORING PROGRAM

The Secure III Landfill was a multi-phased, lined facility meeting the MEDEP requirements for a secure landfill. Portions of it piggyback onto the previous landfill areas. The history of landfill development at the site (illustrated in Figure 1-1) has been summarized in previous plans and annual reports (REW 2005, 2006, 2007a, 2008, 2009, 2010a, 2010b, 2011). A description of the monitoring performed during this first six years of the post-closure period was presented in previous annual reports (REW 2012 to 2018) while the observations during this past year is provided herein.

2.1 CLOSURE CONSTRUCTION

The final cover was constructed in multiple phases using various cover buildups and drainage features. Closures have included the Phase I-V closure in 2002 and the Secure III Expansion areas (Phases VI, VII, and VIII) which were closed over a three year period beginning in 2008 and ending in 2010.

Phase VII and Phase VIII-C, Stage 3 areas were closed in 2008 and have a cover system that includes from the bottom up: 6" bedding layer of sand, a barrier layer consisting of 2' of compacted clay and a LLDPE geomembrane, a drainage layer consisting of a geocomposite drainage net (GDN) and 1' of sand, and a 1' vegetative layer. The Phase VI area was closed in 2009 and has the same cover buildup as the 2008 closure, except construction and demolition (C&D) fines were used as the bedding layer and the GDN was not used in the drainage layer.

Phases VIII-A/B and VIII-C/Stages 1&2 areas were closed in 2010 and have a cover on the side-slope areas similar to the cover used for Phase VI except the clay thickness was reduced to 1.5'. On the top of the Phase VIII-A/B area, the barrier soil layer below the geomembrane consisted of 1' of clay and a geosynthetic clay liner (GCL).

All the cover systems included an extensive system of drainage piping located in the sand above the geomembrane to collect and convey infiltrated water to discharge points typically located in surface water down-chutes. As will be discussed further in the next section, the drainage system, including the collection pipes, is integral to maintaining stability of the cover system.

2.2 GENERAL MONITORING PROGRAM

Geotechnical monitoring in 2018 focused on observations and measurements of cover drainage, stability, and strains in various landfill components. In addition, waste-mass and foundation stability was monitored by the site observations and displacement monitoring of the cover system and foundation.

Cover stability is primarily affected by the ability of the system to shed precipitation and drain infiltration. The performance of the cover may be directly impacted by: 1) degradation of the cover system that could reduce runoff, increase infiltration, and hinder subsurface drainage efficiency; and 2) landfill settlement that has the potential to reduce and distort surface grades

resulting in less water runoff and impacting the performance of the internal drainage layer within the cover system. Degradation of the cover system can be due to a number of causes such as cracking and erosion of the vegetative soil layer, animal burrows, lateral movements and settlement, excessive woody growth, and landfill gas. These impacts may result in the inability of the cover to shed runoff, which would be indicated by ponded water, grass kills, changes in drainage pipe flows over time, and sediment transport through drainage pipes.

Landfill settlement results from waste consolidation and waste mass decomposition. Settlement may affect cover integrity by: 1) imposing excessive strain on the barrier layer and GDN, 2) reducing runoff and increasing infiltration, and 3) reducing the effectiveness of the internal drainage system in the cover. Settlement may also exceed the design capacity of landfill gas wells and pipe boots to accommodate such movement.

To monitor these potential impacts, the landfill cover was inspected under the direction of a qualified geotechnical engineer. Observations were performed four times during 2018. The performance of external and internal drainage facilities was visually inspected during the post-closure period and summarized in the annual report. These observations were augmented with a survey of the landfills surface drainage terraces.

Because landfill settlement may not be always discernible by visual inspection, elevation measurements at specific landfill locations (shown on Figure 2-1) were made during the past year. Monuments pins were established at these locations to allow for tracking of both horizontal and vertical displacements.

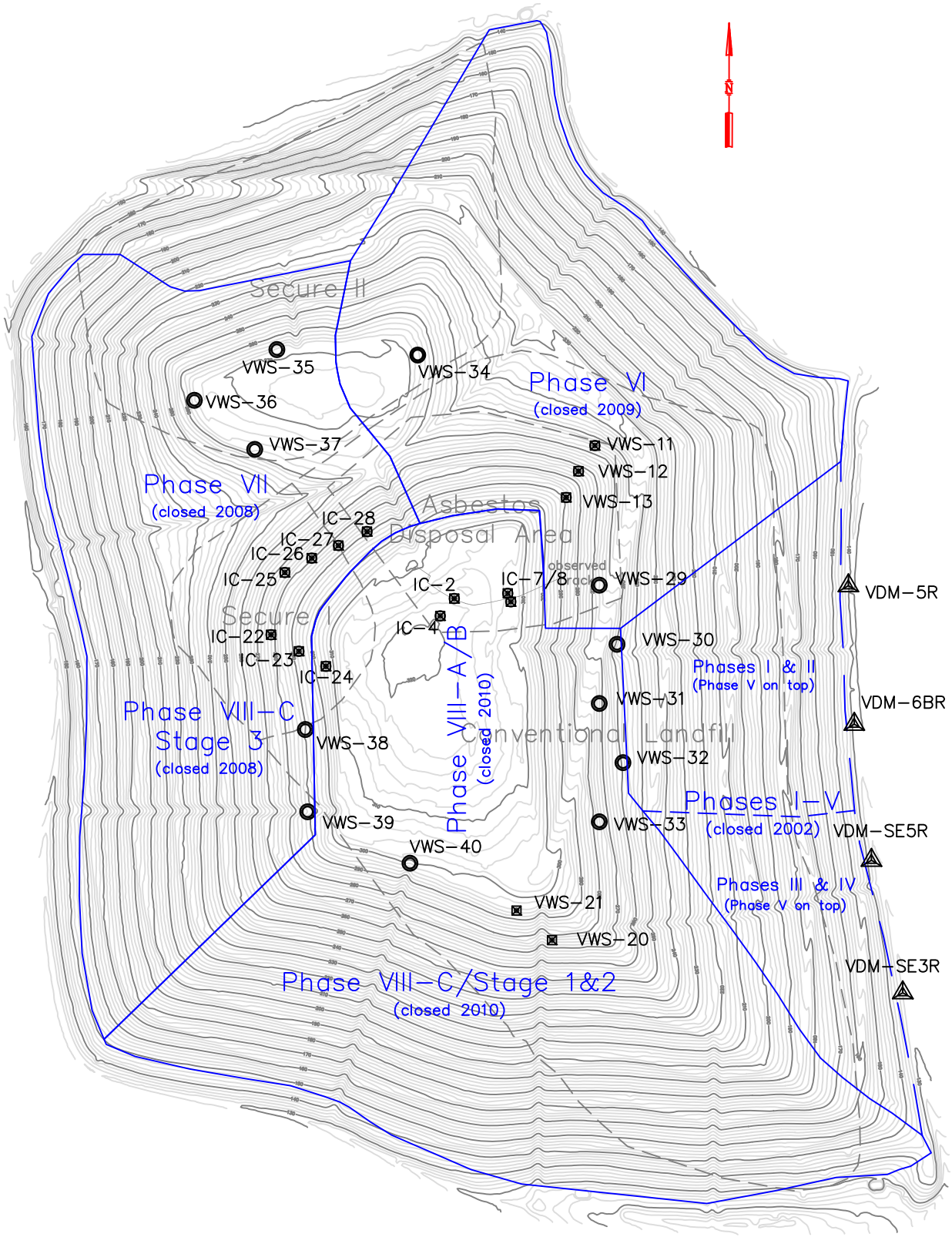
2.3 LARGE-SCALE COVER STABILITY MONITORING

Monitoring for large-scale cover stability was performed to detect slope displacements or conditions that could lead to deformations before larger displacements occur. This was primarily achieved through visual observations, supplemented by topographic surveying of monuments and the surface drainage features discussed herein (see §§3.1 – 3.3).

Visual observations by others were focused towards identifying adverse performance characteristics before they propagate to larger scale displacements that might compromise the integrity of the cover system. Attention was paid towards: 1) observing the overall surface geometry and cover condition of the landfill, and 2) looking for evidence of extensive surface cracking, large scale depressions, and large scale toe heaving, among others. During this post-closure period, special emphasis was placed on the observations of the landfill surface, the appearance of the drainage terraces, and the condition of the outlet end of the drain pipes above the geomembrane.

2.4 LOCALIZED COVER STABILITY MONITORING

For assessing localized movements, site observations by others have focused on identifying neighborhood cracks, differential movement, or heaving in the cover that could lead to subsequent excessive movements. Evidence of the erosion of cover material and ditch linings was also assessed. Deformation of the cover system was monitored by a GPS survey of



(Ref: 09-17-15 aerial survey by SME)

Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Post-Closure Monitoring Report	Title: Location of Monitoring Instruments & Survey Monuments		By: REW Checked: REW Date: March 2019
	Client: Pine Tree Landfill, Hampden, ME	Project No: 1750	Scale: 1" = 250'	Fig. No: 2-1

monuments placed on the cover for each phase of landfill development. These survey monuments, shown on Figure 2-1, include both the historic locations of the operational instrument clusters (the IC-series) and additional monuments selected to extend the coverage over each phase of the landfill cover (the VWS-series). As mentioned, monument pins have been installed at these survey locations to measure both horizontal and vertical displacements.

Measurements of the monument locations performed during 2018 discussed herein augment the previous data to provide: 1) information on the large-scale pattern of topographic variations across the cover, 2) measurements of actual surface deformations that can be compared to historic values to ascertain consistency with design assumptions, 3) identification of anomalies that may be indicative of instabilities across a large portion of the landfill surface, and 4) a means of quantifying trends that might either verify design assumptions or indicate deviations that may need further monitoring and/or evaluation.

2.5 GLOBAL WASTE MASS/FOUNDATION STABILITY MONITORING

Global waste mass stability monitoring focused on identifying signs of large scale deformations that extend below the cover system into the waste mass and through the foundation soils where the landfill is underlain with native silty clay. To assess waste mass stability, visual observations and surveys by others were used to monitor surface displacements.

Foundation stability was also monitored during post-closure by instrumentation installed during landfill development along the eastern side of Phases I-V. As shown on Figure 2-1, slope stability was measured by VDMs at the toe of the landfill to confirm the design conditions during the post-closure period. Details of the monitoring data from these instruments are discussed in Section 3.2.

3. COVER, WASTE MASS, AND FOUNDATION STABILITY MONITORING

Cover, waste mass, and foundation stability were assessed by the site observations augmented with assessment of horizontal and vertical deformations made at each of the displacement monuments established over the surface of the landfill. As will be discussed in more detail in Section 4, vertical settlement of the cover system during 2018 occurred at uniform rates expected for waste settlement with no erratic outliers that may be indicative of surface instabilities. Therefore, the assessment of cover stability to date is focused on the horizontal movements of the monuments. Details of the stability monitoring results are discussed further in this section.

3.1 LANDFILL OBSERVATIONS

The results of landfill observations by others are presented in the annual report. With the one exception noted next, all of the closure slopes appear to be intact with no noticeable deformations or indications of excessive differential settlements.

As an exception, observations during an April 19, 2018 inspection by others (SME 2018a) indicated the need for repairs of surface water conveyance structures to improve surface water drainage from the Secure II and Secure Ill cover systems. Specifically, this inspection identified two conditions that suggested short circuiting of surface water flow that, in turn, contribute to Secure II leachate flows that included: (1) damage to several pipe inlets collecting drainage from the top and sideslopes of the Secure III, and (2) a breach riprap lined surface water drainage ditch that conveys water from the cover that overlies the top and upper northern sideslopes of Secure II. As described in detail elsewhere (SME 2018a), the repairs to the inlet structures included excavating the area around the flared end, replacing the damaged flared ends, and adding a new flared inlet to the upper most point of the east side drainage pipe, while the breach in the surface water ditch was repaired by removing existing riprap over the entire length of the drainage ditch and reconstructing the ditch to maintain a consistent slope.

With these repairs, these areas and the remainder of the landfill cover sheds runoff as designed with no indication of ponded water, surface cracking, leachate breakouts, toe heaving, or excessive topographic variations. Landfill geometry, erosion resistance, and cover appearance are indicative of a stable system at the time of the observations. The topographic survey indicated waste slope angles consistent with design with no apparent depressions or discontinuities in the slope of the drainage ditches that might be indicative of instabilities. In summary, ground observations and the results from the topographic surveys do not suggest potential landfill slope instabilities or undesirable cover settlement.

3.2 POST-CLOSURE SURVEY OF DRAINAGE TERRACES

In accordance with the 2010 Post-Closure Geotechnical Monitoring Plan, during 2018 Sevee & Maher Engineers, Inc. (SME) completed a ground survey of the drainage terraces on August 21 and August 27 to augment previous measurements (SME 2011, 2012, 2014, 2017) to verify the discharge performance of these drainage features during the post-closure period. As described in the SME report (SME 2018), details of this survey, demonstrates that, while

over the entire terrace length of these terraces there is still positive drainage, water may pond in the low point areas before draining from both the terrace and the sand underdrain located below the terrace. While these sags would result in some retention of surface water runoff, SME concluded that it would not result in flows over the top of the berm or limit the terrace from draining surface water from the cover.

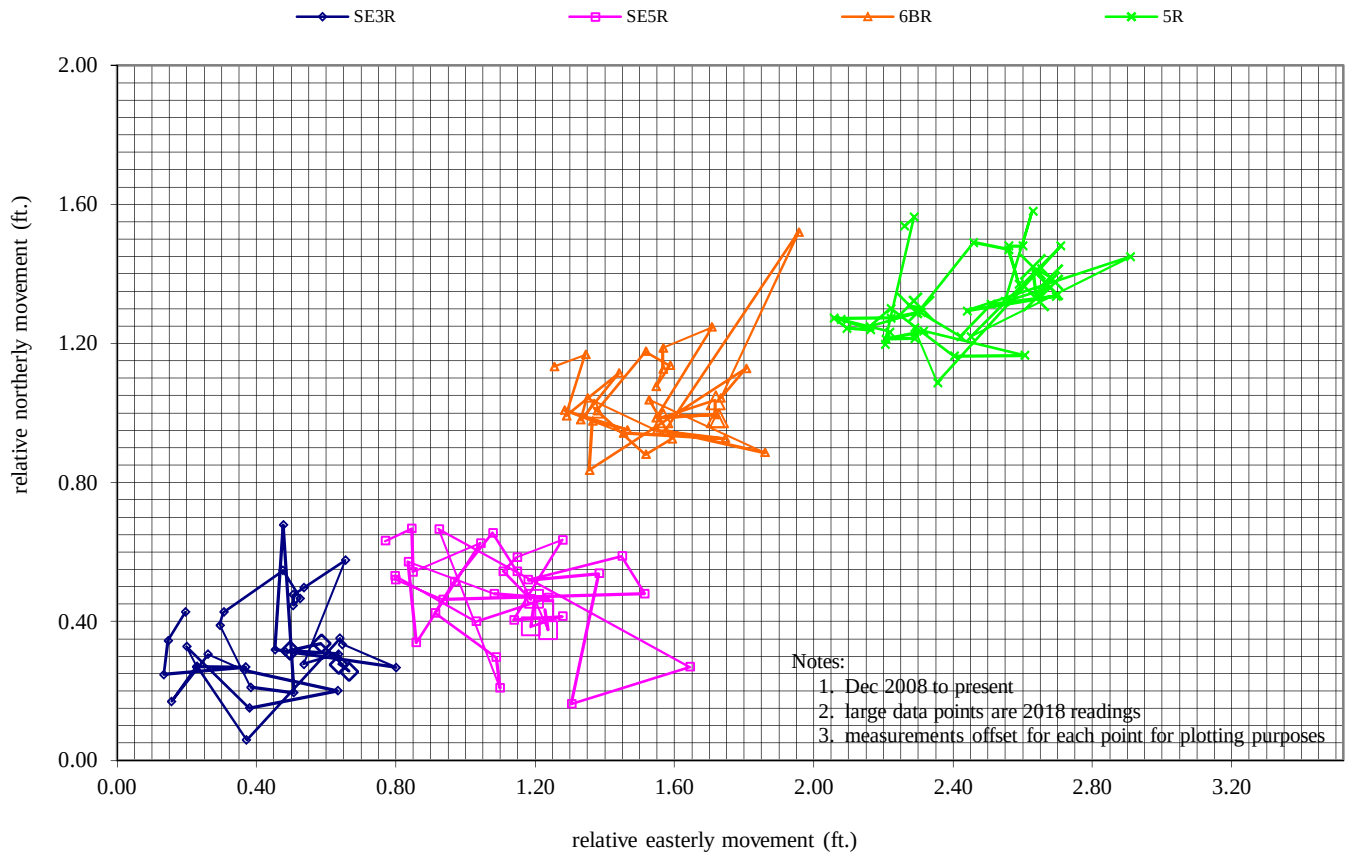
The noted sags of the cover where water may pond will be monitored during 2019 as part of the routine cover inspections to ascertain the potential for the cover soil to become saturated or displaced sufficiently to trigger further actions. If either of these conditions exists, they should be brought to the attention of the site's engineer for an evaluation of additional remedial measures to re-establish drainage in this area.

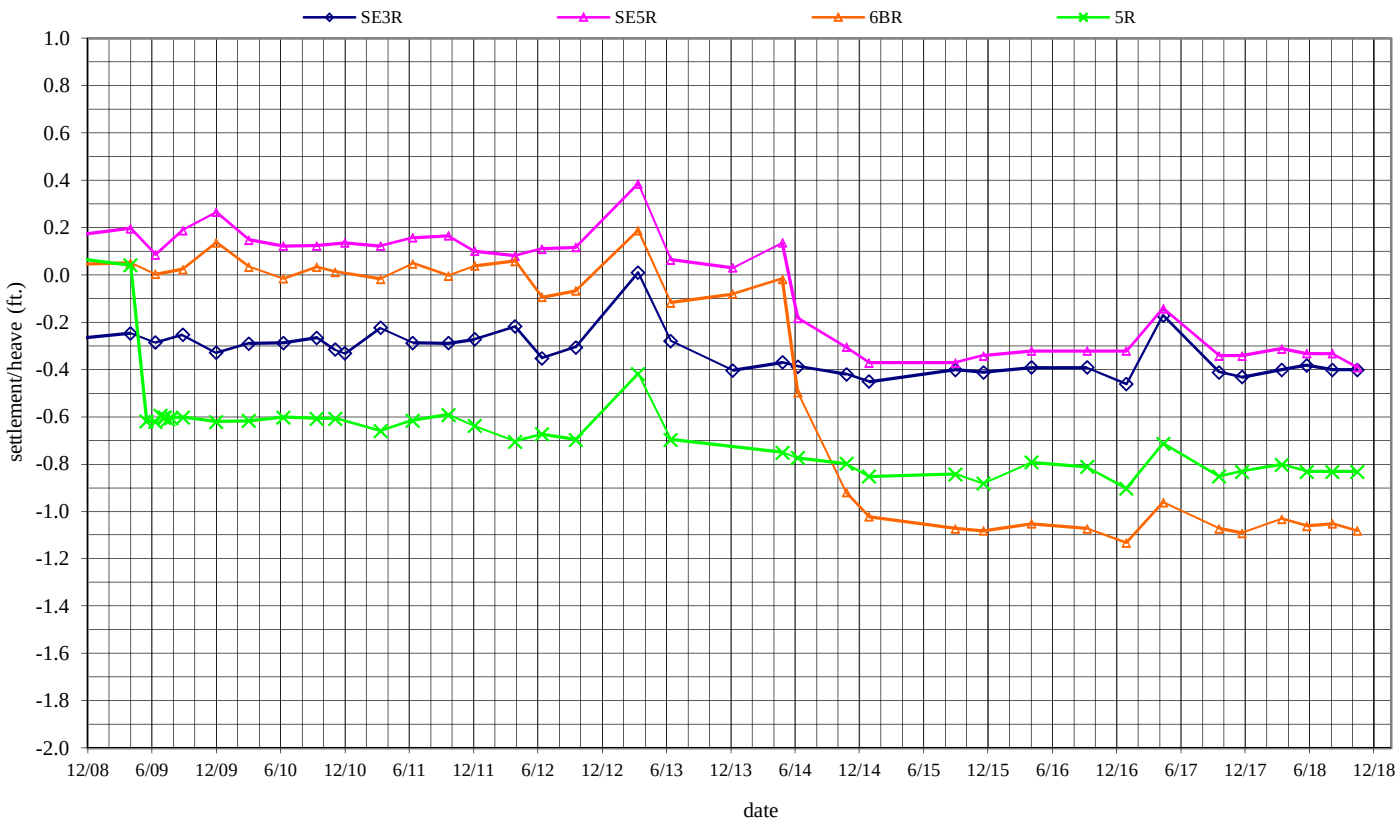
3.3 WASTE MASS AND FOUNDATION STABILITY DATA

Figure 2-1 shows the locations of the stability instruments that were monitored during post-closure at PTL. During 2003, four VDMs (i.e. VDM-SE3R, SE5R, 6BR, 5R) were installed along the eastern toe of Phases I-V of Secure III to monitor waste mass and foundation stability after completion of the cover liner system for this area.

Horizontal and vertical movements of the VDMs with time are shown on Figure 3-1. The relative change in horizontal position is based on the difference from the January 2003 baseline position that is added to a constant offset for plotting purposes. Historically, while this area was being actively loaded, the VDMs showed a gradual increase (or heave) ranging from 0.05 to 0.09 feet. A slight heave is expected as typical elastic deformation and is the result of the difference in relief between the landfill and the natural ground beyond the landfill toe. Total anticipated heave at the toe of the landfill due to elastic deformation of the foundation soil was previously calculated to be in the order of 0.5 to 0.6 feet (SME 2004). In 2009, the elevation of VDM-5R dropped by more than ½-ft. due to construction disturbance during installation of a structure for the gas collection system that occurred next to this instrument.

The heave observed during operations has ceased over the past nine years now that waste placement is complete and final cover is in-place. As indicated by the recent data and confirmed by the 2018 data, there does not appear to be any trend in the vertical or relative horizontal displacements indicating stability concerns. Differences in the horizontal readings are likely a reflection of survey variations rather than actual movements of the monuments. Two of the four monuments (SE5R and 6BR) indicate settlement during 2014 and leveled off with 0.5 to 1.0 ft. of settlement respectively for the two instruments. It is likely that human influence (from annual mowing) caused these unusual movements. All of the instruments indicate an anomalous heave during the April 2017 survey, but returned to expected levels during subsequent surveys during the rest of the year and through 2018. Regardless, these measurements do not appear to be associated with instabilities given the lack of trending horizontal movements in the monitoring pin locations that would be expected with slope deformations.





Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Post-Closure Geotechnical Monitoring Report	Title: Phase I-V Displacement Monuments		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 3-1

3.4 COVER STABILITY DATA

As summarized in Section 2.1, the final landfill cap was constructed in multiple phases using various cover buildups and drainage features. Site observations of cover stability were augmented by the establishment and measurement of positional changes in monitoring pins placed into the cover system. The overall assessment of stability followed by the results of the survey monitoring is presented in this section.

3.4.1 Overall Assessment of Cover Stability

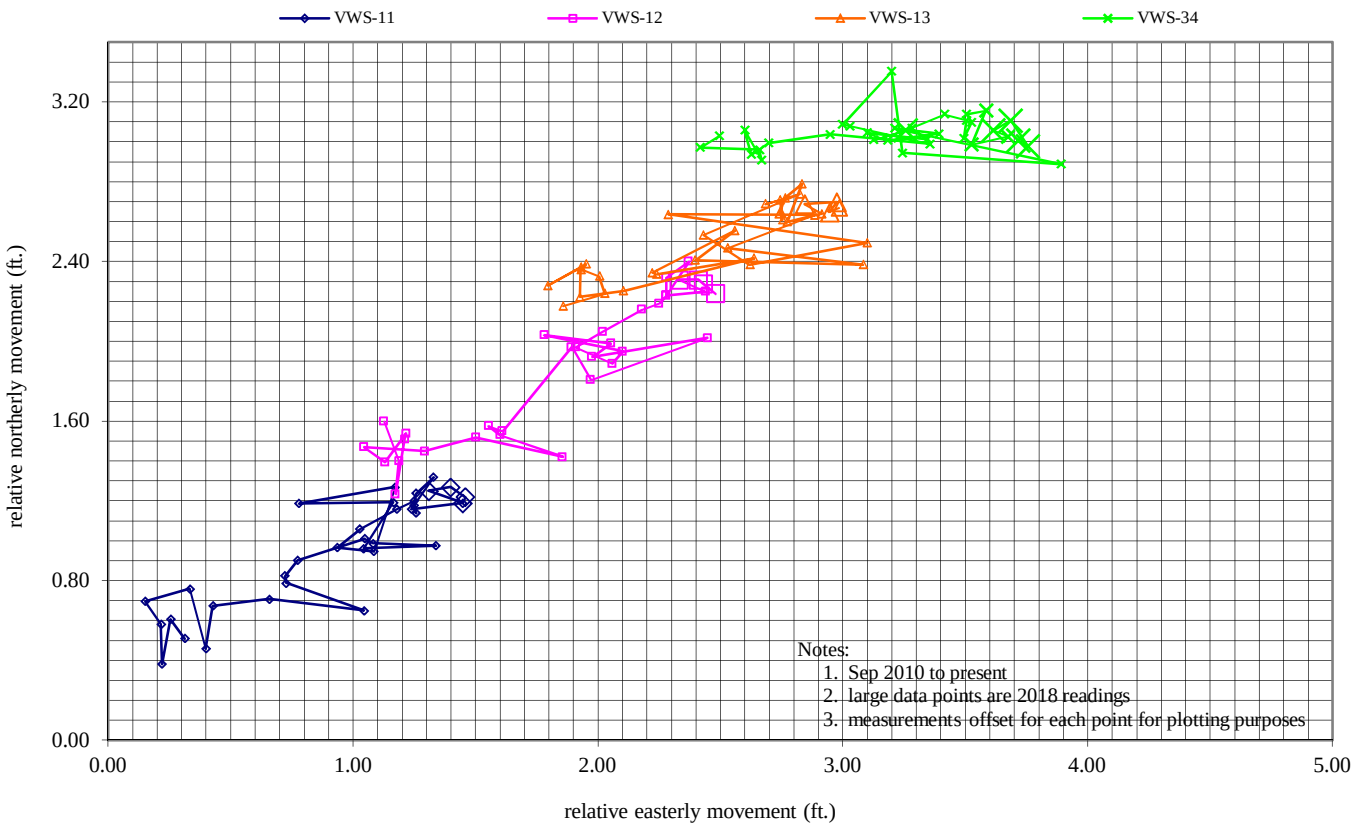
As summarized below, the survey movements appear random with no trends indicative of lateral movements in the cover. Site observations did not detect any surface movements, and survey data did not measure any outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste. All of these facts support the conclusion that, to date, the cover system appears stable and is performing as anticipated during design.

The random horizontal movements of the cover presented below are similar in shape to the movements detected by the VDMs in the foundation soils discussed in the previous section and with survey monuments at other landfill facilities (e.g. REW 2006-2009). Having said this, while it was previously noted that a somewhat larger variation in the total range of cover movements were observed during the first four years of post-closure monitoring, the data for the past four years have shown a tighter cluster of movements. Review of the landfill cover observations (confirming that there was no surface cracking or localized grade changes indicative of instability) combined with the terrace surveys and recent data concludes that the larger range in the 2011 – 2014 survey measurements are associated with increased aleatory and epistemic variations.

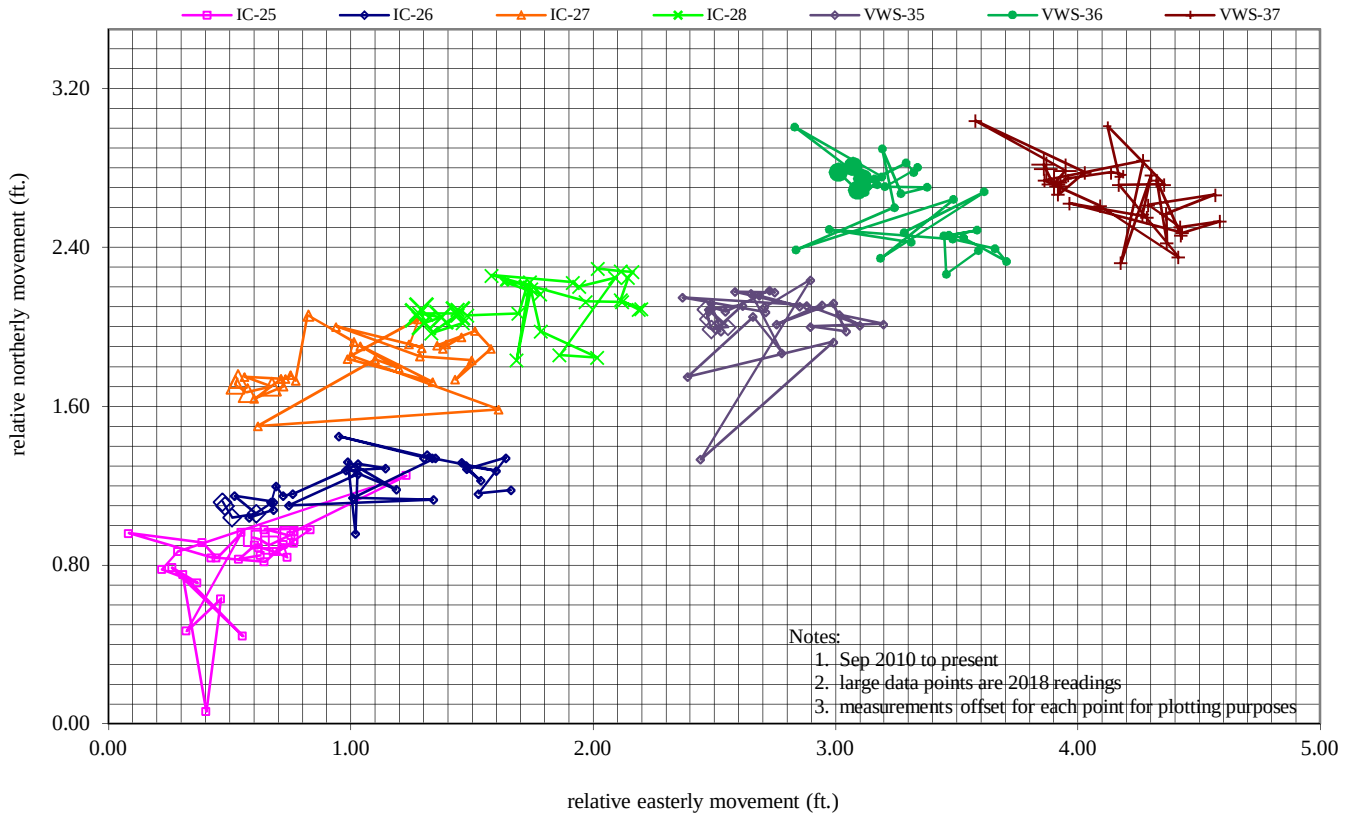
All of the observations, including the lack of trends in the survey measurements, indicate that the cover is performing as anticipated during design. Discussion of the movements for each phase of landfill development are described in the following sections.

3.4.2 Phase VI Cover Stability

The Phase VI area was closed by the beginning of 2010 with a cover system that includes a bedding layer of C&D fines, a composite barrier of compacted clay and a geomembrane, a drainage layer of sand, and a vegetative layer. As shown on Figure 2-1, four monument pins (VWS-11,-12, -13, and -34) were established at selected locations over the Phase VI area. The relative horizontal movement of the pins is shown on Figure 3-2a. The relative change in horizontal position is based on the difference from the August 2010 baseline position that is added to a constant offset for plotting purposes. While there appears to be a general trend in the expected downslope (i.e. east northeasterly) direction due to creep, these movements (with no visible signs of field deformations or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) do not indicate trends that might be indicative of cover instabilities.



A. Phase VI Horizontal Displacement



B. Phase VII Horizontal Displacement

Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Post-Closure Geotechnical Monitoring Report	Title: Phase VI & VII Monuments, Horizontal Displacement		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 3-2

3.4.3 Phase VII Cover Stability

Phase VII was closed by the beginning of 2009 with a cover system that includes a bedding layer of sand, a composite barrier consisting of compacted clay and geomembrane, a drainage layer consisting of a GDN and sand, and a vegetative layer. As shown on Figure 2-1, seven monument pins (IC-25, -26, -27, -28; VWS-35, -36, and -37) were established at selected locations over the Phase VII area. The relative horizontal movement of the pins is shown on Figure 3-2b. The relative change in horizontal position is based on the difference from the August 2010 baseline position that is added to a constant offset for plotting purposes. While previous monitoring indicated that IC-26 appeared to have some minor movements, as expected, in the downslope (i.e. westerly) direction likely due to creep, the measurements made the last four years support the conclusion that some of the variations in pin locations are associated with the accuracy of the survey readings. Overall, the measured movements (with no visible signs of field deformations or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) do not indicate any trends indicative of cover instabilities.

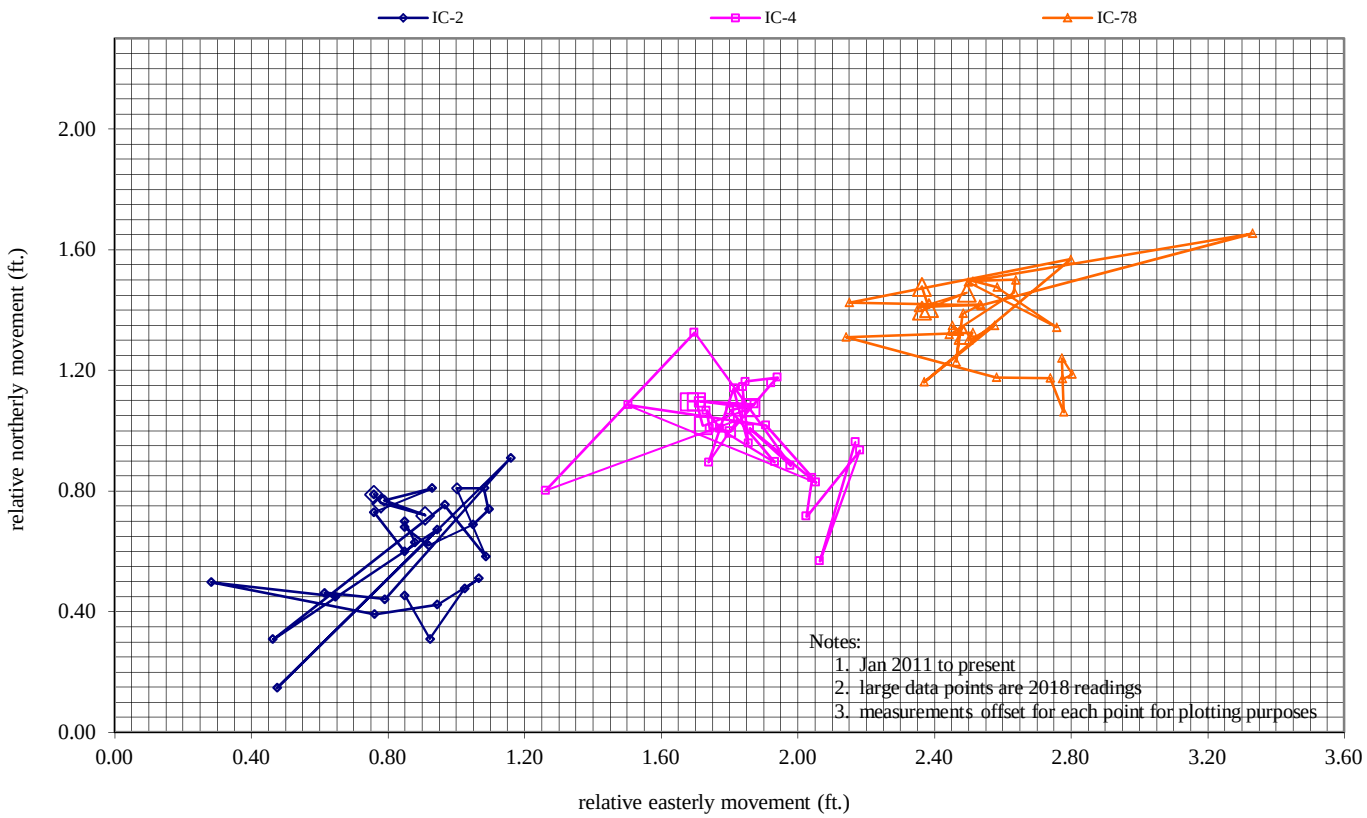
3.4.4 Phase VIII-A/B Cover Stability

Phase VIII-A/B area was closed in 2010 with cover on the top area consisting of a bedding layer of C&D fines, a composite barrier of compacted clay/GCL and a geomembrane, a drainage layer of sand, and a vegetative layer. As shown on Figure 2-1, three monument pins (IC-2,-4, and -78) were established at instrumentation locations in the Phase VIII-A/B area. The relative horizontal movement of the pins is shown on Figure 3-3a. The relative change in horizontal position is based on the difference from the December 2010 baseline position that is added to a constant offset for plotting purposes. To date, these movements (with no visible signs of field deformations or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) do not indicate any trends that might be indicative of cover instabilities.

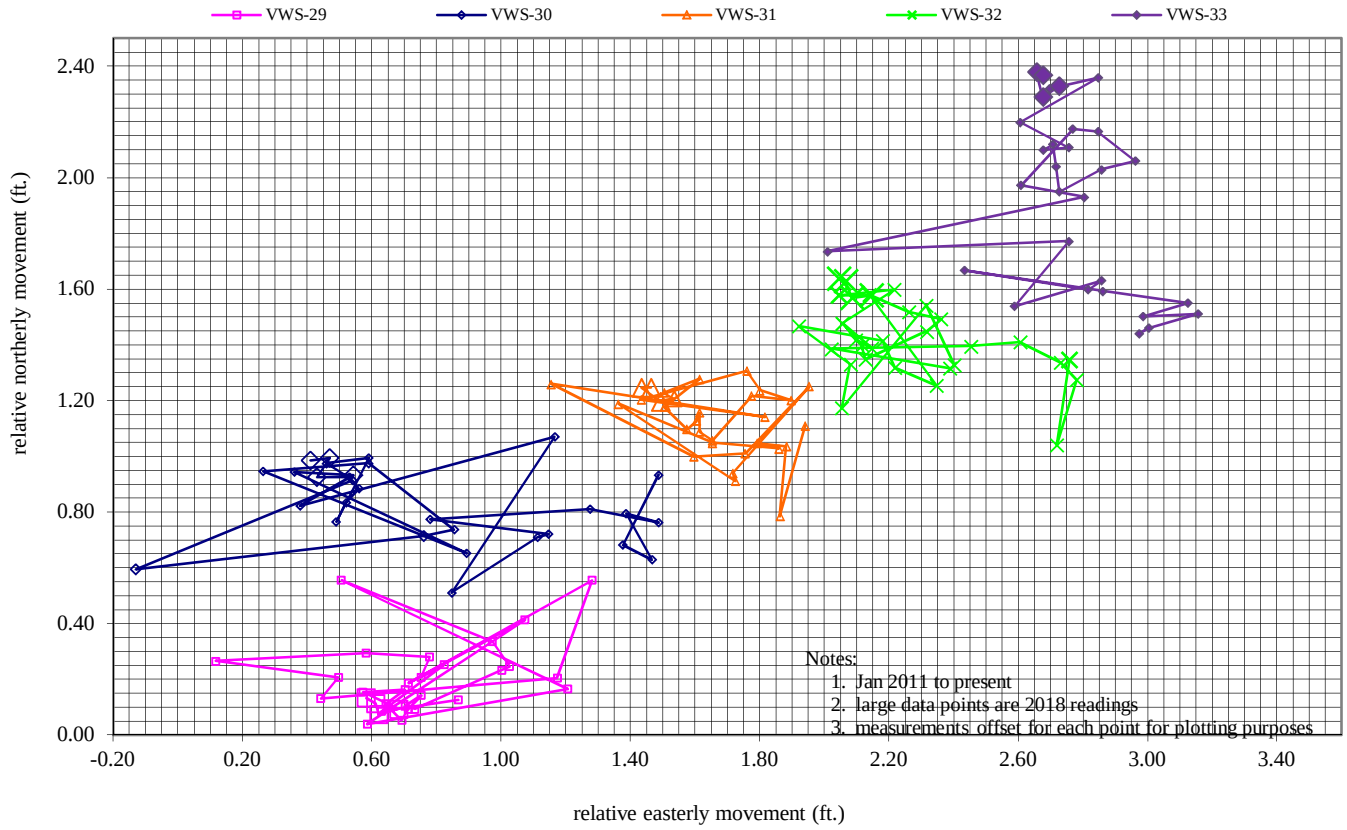
As also shown on Figure 2-1, five additional monument pins (VWS-29 to -33) were established at the interface between Phase I-V and VIII-A/B where the closure design indicated the maximum differential settlement of the cover system (REW 2007b). As presented in Figure 3-3b, deformations to date appear to be random movements associated with the variations in the data mentioned above. Previous trends suggesting a slight trend in a westerly, upslope direction have been contradicted by the recent easterly movements. The resulting random movements and the lack of visible signs of field deformations (or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) indicate that the measured movements are not indicative of cover instabilities.

3.4.5 Phase VIII-C/Stage 1&2 Cover Stability

Phase VIII-C/Stages 1&2 area was closed in 2010 with a bedding layer of C&D fines, a composite barrier of compacted clay, GCL, and a geomembrane; a drainage layer of sand; and a vegetative layer. As shown on Figure 2-1, three monument pins (VWS-20,-21, and -40) were established at selected locations over the Phase VIII-C/Stage 1&2 area. The relative horizontal



A. Phase VIII-A/B Horizontal Displacement



B. Phase V to VIII-A/B Transitional Horizontal Displacement

Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VIII-A/B Monuments, Horizontal Displacement		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 3-3

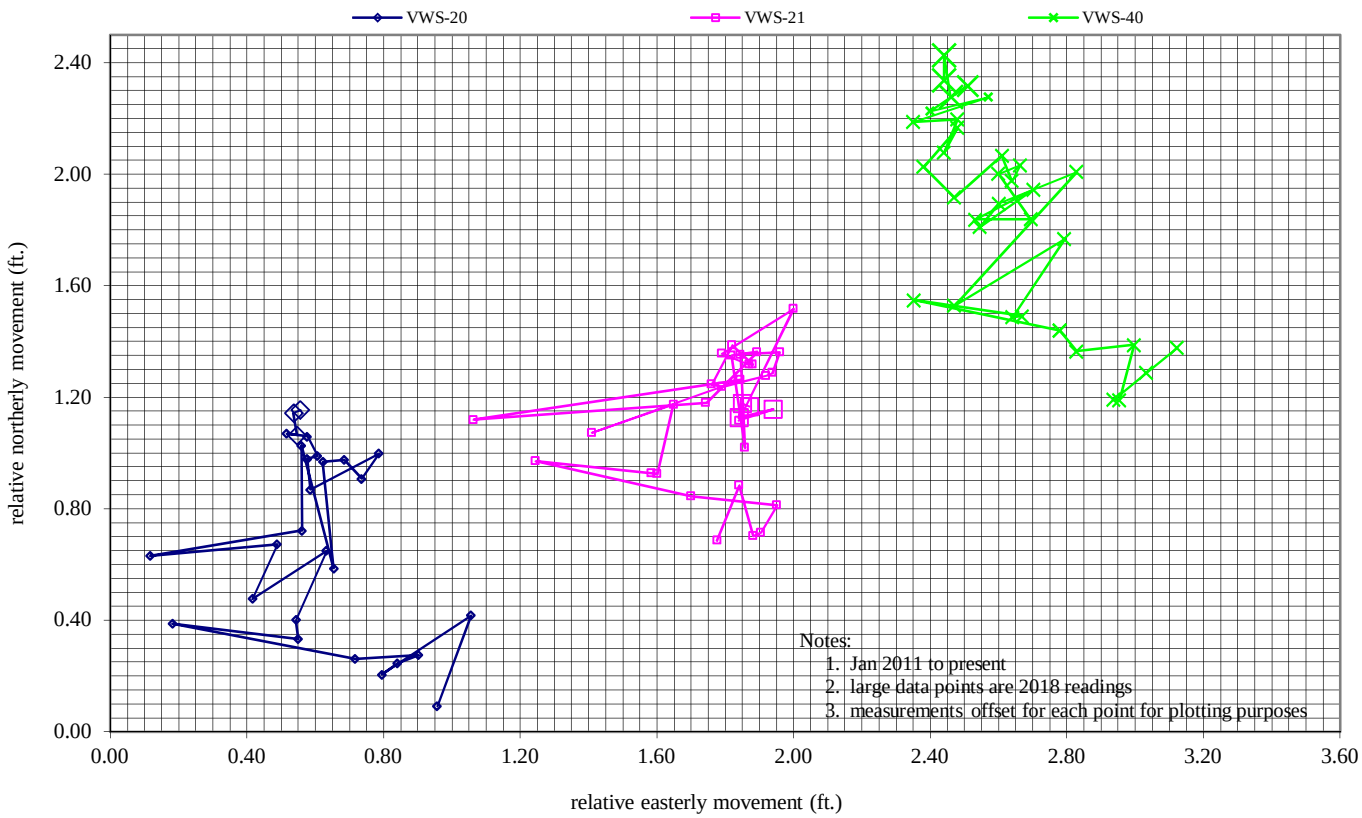
movement of the pins is shown on Figure 3-4a. The relative change in horizontal position is based on the difference from the December 2010 baseline position that is added to a constant offset for plotting purposes. To date, these movements (with no visible signs of field deformations or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) do not indicate any trends that might be indicative of cover instabilities. If anything, the movements appear to be in a northerly upslope direction – an unexpected result that is likely a reflection of the survey inaccuracies previously described.

3.4.6 Phase VIII-C/Stage 3 Cover Stability

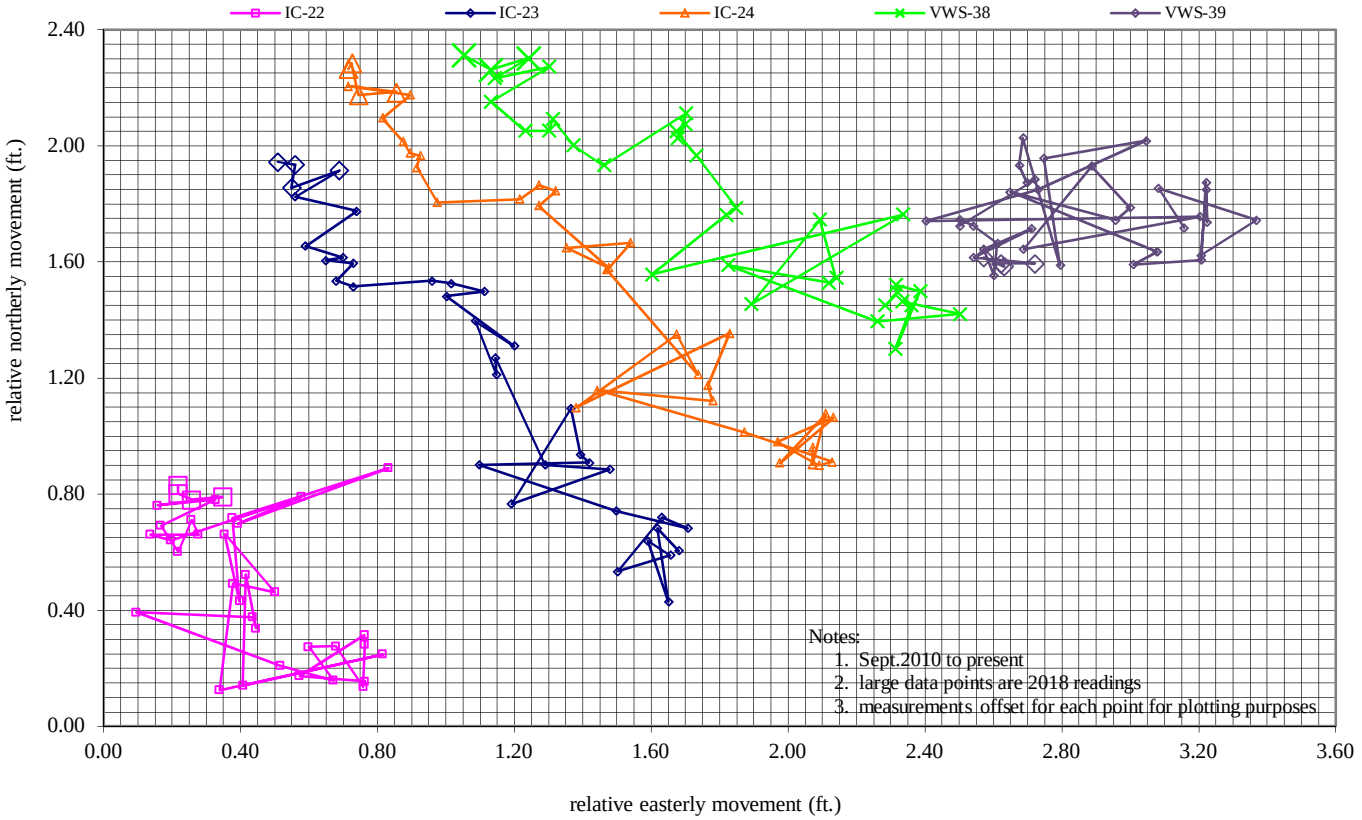
Beginning in 2009, Phase VIII-C/Stage 3 was closed with a cover system that includes a bedding layer of sand, a composite barrier consisting of compacted clay and geomembrane, a drainage layer consisting of a GDN and sand, and a vegetative layer. As shown on Figure 2-1, five monument pins (IC-22, -23, -24; VWS-38, and -39) were established at selected locations over the Phase VIII-C/Stage 3 area. The relative horizontal movement of the pins is shown on Figure 3-4b. The relative change in horizontal position is based on the difference from the August 2010 baseline position that is added to a constant offset for plotting purposes. The pins demonstrated continual random measurements consistent with previous post-closure values. While there appeared to be a general trend in the expected downslope (i.e. east northwesterly) direction due to creep, the last three years of data indicates that this movement has diminished recently. As such, these movements (with no visible signs of field deformations or outlying variations in the settlement rates of the cover not attributed to the vertical deformation of the waste) do not indicate trends that might be indicative of cover instabilities.

3.4.7 Overall Cover Stability Conclusions

The plots of relative horizontal movements are interpreted to be aleatory and epistemic differences associated with variations of the measurements. Any slope movements would be illustrated by a trend in one direction with some visual indications on the surface—none of which have been observed to date. Furthermore, any slope instabilities would likely be reflected in a variation from the uniform settlement rate in the cover grades. The constant rate of vertical compression that is compatible with historic readings (see §4) indicates that, to date, only lateral movements need to be evaluated in regards to potential instabilities. It does not appear that the horizontal movements indicate that there are any indications of cover instability. With no real sign of significant horizontal movements, vertical settlement is the only factor that needs to be considered when assessing cover strain, as discussed in the next section.



A. Phase VIII-C, Stage 1&2 Horizontal Displacement



B. Phase VIII-C, Stage 3 Horizontal Displacement

Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VIII-C, Stage 1&2, 3 Monuments Horizontal Displacement		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 3-4

4. COVER STRAIN MONITORING

Cover deformations, used to indicate potential impacts on the drainage capability of the cover system, breaches in the integrity of the cover materials, and the onset of localized stability issues, was monitored by the landfill observations previously discussed. These observations were augmented by GPS surveys of the surface displacements at each of the monuments established over the landfill surface to evaluate cover strain. Monitoring data collected in 2018 and its relationship to historic readings are described in the following sections.

4.1 GENERAL PROCEDURE FOR EVALUATING COVER STRAIN

As an aid to assess performance, Table 4-1 compares the secondary compression coefficients measured during this past eight years of post-closure period with those historically measured during operations. For tracking during the post-closure period, the elevations measured at the monitoring points in each phase of landfill development are plotted along with a line representing a "predicted" elevation (i.e. by a dashed line). The predicted elevation was initially based on the non-stress-related (i.e. secondary) compression coefficients observed in inactive portions of the operational landfill – the same rate that was used in designing the cover's drainage system and assessing the required strength of the cover system to withstand differential movements.

As will be discussed below, in all instances, the measured rate of settlement during the post-closure period, was less than the rate observed during operations – the latter value generally higher as a likely reflection of some undetected stress-related compression caused by additional laterally-applied loads from active portions of the landfill operations. An updated compression rate was calculated for each post-closure year using the recent surveyed changes in cover grade. The updated rate was then used to track the subsequent movements during the upcoming monitoring period.

Historic and post-closure monitoring are described for each phase of landfill development and closure. The measured and predicted elevation of the monitoring points are plotted and evaluated for each phase. As illustrated by the values in Table 4-1 and consistent with expected results, the compression coefficients have decreased during post-closure period to date, albeit not at an exponential rate predicted by geotechnical theory for soils.

Movements measured by this data are used to evaluate cover integrity. As discussed in Section 3, the measured differences in horizontal locations to date do not show any constant trend, but appear to be indicative of the sensitivity of monitoring the shallow-embedded (i.e. ≈1.5-ft.) survey pins. As such, the integrity of the cover materials to date is dominated by its vertical deformations. If the strain during the post-closure period approaches the design value, further vector analyses will be conducted, if needed, to determine the location of tensile and compressive strains over the cover system.

Table 4-1
Displacement Monuments - Location & Secondary Compression Rates
Post-Closure Geotechnical Monitoring
Pine Tree Landfill, Hampden, Maine

Phase/	Coordinates		Secondary Compression, α_s (ε/day)										Δh (ft.)
Cluster	x	y	historic	2010	2011	2012	2013	2014	2015	2016	2017	2018	(thru '18)
Phase VI													
VWS-11	398,753	101,356	0.000026	0.000045	0.000036	0.000025	0.000022	0.000017	0.000015	0.000012	0.000009	0.000007	8.2
VWS-12	398,726	101,311	0.000024	0.000057	0.000038	0.000028	0.000020	0.000019	0.000015	0.000010	0.000011	0.000009	8.5
VWS-13	398,704	101,268	0.000031	0.000066	0.000032	0.000037	0.000022	0.000019	0.000014	0.000013	0.000010	0.000009	8.7
VWS-34	398,453	101,509	0.000027	0.000047	0.000021	0.000027	0.000011	0.000016	0.000008	0.000012	0.000006	0.000008	**4.4**
		phase average:	0.000027	0.000054	0.000032	0.000029	0.000019	0.000018	0.000013	0.000012	0.000009	0.000008	
Phase VII													
IC-25	398,228	101,148	0.000075	0.000041	0.000008	0.000021	0.000013	0.000015	-	0.000015	0.000004	0.000004	5.3
IC-26	398,267	101,167	0.000061	0.000038	0.000017	0.000023	0.000015	0.000015	0.000008	0.000011	0.000002	0.000005	7.5
IC-27	398,314	101,184	0.000068	0.000047	0.000019	0.000020	0.000015	0.000013	0.000011	0.000009	0.000004	0.000005	9.9
IC-28	398,361	101,208	0.000068	0.000054	0.000022	0.000017	0.000019	0.000016	0.000007	0.000010	0.000008	0.000008	11.3
VWS-35	398,215	101,518	0.000068	0.000035	0.000017	0.000024	0.000012	0.000015	0.000007	0.000017	0.000005	0.000006	3.4
VWS-36	398,075	101,432	0.000068	0.000032	0.000016	0.000014	0.000011	0.000011	0.000007	0.000007	0.000005	0.000004	4.8
VWS-37	398,178	101,350	0.000068	0.000041	0.000023	0.000019	0.000015	0.000015	0.000009	0.000008	0.000005	0.000005	7.3
		phase average:	0.000068	0.000041	0.000017	0.000020	0.000014	0.000014	0.000008	0.000011	0.000005	0.000005	
Phase VIII-A/B													
IC-2	398,507	101,098	0.000077	0.000067	0.000039	0.000031	0.000023	0.000018	0.000013	0.000012	0.000009	0.000008	9.4
IC-4	398,491	101,071	0.000072	0.000052	0.000040	0.000030	0.000022	0.000015	0.000012	0.000012	0.000008	0.000007	9.9
IC-78	398,600	101,100	0.000076	0.000046	0.000034	0.000032	0.000022	0.000016	0.000016	0.000013	0.000009	0.000010	8.0
			0.000075	0.000055	0.000038	0.000031	0.000022	0.000016	0.000014	0.000012	0.000009	0.000008	
transition w/Phase I-V													
VWS-29	398,760	101,120	0.000071	limited data	0.000018	0.000021	0.000016	0.000010	0.000010	0.000012	0.000007	0.000007	4.0
VWS-30	398,790	101,020	0.000070	limited data	-0.000018	0.000021	0.000012	0.000009	0.000010	0.000007	0.000004	0.000004	2.6
VWS-31	398,760	100,920	0.000070	limited data	0.000019	0.000013	0.000012	0.000011	0.000006	0.000008	0.000003	0.000005	3.5
VWS-32	398,800	100,820	0.000070	limited data	0.000004	0.000010	0.000007	0.000007	0.000004	0.000006	0.000002	0.000004	2.3
VWS-33	398,760	100,720	0.000070	limited data	0.000021	0.000019	0.000012	0.000009	0.000007	0.000007	0.000005	0.000005	4.8
		phase average:	0.000070	-	0.000015	0.000017	0.000012	0.000009	0.000007	0.000008	0.000004	0.000005	
Phase VIII-C: Stage 1 & 2													
VWS-20	398,680	100,520	0.000027	limited data	0.000035	0.000025	0.000019	0.000017	0.000011	0.000010	0.000009	0.000010	8.6
VWS-21	398,620	100,570	0.000029	limited data	0.000043	0.000030	0.000024	0.000016	0.000014	0.000011	0.000009	0.000009	10.3
VWS-40	398440	100650	0.000028	limited data	0.000053	0.000038	0.000024	0.000017	0.000015	0.000013	0.000011	0.000010	11.4
		phase average:	0.000028	-	0.000044	0.000031	0.000022	0.000017	0.000013	0.000011	0.000010	0.000010	
Phase VIII-C: Stage 3													
IC-22	398,196	101,040	0.000157	0.000038	0.000010	0.000016	0.000011	0.000013	0.000009	0.000007	0.000003	0.000006	5.6
IC-23	398,250	101,001	0.000141	0.000040	0.000023	0.000027	0.000016	0.000015	0.000010	0.000009	0.000006	0.000007	9.8
IC-24	398,300	100,977	0.000137	0.000061	0.000037	0.000030	0.000021	0.000017	0.000012	0.000011	0.000008	0.000008	8.7
VWS-38	398,263	100,876	0.000145	0.000065	0.000038	0.000030	0.000023	0.000020	0.000015	0.000013	0.000011	0.000009	16.9
VWS-39	398,267	100,737	0.000145	0.000060	0.000039	0.000033	0.000024	0.000023	0.000019	0.000014	0.000015	0.000011	17.5
		phase average:	0.000145	0.000053	0.000030	0.000027	0.000019	0.000018	0.000013	0.000011	0.000009	0.000008	
		Total Average:	0.000073	0.000049	0.000027	0.000024	0.000017	0.000015	0.000011	0.000011	0.000007	0.000007	

4.2 PHASE VI

Phase VI reached interim grade and intermediate cover was placed in 2002. Final waste grading was initiated in the fall of 2008 and closure construction was completed by the beginning of 2010.

4.2.1 Historic Monitoring

Measurements of total secondary strain (i.e. combination of Conventional and Secure III waste) at the instrument cluster locations indicated an average α_s of approximately 0.000027 ε/day over the last few years of landfill operations. As previously reported, the secondary strain rate during operations had decreased since 2004 (REW 2009). While not approaching the exponential decay rate predicted by theory for soil materials, there were indications that the rate was declining, and was expected to continue to do so with time.

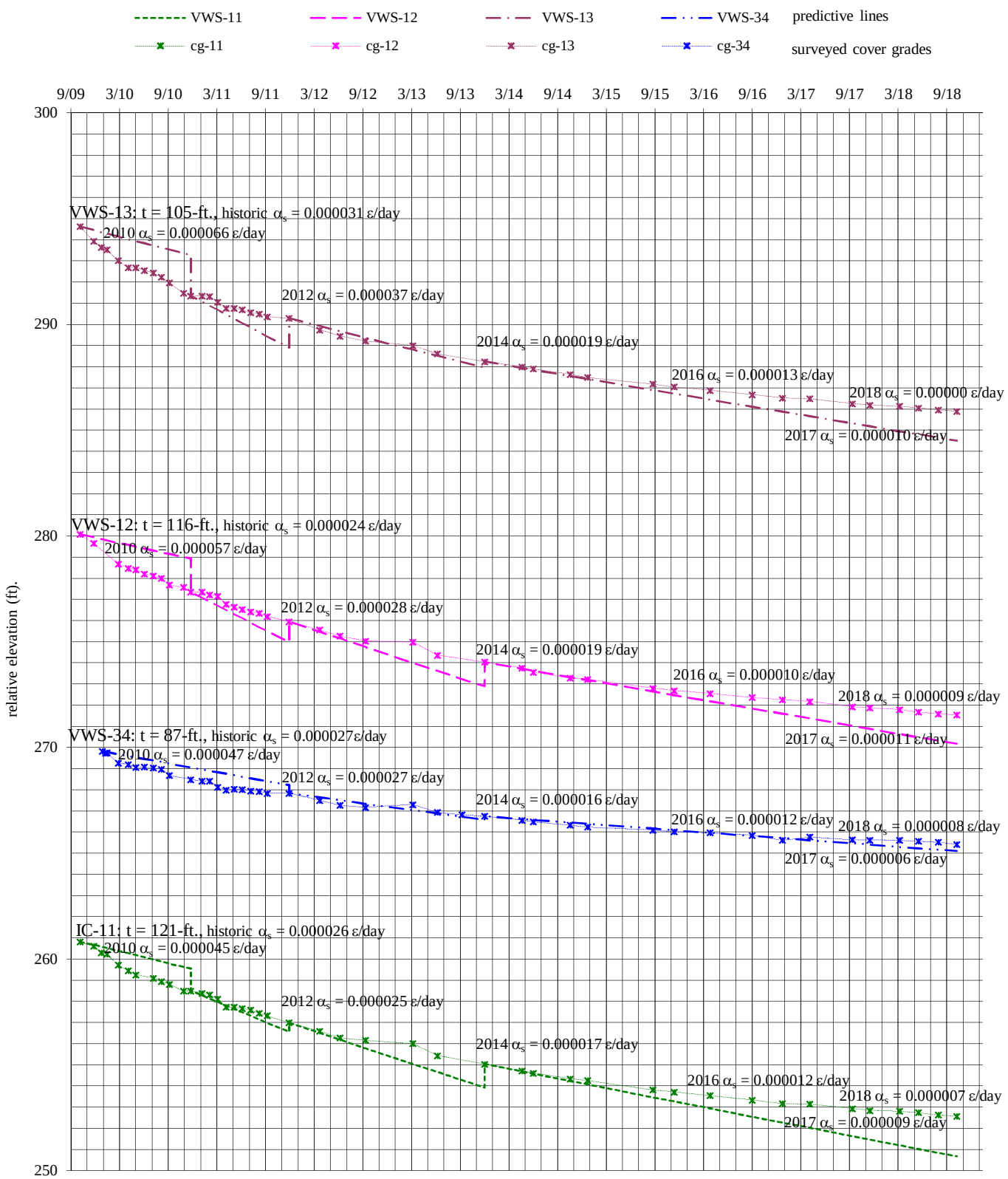
4.2.2 Phase VI Post-Closure Monitoring

Once closure construction was completed in this area at the end of 2009, an additional survey point, VWS-34, was established in Phase VI to supplement the data from the historic surveys made at the other locations (i.e. VWS-11, VWS-12, VWS-13). The initial predicted changes in elevation of the monitoring points illustrated in Figure 4-1 is based on an average α_s of 0.000027 ε/day – the value determined during the last three years of operation. During 2010, most of the locations in this phase settled at a faster rate (i.e. an average α_s of 0.000054 ε/day) than the historic value (i.e. α_s of 0.000027 ε/day). As shown on Figure 4-1, over the past nine years of the post-closure period, the secondary compression rate for Phase VI has dropped below its historic value, to an average α_s value of 0.000008 ε/day during 2018.

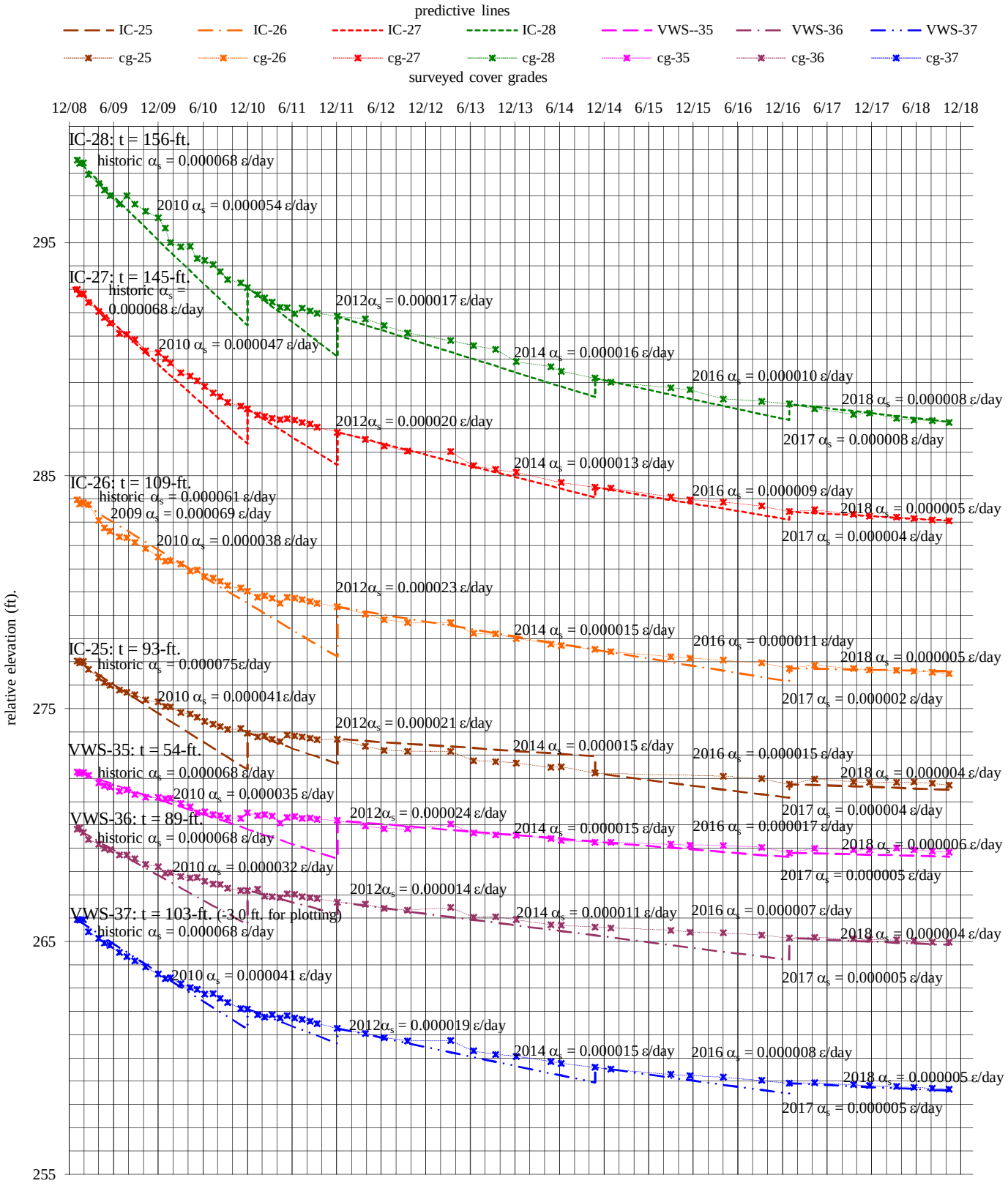
Post-closure settlement of the cover through the end of 2018 ranged from 4.4-ft. to 8.7-ft. with an average secondary compression of 7.5-ft. The differential settlement between these monitoring points during the post-closure period through 2018 indicates a maximum axial strain in the cover of less than 0.01% between VWS-11 and VWS-34 – a de minimis value well within the limits of the cover materials. Even using a constant linear rate observed this past year as an unrealistically conservative α_s value for the entire post-closure period, it is estimated that less than 1% strain will occur in the cover of Phase VI during the 30-year period – a value that is well below the acceptable levels predicted during design (REW 2007b) and well within the tolerable limits of the cover materials.

4.3 PHASE VII

In Phase VII, a series of four (4) instrumentation clusters (IC-25 to IC-28) were placed in 2005 along the mid-slope of the landfill surface for use during operational monitoring. After closure of Phase VII was completed in 2008, additional survey points, VWS-35 to 37, were established to supplement the data from the surveys at the IC locations. Figure 4-2 illustrates the predictive changes in elevation of the monitoring points. The surface elevations of these



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VI Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-1



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VII Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-2

locations were measured to monitor differential settlement of the cover system in the transition between the Secure I, Conventional Landfill, and asbestos areas.

Initially, secondary compression coefficients measured in Phase VII during the fallow period of operations (i.e. an average of 0.000068 ε/day, see Table 1) were used as the predicted rate. As illustrated by measured field values since closure, the actual rate of settlement in Phase VII is much less than the predicted value, has decreased since 2010, and, as presented on Table 4-1 and illustrated on Figure 4-2, has dropped to at an average α_s value of 0.000005 ε/day for 2018.

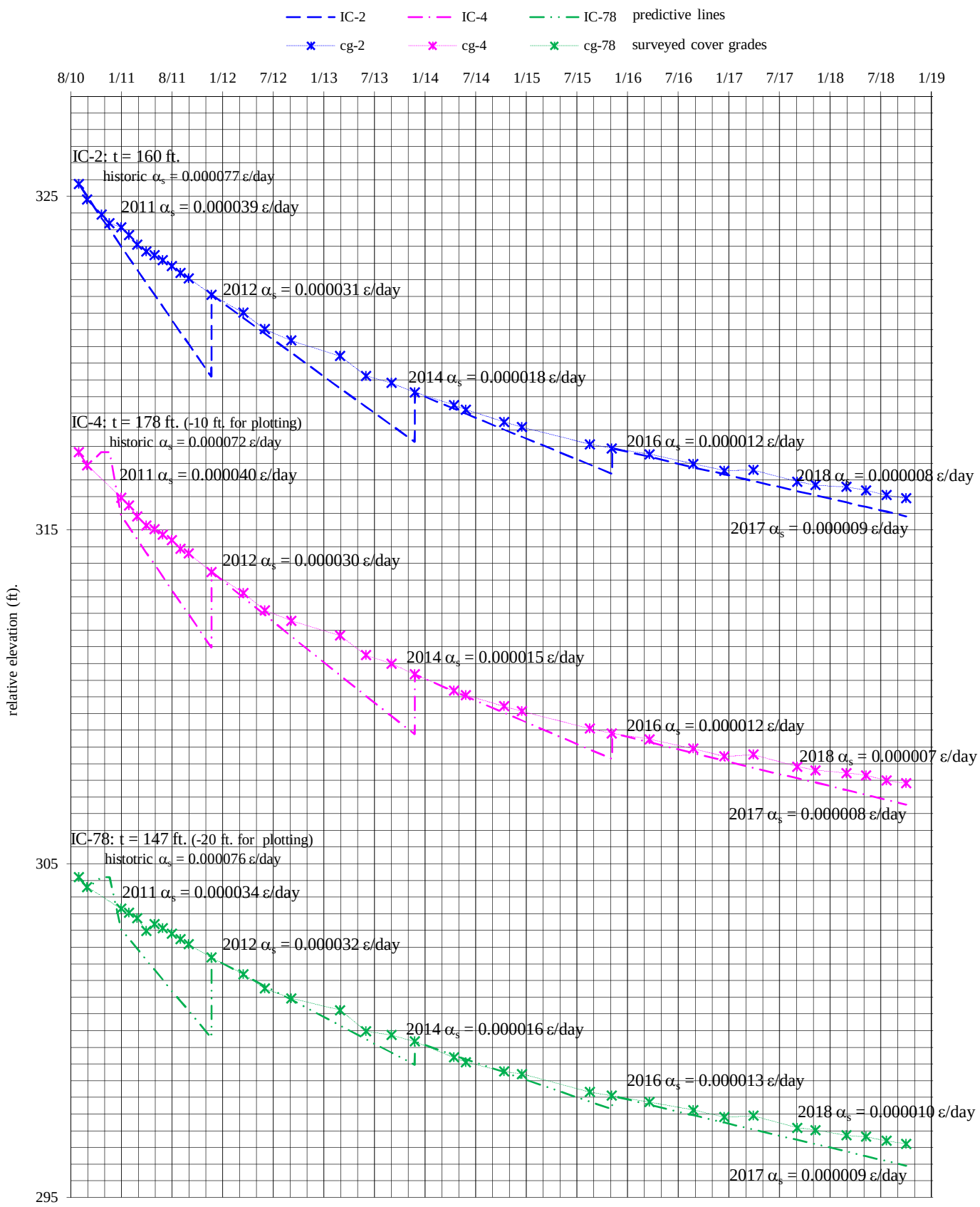
Post-closure settlement of the cover from 2009 through the end of 2018 ranged from 3.4-ft. to 11.3-ft. with an average secondary compression of 7.1-ft. The differential settlement between these points resulted a maximum cover strain of 0.12% between IC-26 and IC-27—a de minimis value that is well within the tolerable limits of the materials used in the cover system. Even when using a constant linear compression rate observed over the last year as an conservative α_s value for the entire post-closure period, the calculated total strains during this 30-year time frame (i.e. 0.7% strain between IC-27 and IC-28) will be less than those tolerable levels predicted during design (REW 2007b).

4.4 PHASE VIII-A/B

Monitoring of Phase VIII-A/B secondary settlement in the transition between the Conventional Landfill and the asbestos disposal area began in 2003 by measuring the elevation of settlement pins installed into the Secure III waste. In 2004, total pressure cells and down-hole vibrating wire settlement cells were installed at IC-8a2, IC-8a4, and IC-8a78 (see Figure 2-1). During 2009, waste was placed in Phase VIII-A/B to bring the area up to final grade, and the area was capped in 2010. The predictive changes in elevation of the monitoring points, illustrated in Figure 4-3, are based on the historic secondary compression coefficient as summarized in Table 4-1 for the Phase VIII-A/B area.

As illustrated by field values in Phase VIII-A/B that were measured since 2010, the actual rate of settlement in Phase VIII-A/B is much less than the predicted value and continues to decrease. As presented on Table 4-1 and illustrated on Figure 4-3, the average α_s value has steadily dropped each of the past nine years, dropping from the historic high value of 0.000075 ε/day to a low of 0.000008 ε/day in 2018. This decrease in compression rate matches well with theoretical behavior.

Post-closure settlement of the cover from closure of Phase VIII-A/B through the end of 2018 ranged from 8.0-ft. to 9.9-ft. with an average secondary compression of 9.1-ft. The differential settlement between these points resulted a maximum cover strain of 0.03% between IC-4 and IC-78—a de minimis value that is well within the tolerable limits of the materials used in the cover system. Even when using a constant linear compression rate observed over the past year as an conservative α_s value for the entire post-closure period, the calculated total strains during this 30-year time frame (i.e. 0.1% strain) will be less than those tolerable levels predicted during design (REW 2007b).



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VIII-A/B Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-3

After closure, five additional survey points, VWS-29 to 33, were established along the transition area between Phase I-V and Phase VIII-A/B where the maximum differential settlement of the cover system was estimated to occur (REW 2007b). The predictive changes in elevation of the monitoring points in this transitional area, illustrated in Figure 4-4, are based on the secondary compression coefficient summarized in Table 4-1 that were calculated from average waste characteristics for each point.

Very little settlement has taken place in this transitional area between Phase I-V and Phase VIII-A/B. During the spring of 2011, these monuments displayed small increases in elevation (i.e. heaved) and then settled during the last half of the year at a constant rate that continued through the end of 2018. While the rise in elevation might seem to indicate some possible slope movements, there was no unusual field observations or detected trends in the horizontal movements that would be indicative of such displacements. As presented on Table 4-1 and illustrated on Figure 4-4, the average α_s value for 2018 in the transitional area was 0.000005 ε/day – a value an order of magnitude lower than the 0.000070 ε/day value calculated for design. Through the end of 2018 the maximum post-closure settlement of the cover in this area was 4.8-ft. with an average secondary compression of 3.4-ft.

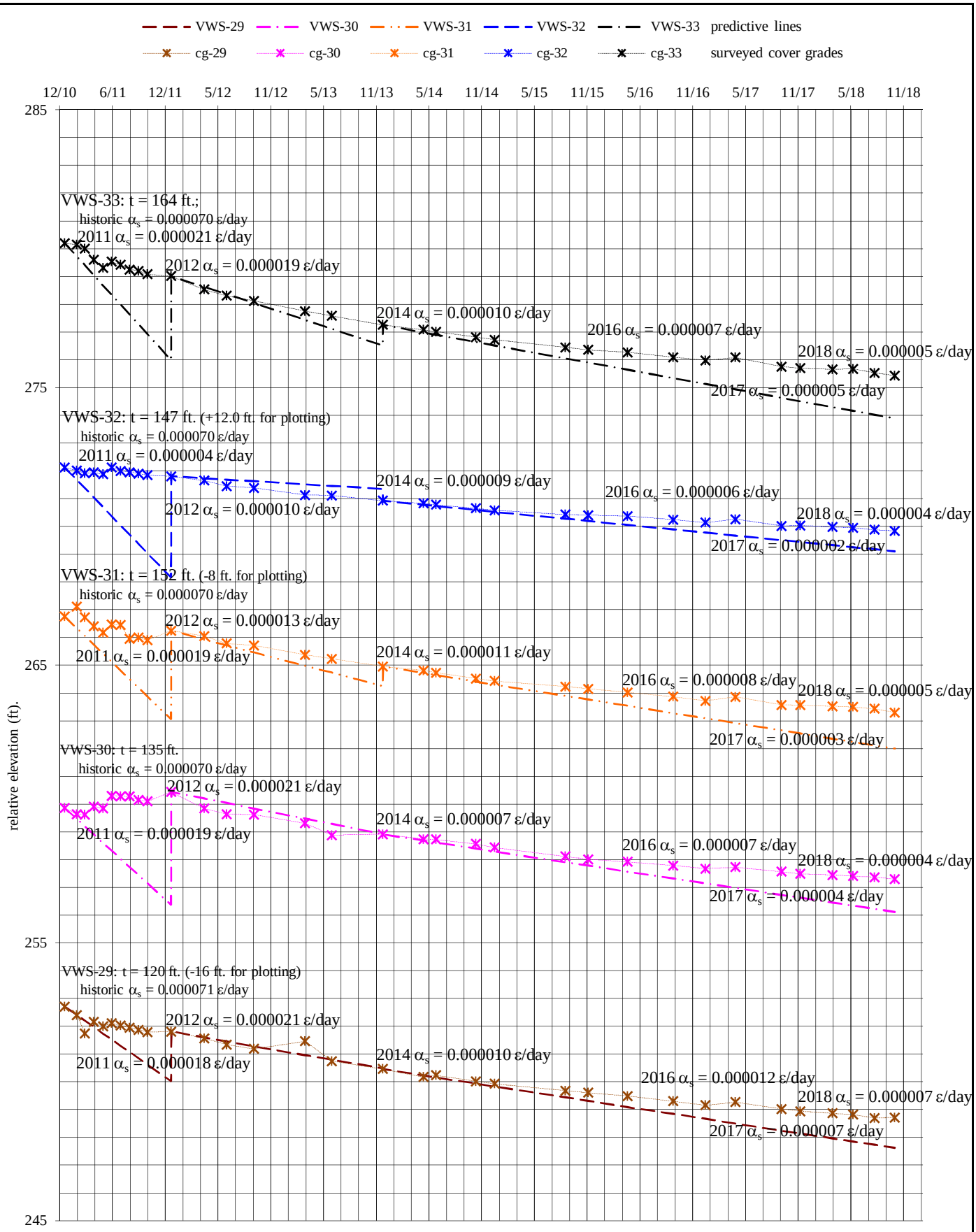
The differential settlement between these points resulted in a maximum cover strain of less than 0.03% between VWS-30 and VWS-31 — a de minimis value that is well within the tolerable limits of the materials used in the cover system. Even when using a constant linear compression rate observed this past year as a conservative α_s value for the entire post-closure period, the calculated total strains during this 30-year time frame (i.e. 0.1% strain between VWS-29 and VWS-30) will be less than those tolerable levels predicted during design (REW 2007b).

4.5 PHASE VIII-C/STAGE 1&2

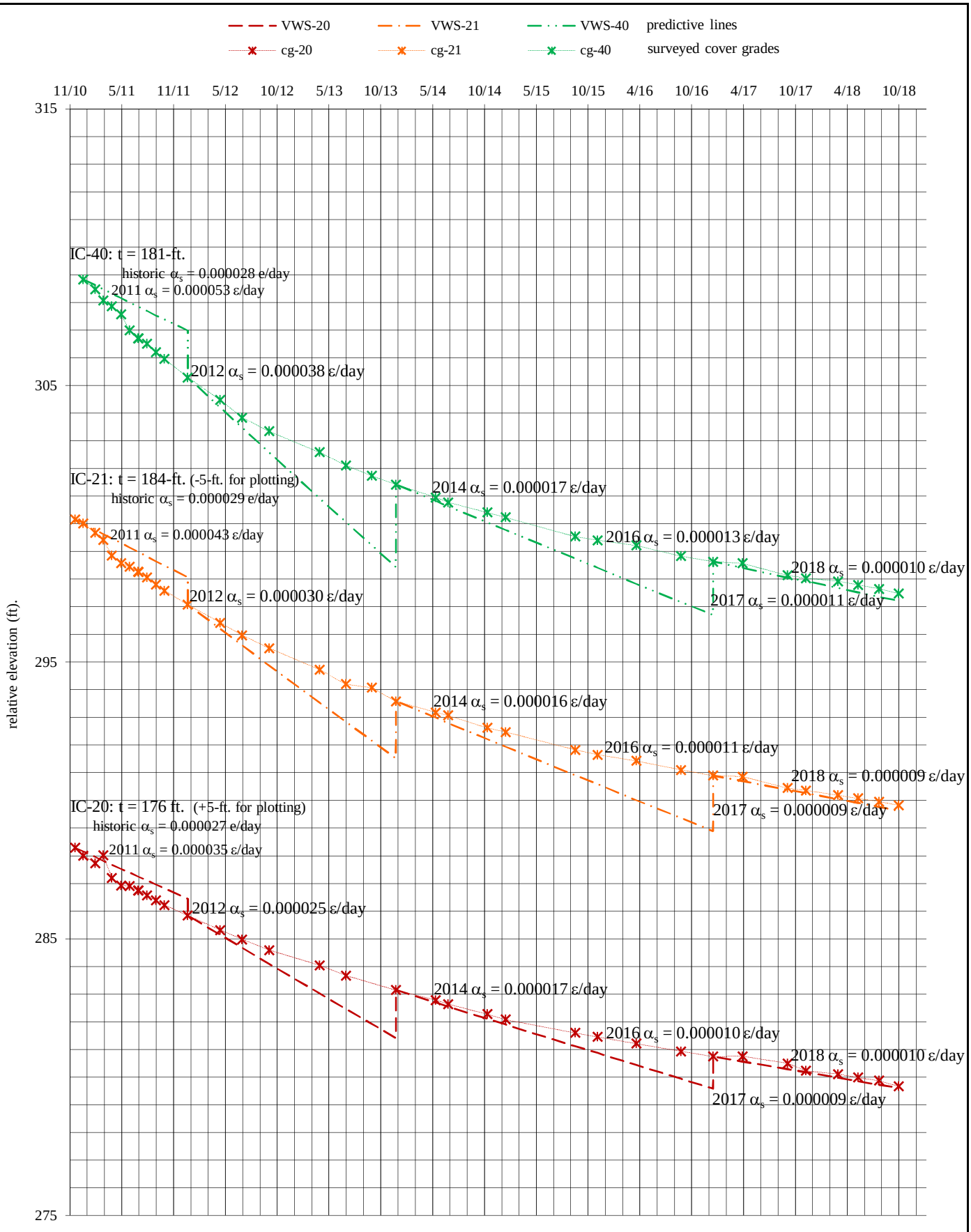
Phase VIII-C/Stage 1&2 reached interim grade and intermediate cover was placed in 2002. Final waste grading was initiated in the fall of 2008 and completed in 2009 with closure construction completed in 2010. After closure in 2010, one additional survey point, VWS-40, was established on the surface of Phase VIII-C/Stage 1&2 cover to supplement the data from the historic surveys made at the operational points.

The initial predicted changes in elevation of the monitoring points illustrated in Figure 4-5 is based on an average α_s of 0.000028 ε/day – the value determined during the last three years of operations. As summarized on Table 4-1 and illustrated in Figure 4-5, the initial average rate of post-closure secondary settlement measured in Phase VIII-C/Stages 1&2 during 2011 was α_s = 0.000044 ε/day, which reduced to a low average value in 2018 of α_s = 0.000010 ε/day – a decrease consistent with theory.

Post-closure settlement of the Phase VIII-C/Stage 1&2 cover through the end of 2018 ranged from 8.6-ft. to 11.4-ft. with an average secondary compression of 10.1-ft. The maximum differential settlement between these monitoring points during the post-closure period through 2018 indicates a maximum axial strain in the cover of 0.02% between VWS-20 and VWS-21—a de minimis value well within the limits of the cover materials. Even when using a constant linear compression rate observed this past year as a conservative α_s value for the entire post-closure period, the calculated total strains during this 30-year time frame (i.e. 0.1% strain



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Transitional Phase I-V to Phase VIII-A/B Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-4



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VIII-C/Stages 1&2 Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-5

between VWS-20 and VWS-21) will be less than those tolerable levels predicted during design (REW 2007b).

4.6 PHASE VIII-C/STAGE 3

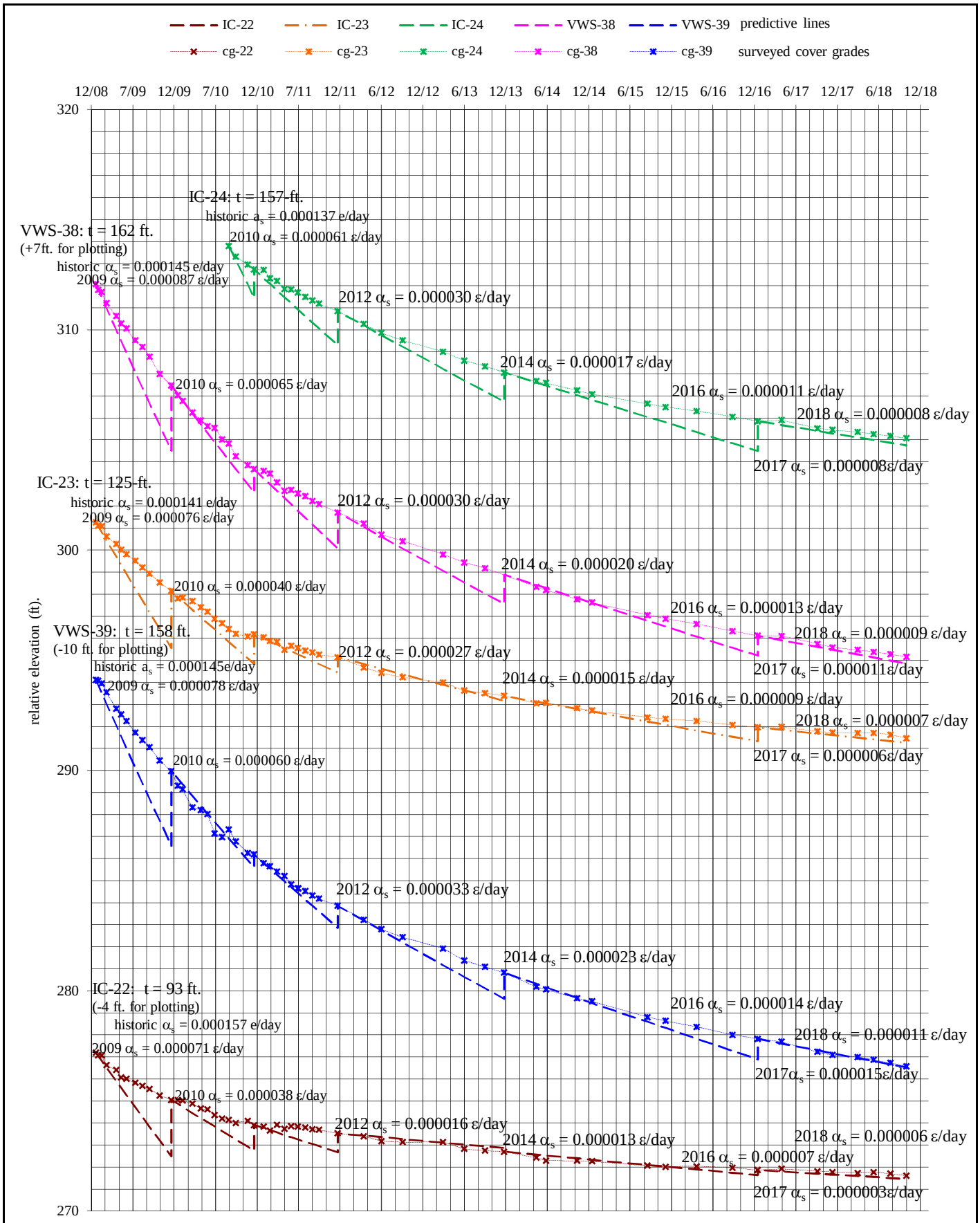
In Phase VIII-C/Stage 3, three ICs (IC-22 to IC-24) were placed at the mid-slope of the Conventional Landfill in 2004 for use during operational monitoring to measure the behavior of the waste in the transition zones between Secure I to the north and the Conventional Landfill to the south. Closure of Phase VIII-C/Stage 3 was completed in 2008 and two additional survey points, VWS-38 & 39, were established in 2009 and measured to augment the post-closure monitoring data. While most of Phase VIII-C/Stage 3 was closed in 2008, the area on the top of this phase in the vicinity of IC-24 was used as a temporary storage area for waste that was subsequently re-graded to other portions of the landfill. As a result, the waste thickness varied over this location until the final grade was reached and the area was capped in 2010. Surface elevations have been measured since 2009 to track post-closure settlements of the landfill cover in this area.

The initial predicted changes in elevation of the monitoring points illustrated in Figure 4-6 is based on an average α_s of 0.000145 ε/day – the value determined during landfill operations. As illustrated by measured field values in VIII-C/Stage 3 since closure in 2009, the actual rate of settlement in Phase VIII-C/Stage 3 is much less than the predicted value and continues to decrease each year. As presented on Table 4-1 and shown on Figure 4-6, the historic average α_s value consistently reduced each subsequent year from a high of 0.000087 ε/day during 2009 to a low average value of 0.000008 ε/day in 2018. This decrease in compression rate matches well with theoretical behavior.

Post-closure settlement of the Phase VIII-C/Stage 3 cover through the end of 2018 ranged from 5.6-ft. to 17.5-ft. with an average secondary compression of 11.7-ft. The maximum differential settlement between these monitoring points during the post-closure period through 2018 indicates a maximum axial strain in the cover of 0.3% between IC-24 and VWS-38—a de minimis value well within the limits of the cover materials. Even when using a constant linear compression rate observed over the past year as a conservative α_s value for the entire post-closure period, the calculated total strains during this 30-year time frame (i.e. 0.5% strain between IC-22 and IC-23) are less than the tolerable levels predicted during design (REW 2007b).

4.7 OVERALL COVER INTEGRITY

To date, the measured differences in horizontal locations do not show any constant trend associated with slope instabilities, but appear to be indicative of the variations in the survey measurements. As such, the integrity of the cover materials to date is dominated by its vertical deformations. In all cases, the initial post-closure settlement is consistent with or less than the anticipated design values that were based on operational monitoring. Most likely, the higher operational rates were influenced by some undetected stress-related compression from waste placement in adjacent areas.



Richard E. Wardwell, P.E., Ph.D. 19 Old Lake Rd, PO Box 169 Lake George, NY 12845	Project: 2018 Geotechnical Monitoring Report	Title: Phase VIII-C/Stage 3 Post-Closure Grades		By: REW Checked: REW Date: Mar-19
	Client: Pine Tree Landfill, Hampden, ME	Proj. No: 1750	Scale: as noted	Fig. No: 4-6

Secondary compression rates decrease with time as would be anticipated from theory. The overall average α_s value for 2018 of 0.000007 ε/day is lower than subsequent years and an order of magnitude below the historic value of 0.000073ε/day. Furthermore, there is remarkable consistency in the secondary compression rates between the average values for the different phases of landfill development with 2018 values falling in a narrow range from a low of 0.000005 ε/day to a high of 0.000010 ε/day. As these trends continue, both total and differential settlements continue to be less than the predicted values, and the impact on cover strain and threat to impinging drainage will be even less than anticipated during design.

5. SUMMARY

The stability of the cover and waste mass at the Pine Tree Landfill was primarily assessed by periodic landfill observations. During these events to date, others have reported that, with one exception, there was no indication of cover instabilities or excessive settlements that would impair surface drainage or the collection and removal of infiltration into the cover system. As an exception, inspection in the spring of 2018 indicated the need for repairs of several surface water conveyance structures to improve surface water drainage from the Secure II and Secure III cover systems. Repairs to damaged inlet structures and breach in the riprap lined surface water drainage ditch are described in detail elsewhere (SME 2018a).

To supplement site observations, the landfill including the drainage terraces were surveyed (SME 2018b) and the horizontal and vertical displacements of 27 monitoring points spread across the upper portion of the cover system were measured during the post-closure period in 2018. Surveys of these monuments provide: 1) information on the large-scale pattern of topographic variations across the cover, 2) measurements of actual surface deformations that can be compared to historic values to ascertain consistency with design assumptions, 3) identification of anomalies that may be indicative of instabilities across a large portion of the landfill surface, and 4) a means of quantifying trends that might either verify design assumptions or indicate deviations that may need further monitoring and/or evaluation.

Data to estimate the lateral deflections and vertical strains in the landfill cover system were collected from the monuments during this past year. The survey measurements of the displacement monuments during 2018 are consistent with the stable appearance of the landfill, and there are no indications of cover instabilities based on the post-closure monitoring data. Furthermore, the average rate of secondary settlement (i.e. $\alpha_s = 0.000007$ ε/day) is about 10% of the operational/closure rate used in design (i.e. $\alpha_s = 0.000073$ ε/day). Initial differential movements since closure results in a maximum cover strain of less than ½% - a de minimis value that is well within the tolerable limits of the cover materials.

To date, the survey results show that the resulting strains are acceptable and that the integrity of the drainage facilities within the cover system have not likely been compromised. Comparison of field values with design estimates indicates that the resulting total strains extrapolated for the 30-year post-closure period will be less than those tolerable levels predicted during design. During the remainder of the post-closure period, further vector analyses will be conducted, if needed, to determine the location of tensile and compressive strains of the cover system.

Foundation stability for Phases I-V and Phase VIII-C/Stage 1 was tracked with vertical displacement monuments. Evaluation of the slope stability monitoring data indicates that the foundation soils continue to provide satisfactory support for the landfill.

REFERENCES

MEDEP (2008), *Secure III Landfill Expansion Phase Closure*, Solid Waste Order, Landfill Closure, Maine Department of Environmental Protection, June 23.

MEDEP (2009), *Compliance with Conditions #19 & #20 of DEP License #S-001987-WN-HC-N*, letter to Pine Tree Landfill, October 26.

REW (2005), *2004 Geotechnical Monitoring Report,* report prepared for Pine Tree Landfill by Richard E. Wardwell, Orono, Maine, May.

REW (2006), *2005 Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, March.

REW (2006-2009), *2005 – 2008 Geotechnical Monitoring Reports, West Old Town Landfill*, report prepared by R.E. Wardwell, North Bethesda, MD for SPO/NEWSME Landfill Operations, Old Town, Maine and Casella Waste Systems, Inc., Saco, Maine, March.

REW (2007a), *2006 Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2007b), *Revised and Amended Settlement Assessment of the Landfill Cover,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, October.

REW (2008), *2007 Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2009), *2008 Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2010a), *2009 Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2010b), *Post-Closure Geotechnical Monitoring Plan,* plan prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, May.

REW (2011a), *2010 Post-Closure Geotechnical Monitoring Report,* prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2011b), *Slope Inclinometer Erratic Readings,* memo prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, June 7.

REW (2012), *2011 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2013), *2012 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2014), *2013 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2015), *2014 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2016), *2015 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2017), *2016 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, North Bethesda, MD, April.

REW (2018), *2017 Post-Closure Geotechnical Monitoring Report*, prepared for Pine Tree Landfill by Richard E. Wardwell, Lake George, NY April.

SME (2000), *Differential Settlement Field Investigation Report*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, January.

SME (2004), *2003 Annual Settlement and Slope Stability Monitoring Report, Secure III Landfill*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, April.

SME (2007), *Final Cover Stability Evaluation Site-Wide Closure Phases VII through VIII-C,* prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, March 2007.

SME (2008), *Final Cover Stability Evaluation Site-Wide Closure Phases VI* prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, October 2008.

SME (2011), *Pine Tree Landfill Drainage Terraces Post-Closure Survey*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, April 14.

SME (2012), *Pine Tree Landfill Drainage Terraces Post-Closure Survey*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, November 27.

SME (2014), *Pine Tree Landfill Drainage Terraces Post-Closure Survey*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, October 4.

SME (2017), *Pine Tree Landfill Drainage Terraces Post-Closure Survey*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, November 17.

SME (2018a), *Pine Tree Landfill Proposed Repairs for Surface Water Conveyance Structures for Secure II and Secure III Cover Systems*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, April 27.

SME (2018b), *Pine Tree Landfill Drainage Terraces Post-Closure Survey*, prepared for Pine Tree Landfill by Sevee & Maher Engineers, Inc., Cumberland, November 21.

ATTACHMENT G

FACILITY INSPECTION REPORTS/ OTHER MAINTENANCE ACTIVITIES

Appendices included within Attachment G:

G-1 Quarterly Inspection Forms (Sample)

G-2 PTL Other Maintenance Activities

G-3 Repairs of Surface Water Conveyance Structures for the Secure II and Secure III Cover Systems

Appendices G-1

Pine Tree Landfill Post-Closure Inspection and Repairs

Beginning in 2011, the first year of post-closure at Pine Tree Landfill (PTL), PTL staff have performed Post-Closure Quarterly Inspections to ensure proper monitoring and maintenance continues throughout the entire post-closure period.

Inspections are completed by qualified PTL staff (Facility Manager and/or Environmental Manager), who access the overall site condition and make note of any maintenance items that may exist. Once identified, the maintenance items are brought to the attention of the General Manager, who then helps schedule repairs. If the items identified are beyond the expertise of PTL staff, then proper guidance is sought out by either 3rd party engineers and/or the MEDEP.

Throughout 2018, quarterly inspections were carried out in all four quarters. The results of those inspections may be found on file in the Environmental Manager's office. A sample copy of a 2018 quarterly inspection, along with a sample monthly Spill Prevention, Control and Countermeasure Inspection follow as Appendices G-1.

A list of all other routine/non-routine maintenance activities which occurred and were resolved throughout 2018 follow as Appendices G-2. Plans and repair details made to surface water conveyance structures for the Secure II and Secure III cover systems follow as Appendices G-3.

PINE TREE LANDFILL

-POST CLOSURE QUARTERLY INSPECTION REPORT-

INSPECTION DATE: 05/01/18

NAME OF INSPECTOR: J Pelletier

INSPECTION ITEM DESCRIPTION	INSPECTED NO ACTION TAKEN	NEEDS ACTION (See Comments)
LEACHATE MANAGEMENT		
Build-up of sediment in wetwells	✓	
Pumps & valves functioning properly		*1
Flow conditions		*2
Pump station vented properly	✓	
Electrical panel inspection	✓	
Flow meter inspection	✓	
Manholes intact and serviceable	✓	
Inspection of leachate storage tank	✓	
Storage tank containment	✓	
Tank pump station	✓	
Inspection of loading rack system	✓	
Leachate forcemain system	✓	
STORM WATER COLLECTION & CONTROL SYSTEMS		
Check outlet structures for condition		*3
Drainage ditches clear and flowing		*3
Signs of erosion	✓	
Check dams	✓	
Detention ponds	✓	
Check roadway ditches for erosion	✓	
ACTIVE GAS COLLECTION & FLARE SYSTEMS		
Condensate knockout system	✓	
Condition of wellheads ok	✓	
Presence of leakage on assembly	✓	
Flare operation ok	✓	
Noise/vibration in flare motor or blower	✓	
Maintenance up-to-date	✓	
Condition of igniter system	✓	
COVER SYSTEMS		
Landfill cover intact	✓	
No signs of ponding or erosion		*4
Cover growth being maintained	✓	
No signs of excessive settlement	✓	
All final cover subsurface drainage outlets functioning properly as designed		*4
Slope stability	✓	
SITE ACCESS & SECURITY		
All landfill roads accessible by vehicles	✓	
Main gate fully functional	✓	
Security fencing & gates intact and locked	✓	
No signs of security breech or vandalism	✓	
All electrical panels & switches secured	✓	
MISC.		
No noticeable onsite or offsite odors	✓	
Combustible gas monitoring at facility property lines	✓	
Combustible gas monitoring at facility structures	✓	
~~Weekly site inspections being performed~~	-NA-	-NA-
Emergency generator operational	✓	
Buffer Areas Inspected	✓	

COMMENTS SECTION ON NEXT PAGE

PINE TREE LANDFILL
-POST CLOSURE QUARTERLY INSPECTION REPORT-

COMMENTS:

*1 Secure II Pump Seated but still leaks by Seal in pump station. A new pump will eventually need reinstalled. Completed 07/22/18 JMP

*2 Phase 7 LD Flows in ALR I. Investigation complete and it looks to be Stormwater. Cond. of LC = 26,000 µS LD = 760 µS. We will try to locate what it is coming in.

Initial Investigation Complete. 05/02/18 Further Investigation will be performed

*3 Dirt/gravel from plowing needs cleaned up around Stormwater Structures and drainage ditches. Following locations need Attention:

- Outfall 8
- Outfall 2A/2B
- around Maint. Garage Grass/Shrub
- Area C grass near Intersection/unloading Area.

Done 05/07/18

*4 Drainage Culverts around Phase C, and Secure II need work. MEDEP Informed, will Begin in several weeks when Contractors are available. Completed 07/20/18

REVIEW BY ENVIRONMENTAL COMPLIANCE MANAGER:

Signature 05/01/18 Date

Distribution: General Manager
PCE Manager

APPENDIX D-1
MONTHLY ABOVEGROUND TANK INSPECTION CHECKLIST
PINE TREE LANDFILL
HAMPDEN, MAINE

INSPECTOR'S SIGNATURE: [signature]

INSPECTOR'S TITLE: Environmental Manager

DATE: 11/30/18

The aboveground tank inspection checklist shall be completed on a monthly basis and be retained with the SPCC Plan for at least 3 years.

Tank #:	1	2	3	4	5	6	7	8	9	10
Location:	Transfer Station	LFGTE Project Engine Room	LFGTE Project Engine Room	LFGTE Project Engine Room	LFGTE Project Engine Room	LFGTE Project Engine Room	LFGTE Project Engine Room	Outside LFGTE Project	Outside LFGTE Project	LFGTE Project Engine Room
Contents:	500-GAL Diesel Fuel	550-GAL Lube Oil	550-GAL Used Lube Oil	850-GAL Lube Oil	80-GAL Lube Oil	80-GAL Lube Oil	80-GAL Lube Oil	632-GAL Mineral Oil	191-GAL Mineral Oil	55-Gal Drums
TANK CONTAINMENT:										
Water in primary tank, secondary containment, interstice or spill container*	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	NO
Debris or fire hazard in containment*	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	NO
Drain valves operable and in closed position*	☑ Yes ☐ N/A ☐ No	☑ Yes ☐ N/A ☐ No	☑ Yes ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	☑ Yes* ☐ N/A ☐ No	NA
Containment egress pathways clear and gates/doors operable*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
LEAK DETECTION:										
Visible signs of leakage around the tank, concrete pad, containment, ringwall or ground*	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	NO
TANK ATTACHMENTS AND APPURTANCES:										
Tank liquid level gauge readable and in good condition*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	NA
Tank openings properly sealed*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
TANK CONDITION:										
Surface painted with no excessive signs of chipping or corrosion*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
Support legs stable and secure*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
Signs of cracks, bulging or corrosion*	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	☐ Yes* ☐ N/A ☑ No	NO
GENERAL HOUSEKEEPING:										
Fire Extinguisher Nearby*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
Spill Equipment Nearby*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	☑ Yes ☐ N/A ☐ No*	Yes
PORTABLE CONTAINERS:										
Portable Containers in Designated Storage Area*										☑ Yes ☐ N/A ☐ No*
Debris, spill or other fire hazards in containment or storage area*										☐ Yes* ☐ N/A ☑ No
Water in multi-layer secondary containment*										☐ Yes* ☐ N/A ☑ No
Drain valves operable and in a closed position*										☑ Yes ☐ N/A ☐ No*
Egress pathways clear and gates/doors operable*										☑ Yes ☐ N/A ☐ No*
Container thinning, building, denting or bulging*										☐ Yes* ☐ N/A ☑ No
Visible signs of leakage around the container or storage area*										☐ Yes* ☐ N/A ☑ No

COMMENTS / REPAIRS / MAINTENANCE: Place looks great!

(*) DESIGNATES AN ITEM IN A NON-CONFORMING STATUS. COMMENT ON NEEDED REPAIR OR MAINTENANCE TO ADDRESS PROBLEM.

Appendices G-2

2018 Pine Tree Landfill Other Maintenance Activities	
03/03/18	An erosion channel was noticed on the west side of Secure II during snowmelt. Repairs to surface water conveyance structures and Secure II and Secure III cover systems were completed on 07/20/18. Further details are listed in Attachment G, Appendices G-3.
05/01/18	Several stormwater outfalls/ditches needed to be raked and cleaned up due to winter plowing activities. PTL staff/3rd party contractors completed the necessary repairs by 05/07/18.
05/04/18	The perimeter road going to the maintenance shop and to the top of the landfill needed to be graded. A majority of the repairs were finished by 05/07/18. The entire perimeter road was graded on 07/23/18.
05/08/18	The grass on the landfill cover system behind Secure III Pump Station needed to be reseeded. Cover system repairs were completed on 08/02/18.

Appendices G-3

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@smemaine.com
smemaine.com

April 27, 2018

Ms. Linda Butler
Bureau of Remediation and Waste Management
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Subject: Pine Tree Landfill Facility, Hampden, Maine
Proposed Repairs for Surface Water Conveyance Structures for the Secure II and Secure III Cover Systems

Dear Linda:

New England Waste Services of Maine, Inc. d/b/a Pine Tree Landfill (PTL), has requested that Sevee & Maher Engineers, Inc. (SME) forward you a summary of the observations made during an April 19, 2018 inspection of the PTL Secure II and Secure III cover systems, and plans to repair several of the surface water conveyance structures to improve surface water drainage from these cover systems. The goal of these repairs is to remove surface water drainage that appears short circuiting the structures, and contributing to the Secure II leachate flows, as discussed during a March 19, 2018 telephone conference call between the Maine Department of Environmental Protection (MEDEP), PTL, and SME.

The April 19, 2018 inspection by PTL, SME and the MEDEP included visual inspection of the surface water inlets, piping, and drainage swales along the east, west and upper limits of Secure II cover. These structures convey surface water runoff from a portion of the Secure III and Secure II final covers to the base of the landfill. Because these structures are located on or near Secure II waste surface, there is a potential that surface water directed to the structures can short circuit, around the inlets, and flow in the pipe bedding materials to the base of the landfill under the cover. The flow is then collected by one of the Secure II leachate laterals. Also, any erosion on the surface of the drainage ditches located on the Secure II cover could convey flow to the Secure II leachate collection system. The Secure II flow data suggests this is happening because the Secure II flows correlate with precipitation events that generate surface water runoff.

The inspection identified two conditions that suggest short circuiting is occurring and required attention. These include: 1) the condition of several inlets to surface water conveyance piping that collects surface water drainage from the top and sideslopes of the Secure III cover and

conveys it to the bottom of the landfill. The inlets consist of HDPE flared ends attached to HDPE inlet piping; 2) the conditions of a riprap lined surface water drainage ditch that conveys water from the Secure III cover that overlies the top of Secure II, and upper northern sideslopes of Secure II. A breach was observed in the downslope berm that forms this ditch. This breach occurs, approximately 50 feet from the point where the ditch collects runoff from the north side downspout constructed on the Secure III final cover. The damage occurred behind a check dam constructed of large diameter riprap in a section that appears to have minimal slope.

Figure 1 shows the three locations where the inlets to the downslope piping is in need of repair. At these locations, there were signs of surface water bypassing the inlet structures. The inlet structures are located at or near the ground surface making them vulnerable to soil erosion, landfill settlement, the effects of frost, and physical damage from mowing of the cover. These conditions were observed during the inspection. To rehabilitate the inlet structures, the area around the flared end and piping will be excavated, and the damaged flared ends replaced. A new flared inlet will also be added to the upper most point of the east side drainage pipe. Currently water enters this inlet location through the plain end of pipe, located at the end of the riprap swale constructed along the top of the existing Secure II cover. To minimize the potential for seepage around these inlet structures, a sand and powdered bentonite mixture blended at a ratio of 1:1, will be incorporated into the backfill placed around the inlet pipe and flared ends as shown on Figure 2 to provide a better seal around the inlets. Following the sand/bentonite installation, the remaining backfill around the inlets will be made using vegetative soil to match the surrounding cover soils. These soils will be seeded and mulched.

A single west side repair will also be made to a vertical 12-inch pipe inlet located at the end of a Secure II surface water drainage terrace as shown on Figure 1. The metal field inlet shows evidence of damage from mowing equipment, and will be replaced. A bentonite seal will be installed on the vertical pipe portion of the drain below the vegetative cover soil layer as shown on Figure 2. New riprap will also be installed in the landfill access road ditch at the location shown on Figure 1.

To repair the breach in the surface water ditch, the existing riprap over the entire length of the drainage ditch will be removed and the ditch regraded and reconstructed to maintain a consistent slope and fill in the breached area with soil; and a GCL placed in the bottom of the regraded ditch over the entire length followed by bedding sand and new riprap. Figure 2 show the details for the reconstruction of this ditch.

In addition to these repairs, we plan on excavating a test pit at the two locations shown on Figure 1. One located in the northeast corner of Secure II, at the toe of slope in the location of the drainage piping closest to the leachate collection system, and the second, just above the access road located in the northwest corner of Secure II, to look for evidence of flow outside the piping in either the

SME
SEVEE & MAHER
ENGINEERS

granular bedding material, or in the Secure II waste. The results of this investigation will be provided to the MEDEP.

Should you have any questions on this evaluation, please feel free to contact us.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Michael S. Booth, P.E.
Senior Project Manager

Attachments
Figure 1 - 2018 Secure II Landfill Flow Investigation
Figure 2 - 2018 Secure II Landfill Flow Investigation Details

cc: Jeffery Pelletier PTL
Tony King PTL
Wayne Boyd, PTL
Steve Farrar MEDEP
Richard Health MEDEP
Mike O'Connor MEDEP

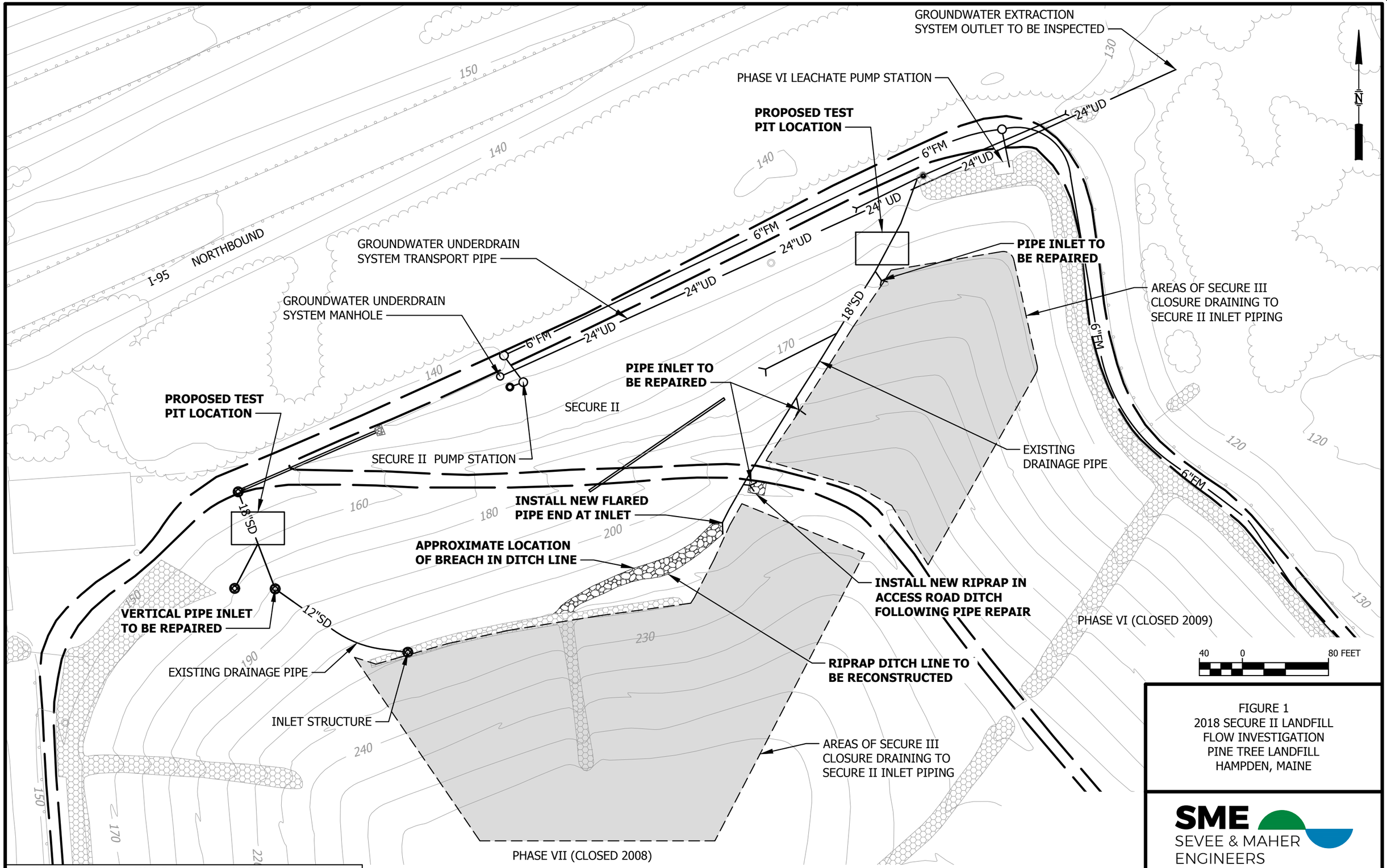
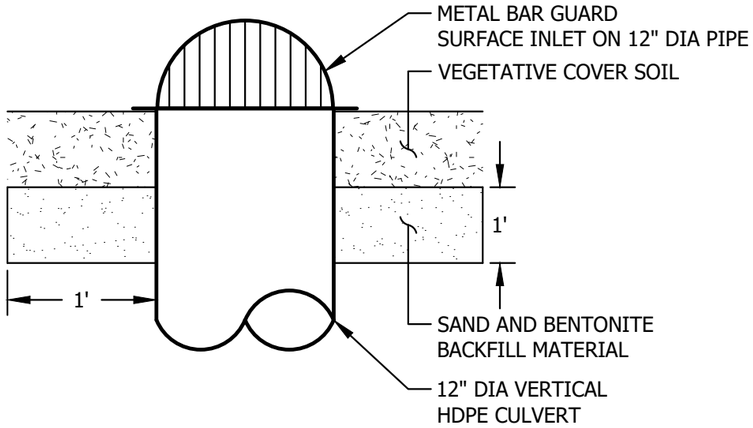


FIGURE 1
2018 SECURE II LANDFILL
FLOW INVESTIGATION
PINE TREE LANDFILL
HAMPDEN, MAINE

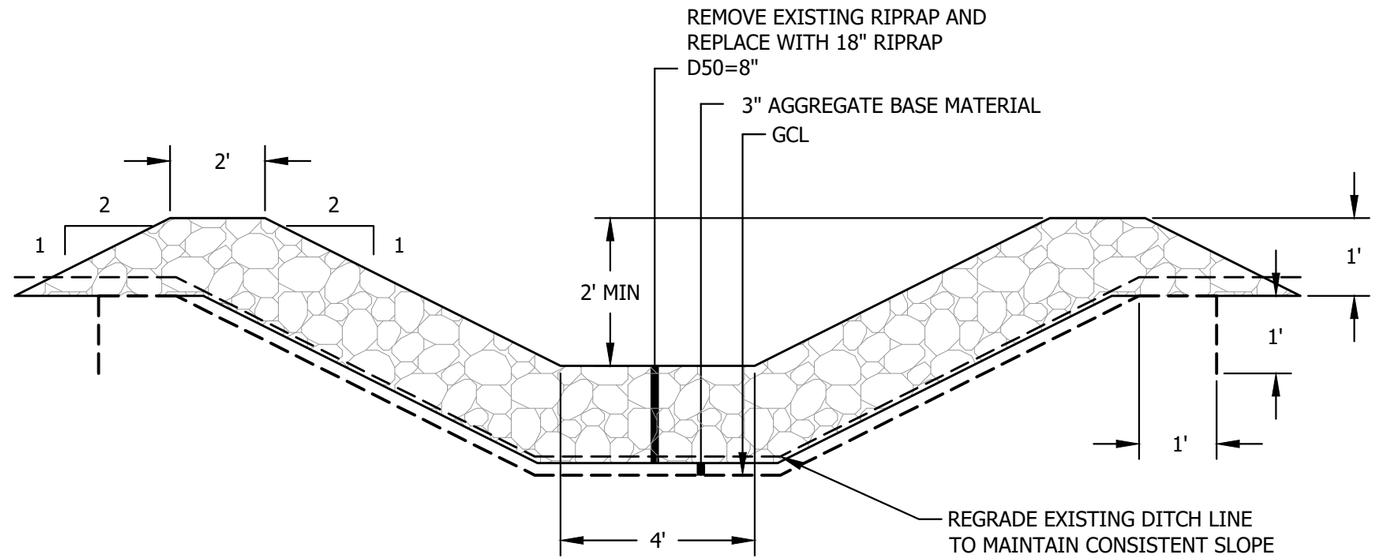
SME
SEVEE & MAHER ENGINEERS

\\Nserver\cts\Saw\General Site\2018_Secure II_investigation\Acad\SecII_Investigation.dwg, 4/27/2018 12:46:24 PM, paf



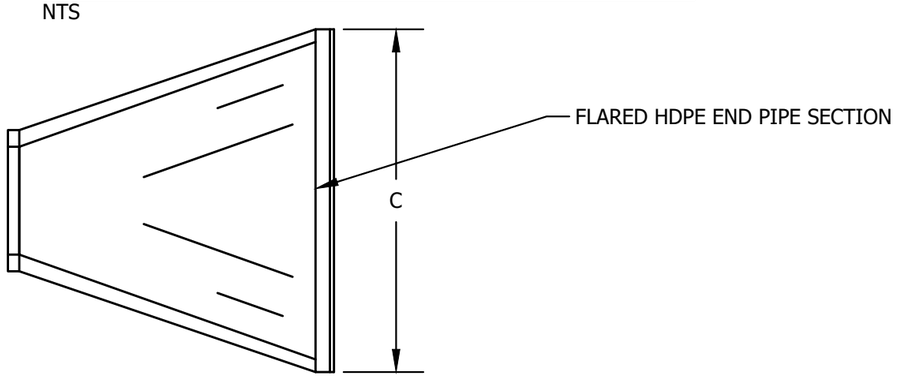
VERTICAL SURFACE INLET WEST 5

NTS

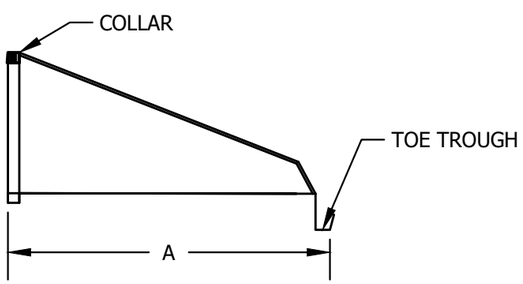


RIPRAP DITCH REPLACEMENT

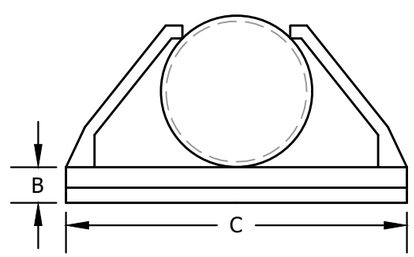
NTS



TOP VIEW



SIDE VIEW

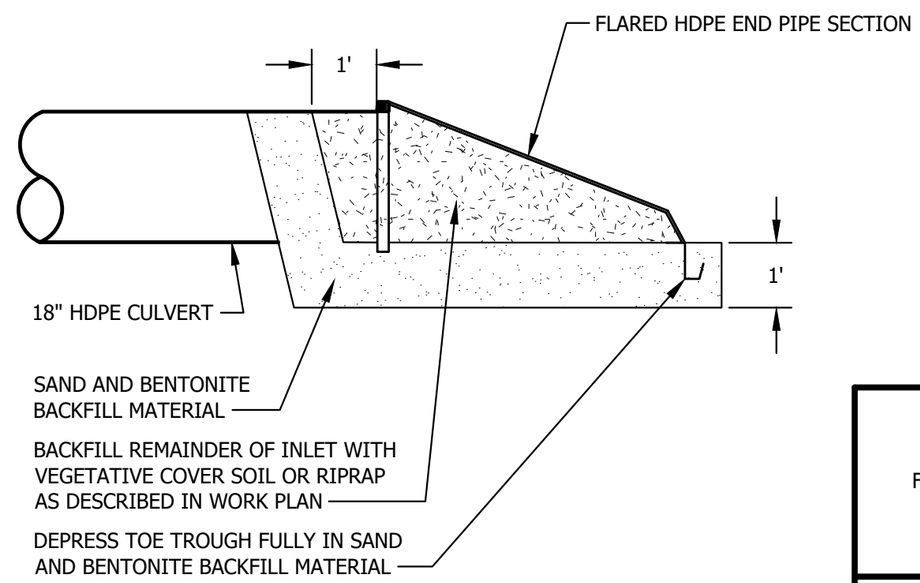


FRONT VIEW

PIPE	A	B	C
18"	32"	6.5"	35"

DIMENSIONS

NOTE:
FLARED END SECTION SHALL BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS.



HDPE FLARED PIPE END

NTS

FIGURE 2
2018 SECURE II LANDFILL
FLOW INVESTIGATION DETAILS
PINE TREE LANDFILL
HAMPDEN, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: SEC II INVESTIGATION LMN: SECURE II CTB: SME-STD REV: 4/27/2018

Pine Tree Landfill Secure II/III Stormwater Fixes (07/09/18 thru 07/20/18)

Landfill Stormwater Rip Wrap Trench Overview (Upper Secure II)

Landfill Stormwater Rip Wrap Trench & Culvert 1 Pic 1 (Upper Secure II)

Landfill Stormwater Rip Wrap Trench & Culvert 1 Pic 2 (Upper Secure II)

Landfill Stormwater Rip Wrap Trench & Culvert 1 Pic 3 (Upper Secure II)

Rip Wrap & Culvert 2 Pic 1 (A long road to top landfill near Secure II)

Rip Wrap & Culvert 2 Pic 2 (A long road to top landfill near Secure II)

Rip Wrap & Culvert 2 Pic 3 (A long road to top landfill near Secure II)

Culvert 3 Pic 1 (Upper culvert on lower Secure II)

Culvert 4 Pic 1 (Lower culvert on lower Secure II)

Culvert 4 Pic 2 (Lower culvert on lower Secure II)

ATTACHMENT H

COMPLIANCE SELF-AUDIT

PINE TREE LANDFILL
COMPLIANCE SELF-AUDIT CHECKLIST
REPORT YEAR 2018

This Compliance Self-Audit Checklist is to be used to perform an annual audit of landfill operations. The purpose of this audit is to verify general compliance with the site Post-Closure Monitoring and Maintenance Plan, licenses and regulatory requirements. Qualified facility personnel performed the audit.

Facility Name.....	**Pine Tree Landfill**
Location.....	**358 Emerson Mill Road, Hampden, Maine**
Audit for Calendar Year.....	**2018**
Compliance Auditor.....	**Jeffrey Pelletier**
Title.....	**Environmental Manager**
Signature of Auditor.....	Jeff

General Evaluation:

1. **Are active facility licenses kept on file at the facility?**

Yes, copies of licenses held by Pine Tree Landfill (PTL) may be found on file in the Environmental Manager's office.

2. **Do the facility licenses have special license conditions relating to landfill monitoring and maintenance?**

Yes, a number of conditions are laid out in the various permits held by the facility. Conditions that require a submission to the MEDEP are tracked on a database in order to assure that submission deadlines are adhered to.

3. **What pending licenses or approvals that were sought from the MEDEP at the time of this audit.**

No solid waste permits pending at this time.

4. **Last date of payment of MEDEP Annual License Fee.**

The 2017 annual license fee was not charged, as the facility is now in post-closure.

5. **Last date of submittal of MEDEP Annual Report & Fee.**

MEDEP 2017 annual report was submitted on April 16, 2018.
MEDEP 2017 annual report fee of $3,669.00 was submitted on April 17, 2018.

6. **Does the facility have a current liability insurance policy in-place and on file at the facility?**

Yes, a copy of the policy is available in the Division Manager's office.

7. **Has the facility submitted an executed financial assurance instrument for post closure care along with updated post closure cost estimates to the MEDEP?**

Updated post closure cost estimates are provided along with the annual report for approval; please see Attachment J. Following approval of the estimates, a revised financial assurance package will be submitted to the MEDEP under a separate cover.

Chapter 401.6 Landfill Post-Closure Monitoring and Maintenance Requirements

A. Post-Closure Monitoring and Maintenance Plan

1. Last date a certified copy of the facility Post-Closure Monitoring and Maintenance Plan was updated.

The Post-Closure Operations Plan was last updated and approved by the MEDEP in April, 2013. Updated sections for 2018 are included as Attachment K in the 2018 Pine Tree Landfill Annual Report.

2. MEDEP approval date of last updated Plan.

Comments to the Post-Closure Operations Manual (re-titled Post-Closure Monitoring and Maintenance Plan in accordance with Section 401.6.C of Maine Solid Waste Management Rules), were received on March 30, 2012 and addressed in the updated Post-Closure Monitoring and Maintenance Plan issued in April, 2013.

3. Number and locations of the Certified Copies of the Plan.

Certified copies of the manual may be found at the following locations:

- The Augusta Office of the MEDEP
- The Municipal Office of the Town of Hampden
- PTL's Environmental Manager's Office

B. Post-Closure Standards

1. Has groundwater monitoring been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?

Yes, groundwater monitoring was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary of groundwater monitoring completed in 2018 is located in Attachment C.

2. Has surface water monitoring been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?

Yes, surface water monitoring was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary of surface water monitoring completed in 2018 is located in Attachment C. Stormwater monitoring and maintenance is completed under #MER05A778 and overseen by the MEDEP Bureau of Water Quality.

3. Has gas monitoring been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?

Yes, gas monitoring was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary report of activities completed in 2018 is located in Attachment D.

4. **Has leachate monitoring and maintenance been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, leachate monitoring and maintenance was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary report of activities completed in 2018 is located in Attachments A & B.

5. **Has stability and settlement monitoring been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, stability and settlement monitoring was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary report of activities completed in 2018 is located in Attachment F.

6. **Has cover monitoring and maintenance been completed in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, cover monitoring and maintenance was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary report of activities completed in 2018 is located in Attachments F & G.

7. **Is access to the facility controlled so that the public is not exposed to potential health and safety hazards and access is only permitted when an attendant is on duty?**

   Yes, an attendant is located at the entrance to the landfill (scalehouse for transfer station operations) and the entrance gate to the facility is closed to traffic after hours.

8. **Are inspections of the landfill facilities performed in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, inspections were completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. Sample Quarterly Inspection reports and a written summary of the inspection Program are included in Attachment G.

9. **Was rapid waste mass stabilization (leachate recirculation) performed in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, leachate recirculation was completed in accordance with the Post-Closure Monitoring and Maintenance Plan during 2018. A summary report of activities completed in 2018 is located in Attachment A.

C. Reporting Requirements

1. **Were reports and inspection documents provided to the Department in accordance with the Post-Closure Monitoring and Maintenance Plan?**

   Yes, reports of monitoring were submitted in accordance with the plan, and additional inspection documents are available to the MEDEP upon request and are maintained in the environmental manager's office. A summary of inspections and monitoring is provided in the 2018 Annual Report.

ATTACHMENT I

ANNUAL SOLID WASTE MANAGEMENT REPORT

ANNUAL SOLID WASTE MANAGEMENT REPORT FOR LICENSED LANDFILLS

FACILITY NAME: New England Waste Services of ME, Inc (Pine Tree Landfill) Report For Year: 2018

DEP LICENSE NUMBER #S-001987-WN-HC-N (Formerly S-001987-WD-GZ-N)

This report includes information on solid waste handling and disposal per 06-096 C.M.R. ch. 401, § 4(D) and § 7(G)(21), as applicable, for the following facility and/or municipalities, as applicable (please list all users):

CONTACT PERSON: Jeffrey Pelletier Title: Environmental Manager
Mailing Address: 358 Emerson Mill Rd.
City/Town: Hampden Zip Code: 04444
Phone: 207-249-8025 E-mail: Jeffrey.pelletier@casella.com

LANDFILL MANAGER: Wayne Boyd
Mailing Address: 358 Emerson Mill Rd.
City/Town: Hampden Zip Code: 04444
Phone: 207-862-4200 x.224 E-mail: wayne.boyd@casella.com

☒ **Please check here if a stand-alone annual report is being submitted. If so, submit this cover sheet only along with your report.**

I have examined this report to the best of my knowledge and believe this report is true, accurate and complete.

Signature of person completing this form: Date Signed 04/22/19

Printed name of person completing this form: Jeffrey Pelletier

Please return two (2) paper copies and an electronic copy of your completed form with the required annual report fee by April 30 of the reporting year to:

Geraldine Travers
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

ATTACHMENT J

UPDATED POST-CLOSURE COST ESTIMATES

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@smemaine.com
smemaine.com

April 19, 2019

Mr. Jeffrey Pelletier
Environmental Manager
Pine Tree Landfill
Casella Waste Systems
358 Emerson Mill Road
Hampden, ME 04444

Subject: Update of Opinion of Escrow Post-Closure Costs
For Calendar Year 2019
Pine Tree Landfill, Hampden, Maine

Dear Jeffrey:

As requested, Sevee & Maher Engineers, Inc. (SME) has updated our opinion of escrow post-closure costs for the Pine Tree Landfill (PTL) in Hampden, Maine for the calendar year 2019. The post-closure period began in January of 2011. Therefore, as of January 2019 the facility has been closed for eight years, so our opinion of the post-closure monitoring and maintenance costs are for the remaining 22 years of the post-closure period.

Our opinion of escrow post-closure monitoring and maintenance costs for the remaining 22-year post-closure period is $5,292,680 as summarized in Table 1. These include costs for leachate collection, transport, and disposal; post-closure water quality, and methane gas monitoring; active landfill gas system operation and maintenance; landfill inspections, general site maintenance, and professional services. The overall post-closure costs are based on 2019 dollars. Assumptions used to develop costs for each item are summarized on Table 1.

If you have any questions concerning our opinion of costs presented in this letter, please feel free to contact us.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Rhonda N. Forrester, P.E.
Project Engineer

(Cont'd)

SME
SEVEE & MAHER
ENGINEERS

Attachments

Table 1 Pine Tree Landfill Opinion of 22-Year Post-Closure Monitoring and Maintenance Costs Beginning in Calendar Year 2019

cc: Wayne Boyd, PTL
Toni King, Casella

TABLE 1
PINE TREE LANDFILL
OPINION OF 22 YEAR POST-CLOSURE MONITORING AND MAINTENANCE COSTS
BEGINNING IN CALENDAR YEAR 2019

ITEM	OPINION OF YEARLY COSTS	TOTAL COST FOR 22 YEAR PERIOD	ASSUMPTIONS
Leachate Collection, Transport and Disposal			
A. Site Leachate Disposal at Bangor	$80,640	$1,774,080	In 2018 the facility reported a yearly average post closure leachate generation of approximately 9.01 million gallons that required disposal at the Bangor WWTP. This included leachate generated by the landfills, Secure I, II, III Phases I-V, VI, VII, and VIII, plus flow collected from the extraction wells and perimeter drain. The leachate generation is assumed to decrease exponentially from years 9-30. The amount of leachate sent to the Bangor WWTP is reduced by the amount of leachate recirculated onsite which was 0.371 million gallons in 2018. The leachate recirculated is assumed to decrease exponentially from years 9-30 from the previous two year average of 0.834 million gallons. Using this method the yearly average amount of leachate disposed of at the Bangor WWTP is about 7.2 million gallons. Treatment cost is $0.0112 per gallon.
B. Electrical to Operate Leachate Recirculation Pumps	$100	$2,200	Assumes a 15 Hp pumping at 150 gpm an average 33 hours per year. Electrical Costs=$0.18per kwhr.
C. Electrical to Run Eight Pump Stations	$2,600	$57,200	Assumes 15 Hp pumps rated at 200 gpm running and average of 1,293 hours per year. Electrical Costs=$0.18per kwhr.
D. Annual Leachate Testing	$3,500	$77,000	Assumes three times per year
Total Leachate Collection, Transport & Treatment Costs		**$1,910,480**	
Post Closure Water Quality & Methane Gas Monitoring			
A.1 Collect Samples From 12 Wells & 4 Surface Waters and 3 Leachate Samples for 2 Rounds/Year & Methane Measurements From Wells 1 Time per Year. Residential Samples Collected 2 Times per Year. Field Parameters Only Collected From 9 wells 2 Times per Year.	$22,500	$45,000	Assumes 2 rounds, 1 detection and 1 extended parameter lists for years 9-10
A.2 Collect Samples From 12 Wells & 4 Surface Waters, 3 Leachate samples and 2 Residential for 1 Round/Year & Methane Measurements From Wells 1 Time per year. Collect Field Parameters Only From 9 wells one time per year	$12,500	$250,000	Assumes one round extended parameter list for years 11-30
B.1 Analyses of 25 Samples 2 Times per Year (Years 9-10)	$15,500	$31,000	Assumes 12 wells, 4 surface, 2 leachate samples , 2 residential, & 5 QA/QC with one round for indicator and expanded parameters, and the other round indicator parameters only.
B.2 Analyses of 25 Samples 1 Time per Year (Years 11-30)	$5,100	$102,000	Assumes 12 wells, 4 surface, 2 leachate samples, 2 residential & 5 QA/QC for indicator and expanded parameter lists
C. Compile Data and Submit to MEDEP	$5,000	$100,000	Assumes data submitted to MEDEP after each sampling round
D. Complete Detail Review of GW Data at year 10 to Reduce Sampling	$15,000	$15,000	
E. Perimeter Gas Probe Monitoring	$3,800	$83,600	Assumes measurement of gas probes 4 time per year
Subtotal Yearly Cost Years 9-10	$46,800	$108,600	
Subtotal Yearly Cost Years 11-30	$26,400	$528,000	
Total Post Closure Water Quality & Methane Gas Monitoring		**$636,600**	
Landfill Inspection			
A. Monthly Site Walk Over & Report Generation	$12,600	**$277,200**	Assumes 14 hr. per month @ $75/hr. includes inspections of stormwater system, and annual report preparation
Active Landfill Gas Extraction System			
A. Equipment Replacement	$10,000	$220,000	General equipment replacement including well heads, condensate pumps etc.
B. Flare Maintenance	$6,500	$143,000	Replacement of flare parts such as flame arrestor etc.
C. Blower Maintenance	$5,000	$110,000	Routing inspection and maintenance on blower system
D. System Operations and Inspection	$5,000	$110,000	General system operations & maintenance
E. Well Tuning	$10,000	$220,000	Well tuning once per month
F. Compliance Monitoring	$5,000	$110,000	Collection of air monitoring samples
G. Methane scan	$1,000	$22,000	Assumes methane scan annually @ $1,000 per scan
H. Electrical	$21,000	$462,000	Electrical costs to run blower for average flow of 440 scfm
Total Active Landfill Gas Extraction System		**$1,397,000**	
Landfill Maintenance			
A. Cover Maintenance Including Annual Mowing & Erosion Repair	$12,000	$264,000	Assumes 3 man crew & equip. 6 days/ year
B.1 Pump Stations and Leachate Tank Inspections	$10,400	$228,800	Assumes 4 hr. week @ $50 per hour
B.2 Pump Replacement	$19,000	$83,600	Assumes replacing pumps in leachate & leak systems and leachate recirculation every 5 years
C. General Site Maintenance	$5,000	$110,000	Assumes items such as snow plowing, sedimentation pond cleaning and other routine items
D. Leachate Line Cleaning	$10,000	$220,000	Assumes cleaning once per year for years 9-10 then every other year for years 11-30 @ $20,000 per cleaning
Total Landfill Maintenance		**$906,400**	
Professional Services			
A. Engineering Services	$4,000	$88,000	General Services
B. Settlement and Stability Monitoring	$3,500	$77,000	Prepare yearly report
Total Professional Services		**$165,000**	
TOTAL		**$5,292,680**	

ATTACHMENT K

UPDATED OPERATIONS MANUAL SECTIONS

Appendices included within Attachment K:

K-1 Cover Page & Revisions Page

K-2 Updated Stormwater Pollution Prevention Plan

K-3 Revised Post-Closure Quarterly Inspection Form

Appendices K-1

PINE TREE LANDFILL

358 Emerson Mill Road

Hampden, Maine 04444

POST-CLOSURE MONITORING & MAINTENANCE PLAN

FEBRUARY 2010

REVISED FEBRUARY 2013

REVISED DECEMBER 2018

LIST OF REVISIONS

Date	Revisions
February 2010	Original PTL Post-Closure Manual Publication
January 2013	Revision #1 – Re-structuring of manual in accordance with Chapter 401.6 requirements, and addition of items noted in March 23, 26, 2012 and January 14, 2013 Maine Department of Environmental Protection comments (located in Attachment K).
December 2018	Revision #2 –Updated Stormwater Pollution Prevention Plan, Multi-Sector General Permit, Stormwater Discharges Associated with Industrial Activity (located in Attachment C) & Revision to the Post-Closure Quarterly Inspection Form (located in Attachment H.

Appendices K-2

STORMWATER POLLUTION PREVENTION PLAN

Maine Department of Environmental Protection

Multi-Sector General Permit
Stormwater Discharges
Associated with Industrial Activity

Facility:
Pine Tree Landfill
358 Emerson Mill Road
Hampden, Maine 04444

Prepared for:
New England Waste Services of ME, Inc.
110 Main Street, Suite 1308
Saco, Maine 04072

Prepared by:
St.Germain Collins
846 Main Street
Westbrook, Maine 04092

Revision 2.1

June 2018

St.Germain Collins File No.: 2137-0004

STORMWATER POLLUTION PREVENTION PLAN

Maine Department of Environmental Protection

Multi-Sector General Permit
Stormwater Discharges
Associated with Industrial Activity

Facility:
Pine Tree Landfill
358 Emerson Mill Road
Hampden, Maine 0444

Prepared for:
New England Waste Services of ME, Inc.
110 Main Street, Suite 1308
Saco, Maine 04072

Prepared by:
St.Germain Collins
846 Main Street
Westbrook, Maine 04092

Revision 2.1

June 2018

St.Germain Collins File No.: 2137-0004

Anthony Ortiz
Project Manager

Sandra J. Perry
Director of Environmental Health & Safety Services

TABLE OF CONTENTS

SITE INFORMATION i

EMERGENCY CONTACT INFORMATION i

1.0 INTRODUCTION AND PURPOSE 1

2.0 POLLUTION PREVENTION TEAM 1

3.0 SITE DESCRIPTION AND EVALUATION 2
- 3.1 Site Description 2
- 3.2 Sector-Specific Requirements 3
- 3.3 Direction of Stormwater Runoff and Receiving Waters 4
- 3.4 Representative Outfalls 5

4.0 POTENTIAL POLLUTANT SOURCES 5
- 4.1 Potential Pollutant Sources by Industrial Area/Activity 5
- 4.2 Wastewater/Process Water Containment 12
- 4.3 Spills and Leaks 12
- 4.4 Non-Stormwater Discharges 13

5.0 STORMWATER CONTROL MEASURES 14
- 5.1 Best Management Practices 14
- 5.2 Non-Structural BMPs 15
- 5.3 Structural BMPs 19
- 5.4 Maintenance Schedules/Procedures for Collection, Handling, and Disposal or Recycling of Residual Fluids 21
- 5.5 Training 21
- 5.6 Spill Prevention and Response 21

6.0 MONITORING REQUIREMENTS 22
- 6.1 Monitoring 22
- 6.2 Quarterly Visual Monitoring 23
- 6.3 Sector-Specific Benchmark Monitoring 24
- 6.4 Numeric Technology-Based Effluent Limitation Monitoring 24
- 6.5 Impaired Waters Monitoring 24
- 6.6 Routine Site Inspections 24
- 6.7 Additional Sector-Specific Inspections 25

7.0 SWPPP REVIEW AND CORRECTIVE ACTIONS 25
- 7.1 SWPPP Review 25
- 7.2 Corrective Actions 26
- 7.3 Corrective Action Report (CAR) 26

8.0 RECORDS AND RETENTION 27

9.0 CERTIFICATION 27

FIGURES

Figure 1: Site Location Map
Figure 2: Site Plan

APPENDICES

Appendix A: Notice of Intent
Appendix B: MEDEP NOI Approval Letter
Appendix C: 2016 MEDEP Multi-Sector General Permit
Appendix D: 2016 MEDEP MSGP Sector-Specific Requirements
Appendix E: Spill Reporting Form
Appendix F: Initial Evaluation of Non-Stormwater Discharges
Appendix G: Routine Inspection Form
Appendix H: SWPPP Training Log
Appendix I: Visual Monitoring of Stormwater Discharges Associated with Industrial Activity - MEDEP Procedure DEPLW0768
Appendix J: Quarterly Visual Monitoring Form
Appendix K: Corrective Action Report

SITE INFORMATION	
Site Name	Pine Tree Landfill
Street Address	358 Emerson Mill Road
City/Town	Hampden
County	Penobscot
Site Operator	New England Waste Services of ME, Inc.
Site Contact	Jeffrey Pelletier
Telephone	207-862-4200
Permit Owner	New England Waste Services of ME, Inc.
Permit Owner Address	110 Main Street, Suite 1308, Saco, Maine 04072
Hours of Operation	7:00am- 5:00pm Monday-Friday, 7:30am- 2:30pm Saturday (seasonally)
Type of Site	Landfill and Transfer Station
SIC/NAICS Codes	5093/562111
New Sub-Sector/Activity Code	L1/LF
Applicable Industrial Sector	L - Landfills and Land Application Sites N - Scrap Recycling and Waste Recycling
Multi-Sector General Permit Number	MER05B357
Permit Issued	December 8, 2016
Permit Expiration	March 8, 2022

EMERGENCY CONTACT INFORMATION	
Fire Department	911
Medical Emergency	911
MEDEP Oil Spill Response Hotline	1-800-482-0777

PLAN REVISION LOG		
REVISION #	**DATE**	**REVISION DETAIL**
1.0	8/1/2017	Updated Section 6.3, Sector-Specific Benchmark Monitoring requirements.
2.0	3/1/2018	Updated plan to reflect comments from MEDEP site inspection.
2.1	6/13/2018	Updated plan to reflect comments from MEDEP site inspection.

1.0 INTRODUCTION AND PURPOSE

New England Waste Services of ME, Inc. (NEWSME) is located at 358 Emerson Mill Road in Hampden, Maine (see **Figure 1, Site Location Map**). Industrial activities and point source discharges of stormwater to Waters of the State of Maine occur at this site, therefore, a Multi-Sector General Permit (MSGP) is required by the Maine Department of Environmental Protection (MEDEP). The site must develop a Stormwater Pollution Prevention Plan (SWPPP) under the MSGP. The purpose of the SWPPP is to identify potential pollutant sources (PPSs) that may contaminate stormwater as well as non-structural and structural control measures needed to reduce pollutants in stormwater.

In January of 2017, NEWSME submitted a Notice of Intent (NOI) to the MEDEP for coverage under the MSGP. Copies of the NOI submitted by NEWSME, the MEDEP NOI Approval Letter, and the MSGP are provided in **Appendices A, B**, and **C**, respectively.

2.0 POLLUTION PREVENTION TEAM

The Stormwater Pollution Prevention Team is responsible for the following:

- Coordinating and implementing all stages of SWPPP development;
- Coordinating employee training programs;
- Keeping all records and ensuring that reports are submitted;
- Reviewing changes to site operations and updating the SWPPP, as necessary;
- Implementing the control measures and preventive maintenance program;
- Overseeing good housekeeping activities; and
- Conducting monitoring and inspections.

Table 1 - Pollution Prevention Team

Name	Responsibilities
Wayne Boyd/ Jeffrey Pelletier	Coordinating and implementing all stages of SWPPP development.
Jeffrey Pelletier	Coordinating employee training programs, keeping all records and ensuring that reports are submitted.
Jeffrey Pelletier	Reviewing changes to site operations and updating the SWPPP when necessary.
Jeffrey Pelletier/ Kurtis Brown	Implementing the control measures and preventive maintenance program, overseeing good housekeeping activities, and conducting monitoring and inspections.

3.0 SITE DESCRIPTION AND EVALUATION

3.1 Site Description

NEWSME operates the Pine Tree Landfill located at 358 Emerson Mill Road in Hampden, Maine. NEWSME discontinued the acceptance of non-recyclable solid waste at this facility effective December 31, 2009. Final cover has been applied to all areas of the landfill. NEWSME continues to process single-stream recyclable waste in Area C of the landfill site. Continuing operations at NEWSME include the following:

- Stockpiling of Construction and Demolition Debris (CDD), whole tires, tire chips, Chlorofluorocarbon (CFC) appliances, etc.;
- Stockpiling of single-stream recyclable household waste;
- Leachate and methane gas collection;
- Landfill Gas to Energy (LFGTE) facility;
- Limited equipment repair and maintenance; and
- Administration.

Figure 2, Site Plan shows the following details, as applicable:

- Boundaries of the property and the size of the property in acres;
- Location and extent of significant structures and impervious surfaces;
- Directions of stormwater flows;
- Locations of all stormwater control measures;
- Locations of all receiving waters, including wetlands, in the immediate vicinity of the site;
- Locations of all stormwater conveyances including catch basins, ditches, pipes, and swales;
- Locations of potential pollutant sources;
- The location of all wastewater or process water containment tanks;
- Locations where significant spills or leaks identified have occurred within the past three years (areas of frequent spills with >3 spills/year or areas with large spills of > 10 gallons);
- Locations of all stormwater monitoring points;
- Locations of stormwater inlets and outfalls (with a unique identification code for each) and an approximate outline of the areas draining to each outfall: and
- Locations of the following activities where such activities are exposed to precipitation:
    - fueling stations;
    - vehicle and equipment maintenance areas;
    - loading/unloading areas;
    - locations used for the treatment, storage, or disposal of wastes;
    - liquid storage tanks;

- processing and storage areas;
- immediate access roads used or traveled by carriers of raw materials;
- transfer areas for substances in bulk;
- machinery;
- active and closed landfill cells or trenches;
- active and closed land application areas; and
- leachate collection and handling systems.

3.2 Sector-Specific Requirements

NEWSME is subject to additional requirements set forth in Appendix L of the MSGP for Industry Sector L - Landfills and Land Application Sites (see **Appendix D** of the **SWPPP**). There is no Standard Industrial Code (SIC) for landfills. A list of the specific requirements for this sector is provided below. Each is addressed in the appropriate sections of this plan.

- Covered Stormwater Discharges
- Industrial Activities Covered by Sector L
- Limitations on Coverage
- Definitions
- Additional Technology-Based Effluent Limits
- Additional SWPPP Requirements
- Additional Inspection Requirements
- Additional Post-Authorization Documentation Requirements
- Sector-Specific Benchmarks
- Effluent Limitations Based on Effluent Limitations Guidelines

This permit authorizes stormwater discharges from landfills that receive or have received industrial waste, including sites subject to Subtitle D of the Resource Conservation Recovery Act (RCRA).

The following sites and discharges are not authorized under this permit:

- Landfills that receive only municipal wastes;
- Any leachate, gas collection condensate, drained free liquids, contaminated groundwater, laboratory wastewater, and contact wash water from washing truck and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill; and
- Discharges from open dumps as defined under RCRA.

NEWSME is also subject to additional requirements set forth in Appendix N of the MSGP for Industry Sector N - Scrap Recycling and Waste Recycling (see **Appendix D** of the **SWPPP**). A list of the specific requirements for this sector is provided below. Each is addressed in the appropriate sections of this plan.

- Covered Stormwater Discharges
- Limitations on Coverage
- Additional Technology-Based Effluent Limits
- Additional SWPPP Requirements
- Additional Inspection Requirements
- Sector-Specific Benchmarks
- Effluent Limitations Based on Effluent Limitations Guidelines

3.3 Direction of Stormwater Runoff and Receiving Waters

There are nine point source discharges of stormwater identified at the site (Outfalls #1, Outfall #2A, Outfall #2B, Outfall #3, Outfall #4, Outfall #5, Outfall #6, Outfall #7 and Outfall #8) which discharge to Souadabscook Stream and an unnamed tributary of Cold Brook Stream.

The closed landfill cells have a vegetated cover which allows stormwater runoff to flow through designated channels and swales and into receiving waters.

Stormwater flowing off the northern side of the landfill is directed through a series of drainage channels and vegetated swales into the North Detention Basin, composed of wetlands and freshwater marshes. The stormwater in the basin flows through Outfall #1 (a weir) and into an unnamed tributary of Cold Brook Stream.

Stormwater flowing off the northwestern side of the landfill is combined with runoff from the maintenance garage in a ditch on the east side of the railroad tracks. The runoff flows south, crossing under the main access to the landfill through two 24-inch culverts (Outfalls #2A and #2B). The culverts discharge to a ditch that eventually empties into Souadabscook Stream. Outfall #2A is closest to the railroad tracks and #2B is closest to the landfill.

Stormwater flowing off the south, southeastern and southwestern sides of the landfill is collected in the South Detention Basin. Stormwater discharges from this basin through Outfall #3 into a wide, level vegetated area that abuts Souadabscook Stream.

The stormwater from the empty container storage area is collected in a detention basin that flows through Outfall #4 prior to discharging into a vegetated swale.

A bypass structure has been put in place to prevent runoff to the location of Outfall #5. The runoff will continue to flow through the perimeter ditch leading to the south detention basin and Outfall #3. Outfall #5 is still inspected on a regular basis to confirm that the bypass structure is properly functioning

The stormwater from the equipment/materials laydown area (near administrative office building) flows east to the equipment laydown detention pond and is discharged into the vegetated swale through Outfall #6.

Stormwater runoff from areas around the LFGTE facility is directed to a natural drainage swale that flows east toward and beneath Old Cold Brook Road (Outfall #7) into an unnamed tributary of Cold Brook Stream.

Stormwater collected from Area C (CDD, tire and CFC appliance storage areas), truck scales and scale house, and the administrative office building is directed to a culvert south of the scale house. The culvert flows through a level spreader identified as Outfall #8, that discharges to a wet area that empties to Souadabscook Stream.

A summary description of stormwater runoff by industrial area or activity is provided in Section 4.1.

3.4 Representative Outfalls

Outfalls #2A and #2B are both located within the same drainage area (2A and 2B) and cover an area of approximately 92,375 square feet each. Both outfalls receive very similar runoff from the northwestern side of the landfill and the maintenance garage.Therefore, these outfalls qualify as representative outfalls according to B.13 in the Special Conditions section of the MSGP, and only one of the discharges must be sampled per quarter.

4.0 POTENTIAL POLLUTANT SOURCES

4.1 Potential Pollutant Sources by Industrial Area/Activity

A description of industrial areas/activities that have the potential to be exposed to stormwater are described in Table 2 below and depicted on **Figure 2, Site Plan**.

Table 2 - Potential Pollutant Sources

Industrial Area/Activity	Description	Pollutants	Direction of Stormwater Runoff
Equipment/Materials Laydown Area (PPS-1)	Site equipment and materials are stored here when not in use.	Diesel, Antifreeze, Sediment and Suspended Solids	Stormwater from the equipment/materials laydown area flows east to the equipment laydown detention pond and is discharged into the vegetated swale through Outfall #6.

Table 2 - Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Container Storage Area (PPS-2)	Empty roll-off containers are stored here when not in use.	Sediment and Suspended Solids	Stormwater from the container storage area is collected in a detention basin that flows through Outfall #4 prior to discharging into a vegetated swale.
Area C (Transfer Station) (PPS-3)	This area is used for the stockpiling of CDD, whole tires, tire chips, CFC appliances and single-stream recyclables.	CDD, Tires, Diesel, Metal, Antifreeze, Sediment and Suspended Solids	Stormwater collected from these areas is directed to a culvert south of the scale house. The culvert flows through a level spreader identified as Outfall #8, that discharges to a wetland that empties to Souadabscook Steam.
500-Gallon Diesel AST (PPS-4)	This tank is used to fuel site equipment and is located in Area C.	Diesel	
Truck Scale and Scale House (PPS-5)	Trucks coming in and leaving the facility are weighed on the scale.	Diesel, Antifreeze, Leachate, Metal, CDD, Sediment and Suspended Solids	
Leachate Storage Tank Truck Loading Facility (PPS-6)	Leachate is pumped from a dedicated storage tank to tanker trucks at the leachate storage tank truck loading facility for offsite disposal.	Diesel, Antifreeze, Leachate, Sediment and Suspended Solids	Stormwater from this area is directed into the leachate storage tank secondary containment, where it is stored until manually pumped to the north detention basin, composed of wetlands and freshwater marshes. The stormwater in the basin flows through Outfall #1 (a weir) and into an unnamed tributary of Cold Brook Stream.

Table 2 - Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
900,000-Gallon Leachate Storage Tank (PPS-7)	This tank is used for the storage of leachate collected from the landfill and to supply tanker trucks for offsite disposal of leachate.	Leachate	Same as PPS-6.
Access Roads (PPS-8)	Access roads run throughout the site.	Diesel, Gasoline, Antifreeze, Sediment and Suspended Solids	Runoff flows into various drainage channels discharging at Outfalls #1-8.

Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Wet Scrubber Building (PPS-9)	The LFGTE facility and Wet Scrubber Building take the landfill gas (LFG) that is captured via extraction wells throughout the landfill and is cleaned (in the wet scrubber building) before specialized engines (in the LFGTE Facility) convert it to energy for use by the facility and the nearby community.	Caustic, Sulfur Slurry, Natco Nutrimix, Glycol, Foam Control Agent	Stormwater runoff from areas around the LFGTE Facility and Wet Scrubber Building is directed to a natural drainage swale that flows east toward and beneath Old Cold Brook Road (Outfall #7) into an unnamed tributary of Cold Brook Stream.
LFGTE Facility (PPS-10)		Used oil, Diesel, Lubricating Oil and Batteries	
Soil Stockpile Area (PPS-11)	Soil to be used throughout the facility for erosion control is stored here prior to use.	Sediment and Suspended Solids	Stormwater in this area is collected in the South Detention Basin. Stormwater discharges from this basin through Outfall #3 into a wide, level vegetated area that abuts Souadabscook Stream.

Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Leachate Recirculation System (PPS-12)	Some of the leachate that is generated in the landfill is pumped from the leachate storage tank to the top of the landfill where it is recirculated back into the closed landfill, through a system of infiltration pipes below the final cover and at gas extraction points.	Leachate	The closed landfill cells have a vegetated cover which allows stormwater runoff to flow through designated channels and swales and into receiving waters. Stormwater flowing off the northern side of the landfill is directed through a series of drainage channels and vegetated swales into the north detention basin, composed of wetlands and freshwater marshes. The stormwater in the basin flows through Outfall #1 (a weir) and into an unnamed tributary of Cold Brook Stream. Stormwater flowing off the northwestern side of the landfill is combined with runoff from the maintenance garage in a ditch on the east side of the railroad tracks. The runoff flows south in a ditch, crossing under the main access road to the landfill through two 24-inch culverts (Outfalls #2A and #2B). The culverts discharge to a ditch that eventually empties into Souadabscook Stream. Stormwater flowing off the south, southeastern and southwestern sides of the landfill is collected in the south detention basin. Stormwater discharges from this basin through Outfall #3 into a wide, level vegetated area that abuts Souadabscook Stream.

Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Administrative Parking Area (PPS-13)	Multiple employee and visitor vehicles are parked here during operating hours.	Diesel, Gasoline, Antifreeze, Sediment and Suspended Solids	Same as PPS-1
Maintenance Garage (PPS-14)	Damaged roll-off containers and dumpsters are repaired and repainted in one half of the building. In the other half of the building, the space is leased to North Coast Services, which uses the building as a consolidation facility for their universal waste collection in Maine.	Latex Paint, Oil, Grease, Diesel, Waste Oil and Metals	Stormwater flowing in the area of the maintenance garage flows into a ditch on the east side of the railroad tracks. The runoff flows south in a ditch, crossing under the main access to the landfill through two 24-inch culverts (Outfalls #2A and #2B). The culverts discharge to a ditch that eventually empties into Souadabscook Stream.
Sector-Specific			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Fertilizer, Herbicide, and Pesticide Application Areas	Not applicable	Not applicable	Not applicable

Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Earth and Soil Moving Areas (PPS-15)	There are soil stockpile areas where soil that will be used throughout the facility for erosion control purposes is stored prior to use.	Sediment and Suspended Solids	Same as PPS-11
Waste Hauling and Loading/Unloading Areas (PPS-16)	Area C is used for the stockpiling of CDD, whole tires, tire chips, CFC appliances and single stream recyclables.	CDD, Tires, Diesel, Metal, Antifreeze, Sediment and Suspended Solids	Stormwater collected from this area is directed to a culvert south of the scale house. The culvert flows through a level spreader which is identified as Outfall #8, which discharges to a wet area that empties to Souadabscook Stream.
Outdoor Storage of Significant Materials (Includes daily, interim, and final cover material stockpiles as well as temporary waste storage areas) (PPS-17)	There are soil stockpile areas where soil that will be used throughout the facility for erosion control purposes, is stored prior to use.	Sediment and Suspended Solids	Same as PPS-11

Potential Pollutant Sources			
Industrial Area/Activity	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
Exposure of Active and Inactive Landfill and Land Application Areas (PPS-18)	The closed landfill cells have a vegetated cover which allows stormwater runoff to flow through designated channels and swales and into receiving waters.	Leachate	Same as PPS-12.
Uncontrolled Leachate Flows (PPS-19)			
Failure or Leaks from Leachate Collection and Treatment Systems (PPS-20)			

Note: Includes significant materials handled, treated, stored, and exposed in prior three years.

4.2 Wastewater/Process Water Containment

The following wastewater and/or process water storage tanks are present at the site.

Table 3 - Wastewater/Process Water Containment Tanks			
Tank	**Description**	**Pollutants**	**Direction of Stormwater Runoff**
900,000-Gallon Leachate Storage Tank	This tank is used for the storage of leachate collected from the landfill and to supply tanker trucks for offsite disposal of leachate. The tank is equipped with a level transducer that constantly monitors the level in the tank.	Leachate	Stormwater from this area is directed into the leachate storage tank secondary containment until it is manually pumped through a force main to the north detention basin, composed of wetlands and freshwater marshes. The stormwater in the basin flows through Outfall #1 (a weir) and into an unnamed tributary of Cold Brook Stream.

4.3 Spills and Leaks

No known external spills of oil or hazardous substances have occurred at the site in the past three years.

All spills or leaks are documented using the Spill Reporting Form in Appendix E. These records will be kept onsite with the SWPPP. Locations where significant spills and leaks have occurred are also shown on **Figure 2, Site Plan**. Spill prevention and response procedures are discussed further in Section 5.5.

4.4 Non-Stormwater Discharges

The site has been evaluated for unauthorized non-stormwater discharges. The site must conduct an initial inspection for new non-stormwater discharges. Documentation for this inspection is provided in Appendix F, which includes:

- The date of the evaluation;
- A description of the evaluation criteria used;
- A list of the outfalls or onsite drainage points that were directly observed during the evaluation; and
- The action(s) taken or list of control measures used to eliminate unauthorized discharge(s), or documentation that a separate MEPDES permit was obtained.

A list of potential and authorized non-stormwater discharges at the site is provided in the table below.

Table 4 - Non-Stormwater Discharges

Allowable/Potential Non-Stormwater Discharges	Status	Best Management Practices
Firefighting activities	Not applicable	Not applicable
*Fire hydrant flushings	Not applicable	Not applicable
*Potable water, including water line flushings	Not applicable	Not applicable
Uncontaminated condensate from air conditioners, coolers, other compressors, and outside storage of refrigerated gases or liquids	Not applicable	Not applicable
Irrigation drainage	Not applicable	Not applicable
**Landscape watering	Not applicable	Not applicable
Routine external building wash-down/power wash water not contaminated with detergents or hazardous cleaning products	Not applicable	Not applicable
Uncontaminated groundwater and springs	Not applicable	Not applicable
Uncontaminated utility vault dewatering	Not applicable	Not applicable

Table 4 - Non-Stormwater Discharges		
Allowable/Potential Non-Stormwater Discharges	**Status**	**Best Management Practices**
Water from building foundations or footings not contaminated by contact with process materials	Not applicable	Not applicable
Incidental mist from cooling towers that collects on roofs or adjacent portions of the site	Not applicable	Not applicable
Incidental water that does not contain detergents from on-site rinse stations	Not applicable	Not applicable
Incidental condensed steam that does not contribute to violations of water quality standards	Not applicable	Not applicable
Wash water from cleaning roads, parking lots, sidewalks or other paved surfaces that does not contain detergents, hazardous cleaning products, oil & grease, or toxic pollutants	Not applicable	Not applicable
***Wash water from vehicles and equipment cleaning	Not applicable	Not applicable
Non-stormwater discharges explicitly authorized in Sectors A through AD	Not applicable	Not applicable

*Must not contribute to a violation of MEDEP water quality standards and be documented in the SWPPP.
**Provided any pesticides, herbicides, and fertilizers have been applied in accordance with MEDEP regulations.
***Wash water from the cleaning of engines, undercarriages, and transmissions is prohibited. All wash water from the interior of truck trailers or other large commodity carrying containers must be collected and discharged to the POTW.

5.0 STORMWATER CONTROL MEASURES

This section describes stormwater controls that are in place or that will be implemented to control pollutants that have the potential to impact stormwater quality. In accordance with Section L of the MSGP, the following criteria were taken into consideration in the selection of Best Management Practices intended for compliance with applicable Non-Numeric and Numeric Technology-Based Effluent Limitations.

5.1 Best Management Practices

When selecting and designing Best Management Practices (BMPs) for the site, the following parameters must be considered:

1. Preventing stormwater from coming into contact with significant materials;
2. Using control measures in combination to minimize pollutants in stormwater discharges;
3. The quantity and nature of potential pollutant sources, and potential to impact the water quality of the receiving waters;
4. Opportunities to offset stormwater and temperature impacts from impervious areas on dry weather flows and low flow situations to streams;
5. Minimizing impervious areas at the site and infiltrating runoff onsite;
6. Conserving and/or restoring riparian buffers;
7. Attenuating flow using open vegetated swales and natural depressions; and
8. Use of treatment interceptors to minimize the discharge of pollutants.

5.2 Non-Structural BMPs

Descriptions of non-structural control measures are provided in the table below.

Table 5 - Non-Structural Best Management Practices

Non-Structural BMPs	Description
Minimizing Exposure There are operations in place to minimize the exposure of industrial activities and materials at the site to stormwater.	• Grading, berming, and/or curbing is used to prevent runoff of contaminated flows and divert run-on away from these areas; • Materials, equipment, and activities are located such that potential leaks and spills are contained or able to be contained or diverted before discharge; • Spills or leaks are cleaned up promptly upon discovery using dry methods (e.g., absorbents) and disposed of properly; and In the event of leaky vehicles or equipment, indoor storage may be provided in the maintenance garage or drip pans and absorbents are used.
Good Housekeeping Good housekeeping measures are performed to avoid or minimize pollutant exposure to stormwater.	• Routine sweeping is performed; • Materials are properly placed, stored and contained; • Onsite sources of dust are identified and controlled to minimize stormwater contamination; • Soils are stabilized to prevent erosion; • Snow storage and disposal areas are operated to minimize pollutant runoff; and • Exposed areas are kept free of waste, garbage and floatable debris to prevent their discharge to receiving waters.

Table 5 - Non-Structural Best Management Practices	
Non-Structural BMPs	**Description**
Preventive Maintenance A preventive maintenance program is implemented to maintain all control measures at the site.	• Inspections and maintenance of stormwater management devices are performed in a timely matter; • Proper spill equipment supplies are maintained near where spills could occur; and • Site equipment and systems are inspected, tested, maintained, and repaired to avoid breakdowns or failure that may result in releases of potential pollutants to surface waters.
Spill Prevention Spill prevention and cleanup procedures have been established and are available to employees who may cause or encounter a spill or leak.	• Procedures for material storage and handling have been implemented; • Procedures for quick response to stop leaks, spills, and other releases have been implemented; • Employees are trained on detecting and responding to a spill; • Notification procedures for emergency response and regulatory agencies are in place; and • Documentation is included in the SWPPP files.
Employee Training Annual employee training is provided for employees who work in areas where industrial materials or activities exposed to stormwater and those responsible for implementing activities identified in the SWPPP.	• An overview of the SWPPP contents; • Spill response procedures, good housekeeping, maintenance requirements, and material management practices; • The location of all controls required by the MSGP, and how they are maintained; • Proper procedures to meet pollution prevention requirements; and • When and how to conduct inspections, record findings, and take corrective actions.

Table 6 - Sector-Specific Requirements	
The requirements in Sector L apply to stormwater discharges associated with industrial activity from Landfills, Land Application Sites, and Open Dump facilities as identified by the SIC/NAICS Codes specified in Attachment A of the MSGP. The requirements in Sector N apply to stormwater discharges associated with industrial activity from Recycling Facilities (source separated, non-liquid, recyclable materials) as identified by the SIC/NAICS Codes specified in Attachment A of the MSGP. Technology-based effluent limits for these sectors are addressed below when applicable.	
Non-Structural BMPs	**Description**
Preventative Maintenance Program Ensure that sector-specific requirements are included in the preventative maintenance program.	• Leachate collection and treatment systems are maintained to prevent the commingling of leachate with stormwater; and • The integrity and effectiveness of any intermediate or final cover, including any repairs, is maintained to minimize the effects of settlement, sinking, and erosion.
Erosion and Sedimentation Program Provide temporary stabilization measures at the site.	• Temporary stabilization (e.g. temporary seeding, mulching and placing of geotextiles) is applied, as necessary, on materials used for daily, intermediate, and final cover; • Temporary stabilization is applied, as necessary, on inactive areas of the landfill; and • Temporary stabilization is applied, as necessary, on land application sites where waste application has been completed but final vegetation has not yet been established.
Inbound Recyclable Material Control Minimize the chance of accepting non-recyclables that could be a significant source of pollutants.	• Inspections of inbound materials are conducted; • Information and education measures are provided to inform suppliers about acceptable and non-acceptable materials; • Drivers responsible for pickup of recyclable materials are trained; • Public drop-off containers are clearly marked as to which materials can be accepted; and • Non-recyclable wastes are rejected.

Table 6 - Sector-Specific Requirements	
Outdoor Storage Minimize exposure of recyclables to precipitation and runoff.	• Good housekeeping measures have been implemented to prevent accumulation of particulate matter and fluids, particularly in high traffic areas; • A dike is provided for secondary containment for the 500-gallon diesel tank; • Surface water runoff is diverted away from outside material storage areas; and • Containment bins, dumpsters, and roll-off containers are kept covered; or sufficient secondary containment is provided as practicable.
Indoor Storage and Material Processing Minimize exposure of recyclables to precipitation and runoff.	• Good housekeeping measures for all storage and processing areas have been implemented; and • Employee training on pollution prevention practices is provided.
Vehicle and Equipment Maintenance Minimize the discharge of pollutants in stormwater areas where vehicle and equipment maintenance occur outdoors.	Not applicable.

5.3 Structural BMPs

Descriptions of structural control measures are provided in the table below. See Figure 2, Site Plan for locations of the structural BMPs.

Table 7 - Structural Best Management Practices	
Structural BMPs	**Description**
Sediment and Erosion Control For areas at the site having a potential for significant or persistent soil erosion, dust generation or vehicle tracking (if applicable).	Structural BMPs include: • Swales • Rip rap • Level spreaders • Bark mulch sediment berms • Silt fence • Hay bales • Stone berms

Table 7 - Structural Best Management Practices	
Structural BMPs	**Description**
Stormwater Structural Devices Permanent structural BMPs other than those which control the generation or source(s) of pollutant(s.)	Structural BMPs include: • Drainage channels • Culverts • Stone check dams • Detention ponds/detention basins • Secondary containment basin • Secondary containment berm • Litter fence • Final cover • Liner and leachate collection system
Sector-Specific Requirements	
Structural BMPs	**Description**
Sediment and Erosion Control Minimize erosion from the site by utilizing temporary stabilization practices*.	Structural BMPs include: • Seeding • Mulching • Geotextiles • Hay bales
Scrap and Waste Material Stockpiles and Storage (Outdoor) Areas The site must install the following, if feasible, to help settle pollutants and divert stormwater.	Structural BMPs include: • Permanent or semi-permanent cover • Vegetative swales and strips • Culverts • Silt fence • Surface grading
Scrap and Recyclable Waste Processing Areas The site must install the following, to minimize stormwater contact with pollutants.	Not applicable.

*Ensure that sediment and erosion control measures are utilized in the following areas:

1. Materials stockpiled for daily, intermediate, and final cover;
2. Inactive areas of the landfill or open dump;
3. Landfills or open dump areas with final covers but where vegetation has yet to be established; and
4. Land application sites where waste application has been completed but final vegetation has not been established.

5.4 Maintenance Schedules/Procedures for Collection, Handling, and Disposal or Recycling of Residual Fluids

The site does not stockpile turnings exposed to cutting fluids. Therefore, the site does not need to identify a maintenance schedule and procedures to collect, handle, and dispose of or recycle residual fluids.

5.5 Training

Employees are trained on the following when hired and annually thereafter:

1. An overview of what is in the SWPPP;
2. Spill response procedures, good housekeeping, maintenance requirements, and material management practices;
3. The location of all controls on the site required by the MSGP, and how they are to be maintained;
4. The proper procedures to follow with respect to the MSGP's pollution prevention requirements; and
5. When and how to conduct inspections, record applicable findings, and take corrective actions.

Training is documented on the SWPPP Training Log, copies of which are kept in the SWPPP files. A copy of a blank SWPPP Training Log is provided in **Appendix I**.

5.6 Spill Prevention and Response

Spills or leaks are recorded on the **Spill Reporting Form (Appendix E)**; copies of which are kept in the SWPPP files. Materials used to address spills such as absorbent pads are shown on **Figure 2, Site Plan**. When a petroleum or hazardous substance spill event takes place, the following actions should be taken in the sequence indicated:

For a <u>minor spill</u> that can be immediately contained by site personnel using onsite spill control equipment and materials, the following procedures should be implemented:

1. Immediately upon observing a spill, find the source and take appropriate measures (if they can be performed safely) to stop the flow, including, as necessary, shutting down any operations that are contributing to the spill or may increase the hazard potential.

2. Notify nearby employees (if any) of the spill and the possible hazards.

3. Contain the spill through the use of containment devices such as absorbent booms or remove the discharge via use of absorbent pads and/or granular absorbent material.

4. Notify the Pollution Prevention Team, who will notify local, state and federal agency representatives as appropriate.

5. Proceed quickly with recovery and clean-up measures using absorbent pads and/or granular absorbent material. Take measures to prevent the spill from entering the drainage system (i.e., close the containment berm drain).

For a major spill that cannot be immediately contained by site personnel using onsite spill control equipment and materials, the following procedures should be implemented:

1. Immediately upon observing a spill, find the source and take appropriate measures (if they can be performed safely) to stop the flow, including, as necessary, shutting down any operations that are contributing to the spill or may increase the hazard potential.

2. Notify nearby employees (if any) of the spill and the possible hazards.

3. To the extent possible, and if it can be performed safely, contain the spill and keep discharge from entering the drainage system or spreading by using absorbent booms or pads.

4. Notify the Pollution Prevention Team, who will notify the emergency response contractor, and the appropriate local, state and federal agency representatives.

5. Containment and clean-up activities must continue until the Pollution Prevention Team, and the local, federal and/or state agency representatives agree that such activities may be discontinued.

Contaminated cleanup materials must be handled and disposed in accordance with applicable state and federal requirements. Management of cleanup materials contaminated by hazardous substances depends on the type of hazardous substance.

6.0 MONITORING REQUIREMENTS

6.1 Monitoring

Stormwater samples must be collected during a "Qualifying Storm Event" as defined in the MSGP as *precipitation or ice/snow melt waters that produce a measurable discharge of 0.1 inch or more within a 24-hour period at an outfall at least 72 hours from a previous qualifying storm event*.

In the event that a Qualifying Storm Event does not occur during an entire calendar quarter, it must be documented that there was no discharge to sample.

6.2 Quarterly Visual Monitoring

Visual monitoring must be performed once per calendar quarter.

Samples must be collected as follows:

- During a storm event that produces a discharge at the outfall, or in the case of snowmelt, during a period with a measurable discharge from the outfall;
- Sample(s) must be taken within the first 60 minutes, and no more than 2.25 hours following the beginning of the discharge. If a sample cannot be collected within the first 60 minutes, the reason must be documented;
- Samples must be representative of the discharge;
- Samples must be collected in a clean, colorless glass or plastic container and examined in a well-lit area;
- Samples must be collected during normal business hours; and
- The samples must be visually inspected for:
    - Color;
    - Odor;
    - Clarity;
    - Floating solids;
    - Settled solids;
    - Suspended solids;
    - Foam;
    - Oil sheen; and
    - Other obvious indicators of stormwater pollution.

Visual assessments must be performed and documented in accordance with standard operating procedures outlined in MEDEP document DEPLW0768, Visual Monitoring of Stormwater Discharges Associated with Industrial Activity, provided in Appendix J, copies of which are kept in the SWPPP files.

The visual monitoring is documented on a blank **Quarterly Visual Monitoring Form** provided in **Appendix J**. The form must be signed and certified by a "Responsible Corporate Officer." A copy of each completed form is maintained with the SWPPP files.

If no qualifying stormwater discharge event occurs during a quarter, it must be documented, and records maintained in the SWPPP files.

MEDEP inspected the facility on May 8, 2018 and submitted a report on May 10, 2018 that indicated that outfalls from the closed landfill portion of the facility may be removed from the sampling. That consists of outfalls #1, #3, #5, #6 and #7. Outfalls #2A and #2B will continue to be sampled while reconstruction of the drainage area 2A and 2B. After the work has fully stabilized these outfalls will be removed from sampling going forward. The sample spots to remain are outfalls #4 and #8.

6.3 Sector-Specific Benchmark Monitoring

Benchmark monitoring is required for certain industry sectors, including Sector N of the MSGP. However, only Sub-Sector N1 (non-source separated recycling facilities) are subject to these requirements. As this site falls under Sub-Sector N2 (source-separated recycling facilities) and no processing of any materials is conducted onsite, benchmark monitoring is not required.

6.4 Numeric Technology-Based Effluent Limitation Monitoring

Numeric effluent limitation monitoring is required for Sections A, C, D, E, H, J, K, L, O and S (MSGP Section I). The site is regulated under sector L, however per 40 CFR 455 Subpart B, there are no contaminated stormwater discharges, therefore numeric effluent limitation monitoring is not required at this site.

6.5 Impaired Waters Monitoring

The MEDEP will determine whether a facility discharges to an impaired water based on receiving water information provided by the applicant on the NOI form. If the receiving water is determined to be impaired, the MEDEP may require additional monitoring to ensure stormwater discharges comply with applicable water quality laws and this MSGP.

6.6 Routine Site Inspections

Routine inspections must be performed on a quarterly basis with at least one inspection per year completed during a period when a stormwater discharge is occurring. The inspections cover:

- Areas where industrial materials or activities are exposed to stormwater;
- Areas identified in the SWPPP and those that are PPSs;
- Areas where spills and leaks have occurred in the past three years;
- Discharge points; and

- Control measures used to comply with the requirements of the MSGP.

The results of the inspection are documented in a report that includes the date and time of inspection, the name and signature of the inspector(s), weather information (precipitation in the previous 48-hour period), observations, assessment of structural control measures, corrective actions taken, and any incidents of noncompliance. A blank **Routine Inspection Form** is provided in **Appendix G**.

If any deficiencies are noted during a routine inspection or a visual assessment shows evidence of stormwater pollution, all reasonable steps must be taken during that same day to minimize any adverse effects.

If additional actions are necessary, follow the protocol in Section 7.2 to complete the corrective action(s).

6.7 Additional Sector-Specific Inspections

Sector L requires inspections to be conducted at the site at least once every seven days for active sites. Because this the landfill portion of this facility is inactive, only the quarterly routine inspection is required.

7.0 SWPPP REVIEW AND CORRECTIVE ACTIONS

7.1 SWPPP Review

The SWPPP must be reviewed and revised as necessary, under any of the following conditions:

- An unauthorized release or discharge occurs;
- There is violation of a numeric effluent limit;
- Control measures are not stringent enough for the discharge to meet applicable water quality standards or the non-numeric effluent limits (i.e., BMPs) in this permit;
- A required control measure was never installed, was installed incorrectly, or is not being properly operated or maintained;
- Whenever a visual assessment shows evidence of stormwater pollution;
- Monitoring, inspections, or investigations by local, state, or federal officials determine that the SWPPP in ineffective or that there is a discharge that could contribute to the violation of a water quality standard;
- There is a change in site design or construction or maintenance that significantly changes the nature or quantity of pollutants discharged; or
- The average of four quarterly sampling results exceeds an applicable benchmark.

All other amendments to the SWPPP must be completed within 30 days of discovery of the condition.

7.2 Corrective Actions

If any of the conditions in Section 7.1 are identified, then the following procedures must be implemented:

1. Immediate Actions**:** Immediately (on the same day) all reasonable steps necessary to minimize or prevent the discharge of pollutants should be taken until a permanent solution is installed and made operational. If a problem is identified too late in the workday to initiate a corrective action, then the action must be initiated no later than the following workday.

2. Subsequent Actions: If it is determined that additional actions are necessary they must be completed prior to the next storm event if possible, and within 14 calendar days from the time of discovery. If this is not feasible, the reason for the delay must be documented and the improvement completed within 45 days of discovery. The MEDEP must be notified if completion will exceed the 45-day timeframe. The rationale for an extension and completion date must be included in the notification.

If changes in the SWPPP are required, the plan must be modified within 14 calendar days of completing corrective action work.

7.3 Corrective Action Report (CAR)

A Corrective Action Report (CAR) must be a signed, certified report to document actions taken in response to triggering the need for corrective action review due to an exceedance of a water quality based limitation, ambient water quality criterion, or a deficiency identified in a Department inspection report.

The CAR must include the following information:

1. The existence of any of the conditions listed in Section 7.1 and a description of the condition triggering the need for corrective action review;
2. A description any incident causing a spill or leak including: the material, date/time, amount, location, and reason that it resulted in a discharge of pollutants to Waters of the State of Maine through stormwater or otherwise;
3. The date the condition was identified;
4. A description of immediate actions completed and measures to prevent recurrence;
5. A description of corrective actions to be taken as a result of the identified conditions;

6. The dates when each corrective action was initiated and completed, or expected to be completed; and
7. If the event occurred at a "substantially identical outfall" documentation that the need for corrective actions at the others was assessed must be included.

A blank CAR is provided in **Appendix L**. The CAR must be signed and certified and maintained with the SWPPP.

8.0 RECORDS AND RETENTION

The following documents must be kept onsite in accordance with Section M of the MSGP.

- A copy of the NOI submitted to the MEDEP (**Appendix A**);
- A copy of the NOI Approval issued by the MEDEP (**Appendix B**);
- A paper copy of the MSGP and any industry sectors applicable to the site (**Appendices C and D**);
- Documentation of maintenance and repairs of control measures;
- All inspection reports and monitoring data required by the MSGP;
- Documentation of monitoring exceedances and response;
- A description of any deviations from the schedule for or timing of sampling and visual assessments and/or monitoring;
- Dates and descriptions of all spills and leaks;
- CARs and summary of completed actions;
- Impaired waters documentation of any determination that pollutants of concern are not expected to be above natural background levels;
- Documentation to support any determination that pollutants of concern are not expected to be present above natural background levels if discharging directly to impaired waters, and that these pollutants were not detected in the discharge or were solely attributable to natural background sources;
- Employee training records;
- Types of wastes disposed of in each cell or trench of a landfill or open dump; and
- For land application sites, track the types and quantities of wastes applied to specific areas.

Copies of the SWPPP, all reports, certifications and monitoring results, and records of all data used to complete the NOI must be retained from the beginning date of MSGP coverage through the date of renewed coverage under a subsequent permit or until a Notice of Termination is submitted to the MEDEP. These records will be made available to state or federal inspectors upon request.

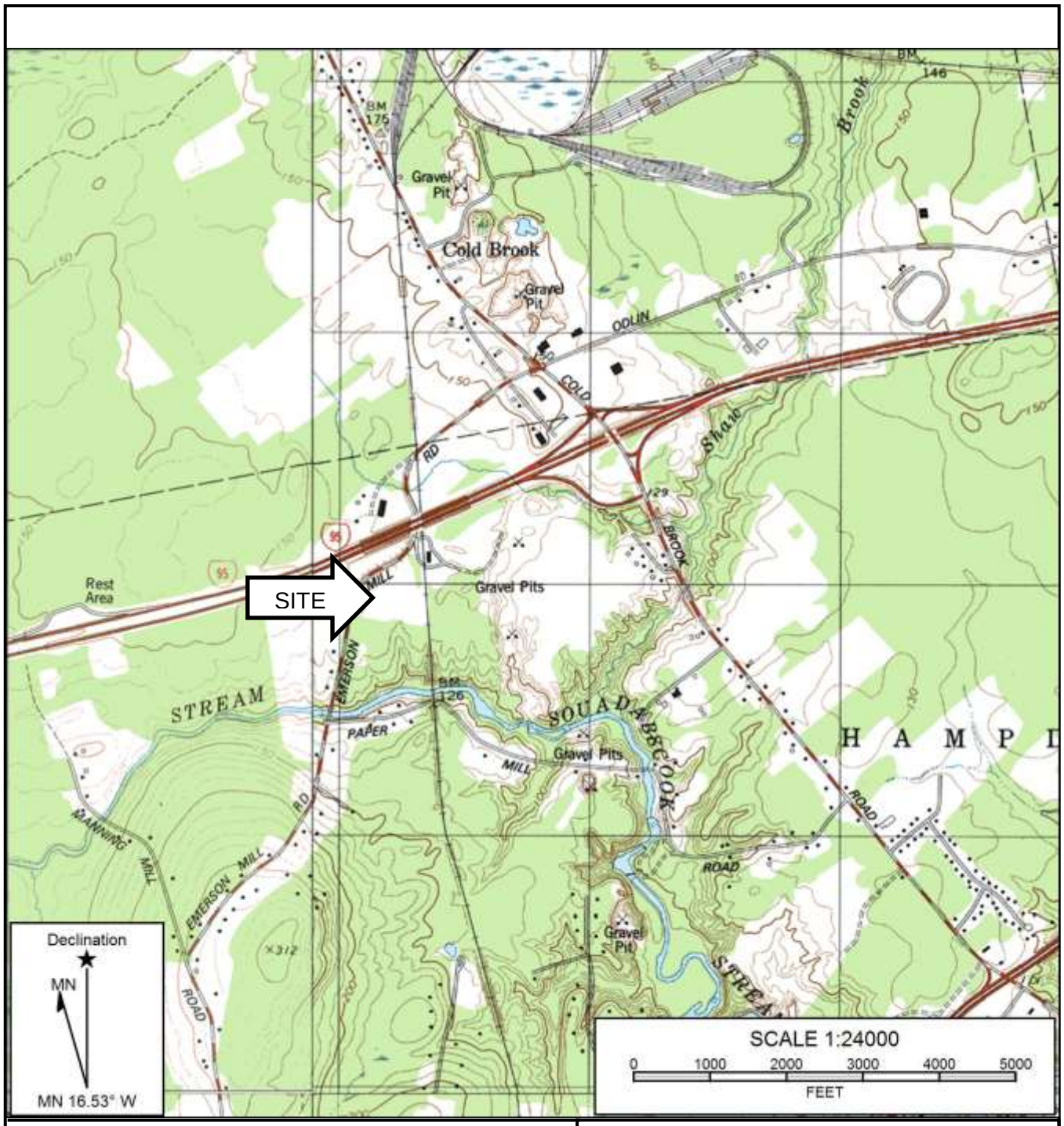
9.0 CERTIFICATION

It is the intention of NEWSME to conduct operations at this site, 358 Emerson Mill Road in Hampden, Maine, in an environmentally safe and responsible manner. The goal of this SWPPP is to minimize the potential for pollution from stormwater discharges from entering Waters of the State of Maine by minimizing the pollutants contained in stormwater discharges.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature:	Toni M. King
Name:	Toni King
Title:	Region Engineer
Date:	5/3/2018

FIGURES



SOURCE: USGS HAMPDEN, MAINE TOPOGRAPHIC MAP 1996.

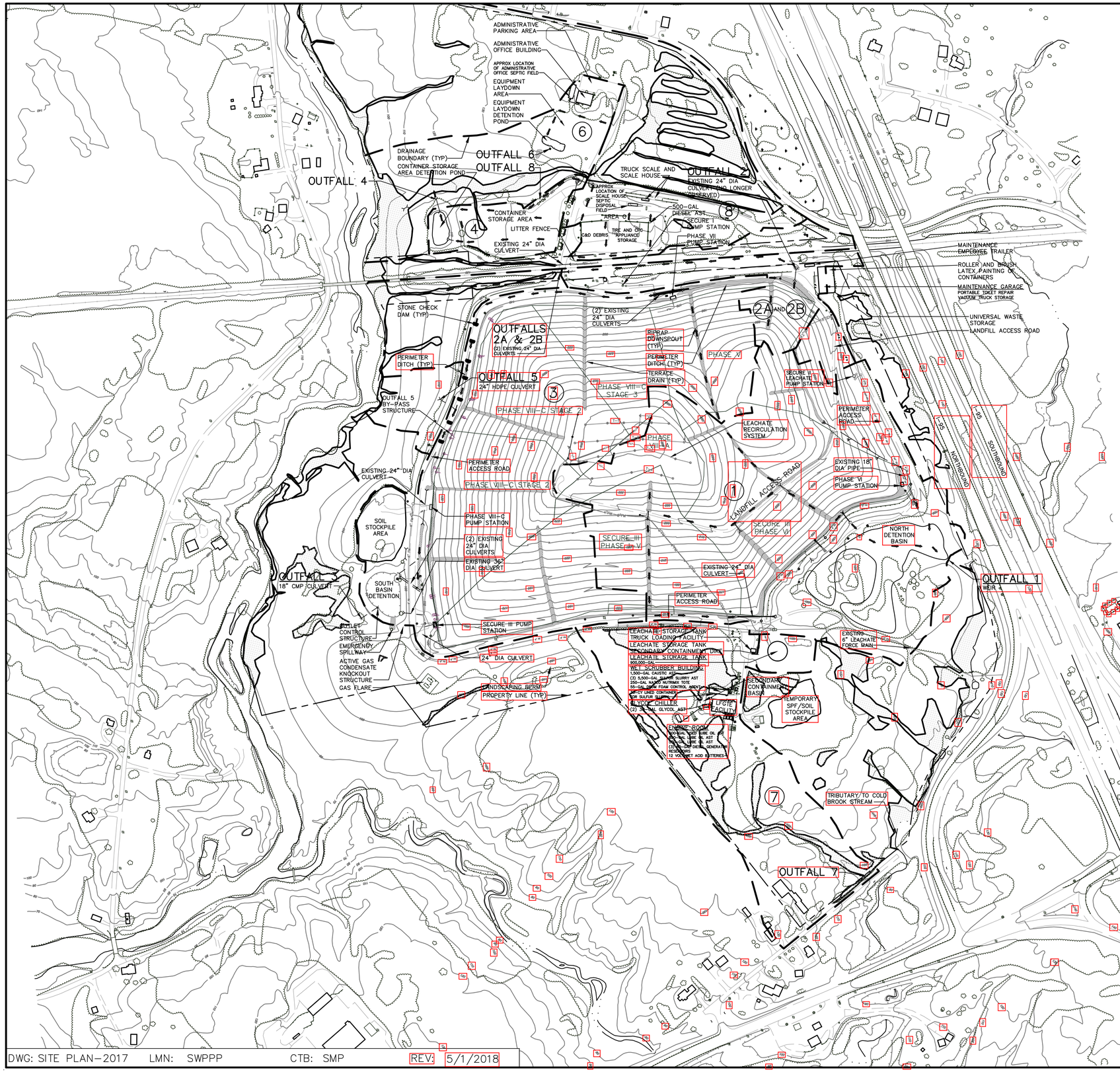
SITE LOCATION MAP
PINE TREE LANDFILL
358 EMERSON MILL ROAD
HAMPDEN, MAINE

NEWSME LANDFILL OPERATIONS, LLC
110 MAIN STREET, SUITE 1308
SACO, MAINE 04072

St.Germain · Collins

FIGURE 1

DATE: 1/24/17	SCALE: SEE ABOVE	PROJECT NO.: 2460	FILE: FIGURE 1	846 MAIN STREET, WESTBROOK, ME 04092 207-591-7000 WWW.STGERMAINCOLLINS.COM



NOTES:

1. BASE MAP PREPARED BY AERIAL SURVEY & PHOTO, INC. NORRIDGEWOCK, MAINE, PHOTO DATE JULY 31, 2014. GROUND CONTROL BY PLISGA & DAY LAND SURVEYORS, BANGOR, MAINE. STANDARD PRACTICE DICTATES THAT PLAN COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. LOCATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE.
3. ALL SITE AND CONSTRUCTION ACTIVITIES SHALL REMAIN IN COMPLIANCE WITH MEDEP BEST MANAGEMENT PRACTICES AND EXISTING FEDERAL, STATE AND LOCAL PERMITS AND PERMITTING REQUIREMENTS FOR THE SITE.
4. WETLANDS DELINEATED BY WOODLOT ALTERNATIVES.
5. DRAWING IS FOR PERMITTING USE ONLY. DRAWING SHALL NOT BE USED FOR CONSTRUCTION.
6. THE SPILLS AND LEAKS HISTORY FOR THE PINE TREE LANDFILL IS LOCATED WITHIN THE STORMWATER POLLUTION PREVENTION PLAN.
5. PLAN UPDATED ON MAY 1, 2018 BASED ON INFORMATION SUPPLIED BY CASELLA WASTE SYSTEMS, INC.

LEGEND

170 — EXISTING CONTOUR
WETLAND DELINEATED
DRAINAGE SUBCATCHMENT BOUNDARY
4 OUTFALL THAT SUBCATCHMENT DRAINS TO

100 0 200 400 FEET

SITE ACREAGE 166

FIGURE 2
SITE PLAN
PINE TREE LANDFILL
HAMPDEN, MAINE
STORMWATER POLLUTION
PREVENTION PLAN

SME
Sevee & Maher Engineers, Inc.
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland Center, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • www.smemaine.com

DWG: SITE PLAN-2017 LMN: SWPPP CTB: SMP REV: 5/1/2018

APPENDIX A

NOTICE OF INTENT

NOTICE OF INTENT TO COMPLY WITH THE MAINE MULTI-SECTOR GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Notice of Intent (NOI) submission constitutes the express intent of the entity in Section A (of this form) to discharge stormwater associated with an industrial activity to waters of the State (excluding groundwater), from the facility/site identified in Section C (of this form), under Maine's Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP). Submission of this NOI also certifies that the responsible official understands and meets the eligibility conditions of Special Condition C, *Applicability And Eligibility*, of the MSGP, agrees to comply with all applicable terms and conditions of the MSGP, and understands that continued authorization under the MSGP is contingent on maintaining eligibility for coverage. Please send the completed form to the Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017. A check for the appropriate permit fee made payable to: Treasurer, State of Maine may need to be submitted with the NOI. Please read the instructions on the back prior to completing the NOI form.

A. Applicant Information – Legal Name & Mailing Address					
MSGP Permit :	MER05 B357				
Maine State Charter Number (if applicable):	19750306D				
Legal Name of Applicant	New England Waste Services of ME, Inc.				
Mailing Address	110 Main St., Suite 1308				
City/Town	Saco	State	ME	Zip Code:	04072
Daytime Phone: (with area code)	(207) 653-4421				
E-mail	toni.king@casella.com				

B. Contact Person for this NOI					
Permit Contact Person	Toni King				
Title	Region Engineer				
Contact Address	110 Main St., Suite 1308				
City/Town	Saco	State	ME	Zip Code	04072
Daytime Phone:	(207) 653-4421				
Email:	toni.king@casella.com				

C. Facility/Site Physical Location					
Physical Address	358 Emerson Mill Road				
City/Town	Hampden	State	ME	Zip Code	04444

NOTICE OF INTENT TO COMPLY WITH THE MAINE MULTI-SECTOR GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Daytime Phone:	(207) 862-4200
Basis for Applicant's Title, Right, or Interest:	☐ Deed ☐ Lease ☐ Operating Agreement ☐ Other Deed will be furnished upon request. Attach a copy of the documentation demonstrating Title, Right or Interest

D. Receiving Water Information	
Name of the receiving water(s):	Souadabscook Stream and Cold Brook Stream
Does the facility discharge stormwater to a municipal separate stormwater sewer system (MS4)?	☐ Yes ☒ No
If yes, name of the MS4:	

E. Industrial Activity Information			
The 4-digit Standard Industrial Classification (SIC) Code(s) or the 2 or 3 alpha-numeric Sub-Sector Code that best represents the industrial activity at the facility or any multiple sector-specific industrial activities.			
SIC# or Sub-Sector Code	5093	Additional SIC# or Sub-Sector Code	

Applicable Sector(s) of industrial activity, as designated in Attachment A of the MSGP, that include associated discharges that you seek to have covered under this permit (check all that apply):

☐ Sector A	☐ Sector B	☐ Sector C	☐ Sector D	☐ Sector E	☐ Sector F	☐ Sector G	☐ Sector H
☐ Sector I	☐ Sector J	☐ Sector K	☒ Sector L	☐ Sector M	☒ Sector N	☐ Sector O	☐ Sector P
☐ Sector Q	☐ Sector R	☐ Sector S	☐ Sector T	☐ Sector U	☐ Sector V	☐ Sector W	☐ Sector X
☐ Sector Y	☐ Sector Z	☐ Sector AA	☐ Sector AB	☐ Sector AC	☐ Sector AD		

Does the facility have a complete and up-to-date Stormwater Pollution Prevention Plan (SWPPP)?	☐ Yes ☐ No
What date was the SWPPP last revised to bring it up-to-date?	January 2017

F. Certification of Responsible Official

I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant civil and criminal penalties for submitting false information, including the possibility of fine and imprisonment. By my signature as a responsible official for the entity or individual identified in Section A of this NOI, I certify under penalty of law that that I am the operator of the facility, and have Title, Right or Interest, as indicated in Section C of this form.

Printed Name:	Toni King		
Title:	Region Engineer		
Signature:	Toni M. King	**Date:**	2/3/17

DEP OFFICE USE ONLY		
Permit ID		

NOTICE OF INTENT TO COMPLY WITH THE MAINE MULTI-SECTOR GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Instructions for Completing the NOI Form

Type or print, in the appropriate white areas only. Answer all applicable questions, keep a copy for your records, and mail the original, signed, completed form. If you were previously licensed under a MSGP and you have not yet paid your Fall 2016 invoice include a check for $317. If this is the first time you are requesting coverage under the MSGP, include a check for $340. Make checks payable to "Treasurer, State of Maine". Send this form, attachments and any payment to: **Gregg Wood**, **Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017 or e-mail the form and attachments to gregg.wood@maine.gov.**

Section A: Applicant Information – Legal Name & Mailing Address

1. If you were permitted under the previous MSGP, enter the MSGP permit number assigned to the facility. The number will start as follows: MER05____. It can be found in a letter sent to you in calendar year 2011 formally notifying you were granted coverage under the previous MSGP.

2. Enter the business' Maine State Charter Number. The number can be obtained from the State of Maine's Department of the Secretary of State, Bureau of Corporations, Elections and Commissions website. The hyperlink is https://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x.

3. Enter the applicant's full legal name. The applicant must be the person, partnership, co-partnership, firm, company, corporation, association, trust, estate, governmental entity or other legal entity that owns or operates the facility or site. Legal entities registered to conduct business in Maine or other state, whether for profit or not for profit, typically have a Charter Number issued by the respective state of incorporation or organization. The Charter Number, along with a *Certificate of Good Standing*, obtained from the Maine Secretary of State, Bureau of Corporations, Elections and Commisions, must be submitted with the NOI. If an individual is conducting a business under an unregistered assumed name, the NOI must be filed in the name of the individual.

4. The mailing address of the identified facility or operator will be the street address or P.O. Box, city/town, state, and zip code to which annual bills and other correspodnece will be sent. All correspondence regarding the permit will be sent to this address, not the facility address in Section B of the NOI form.

5. The telephone number listed for the facility operator must be a number at which calls are regularly received during normal business hours (8:00 AM to 5:00 PM).

Section B: Contact Person for this NOI

Enter the name of the **Contact Person** for this facility/site, their title, mailing address (street or P.O. Box, city, state, zip code), telephone number with the area code, and an e-mail address. If this contact is your consultant please supply an e-mail address as well. If your contact for this permit uses the same address as the company, parent company or facility/site, please enter "same as company", etc.

Section C. Facility/Site Physical Location

1. Enter the **physical address** or location of the site (city/town, state and zip code). Include telephone number associated with the physical loation, including area code. If the physical name and address of the site is the same as the Applicant Information, write "same as applicant" in the Facility/Site section. Submit a map showing the location of the facility.

2. The applicant in **Section A** must provide evidence (submitted with the NOI) of "**Title, Right or Interest"** (TRI) in the facility conducting the industrial activity covered by this NOI. TRI means the applicant has a legal right to conduct the regulated activity at the facility or site. Title, Right, or Interest is typically established by way of ownership through a deed, or by way of a lease or operating agreement. Please submit a copy of the documentation demonstrating Title, Right or Interest as an attachment to the NOI at the time of submission.

E. Industrial Activity Information

1. Enter your company's Standard Industrial Classification (SIC) Code(s) which best describes the industrial activity conducted or products/services provided. See Attachment A of the MSGP for a list of SIC Codes.

2. Check all of the boxes that apply to the sectors of industrial activity that you seek to have covered by this permit. See Attachment A of the MSGP for a list of sectors.

F. Certification Statement

Legibly print the name and title of the responsible official. Have the official sign and date the application.

A **Responsible Official** must be one of the following:

- ✓ For a corporation: a responsible corporate officer
- ✓ For sole proprietorship or a partnership: the proprietor or general partner
- ✓ For a municipal, State, Federal, or other public facility: either a principal executive or ranking elected official.

Before submitting the NOI form, please ensure you have;

a. Answered all the questions on the form
b. Signed the form.
c. Attached documentation demonstrating proof of Title, Right or Interest.
d. For corporations, attach a Certification of Good Standing or a statement signed by a corporate officer affirming that the corporation is in good standing.
e. Attached a location map and or coordinates showing the physical location of the facility.
f. Enclosed a check for any required fees.

If you have questions concerning this form, please contact your regional stormwater inspector.

Portland: Alison Moody 207-615-8936, Laura Crossley 207-615-6711.

Augusta: David Ladd 207-215-7168 Bangor: Jana Wood 207-215-7869.

APPENDIX B

MEDEP NOI APPROVAL LETTER

APPENDIX C

2016 MEDEP MULTI-SECTOR GENERAL PERMIT

STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Multi-Sector General Permit – Stormwater Discharge Associated With Industrial Activity

Maine Pollutant Discharge Elimination System Permit
Maine Waste Discharge License

Bureau of Water Quality

Final Permit - December 2016

MEPDES Permit #MER050000
Waste Discharge License #W008227-MN-C-R

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

MULTI-SECTOR GENERAL PERMIT – STORMWATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY

Table of Contents

PROCEDURAL AND REGULATORY SUMMARY	1
CONCLUSIONS	2
ACTION	3
SPECIAL CONDITIONS	
A. Authority	4
B. Definitions	4-6
C. Applicability and Eligibility	7-10
D. Notification, Decisions, and Effective Term of Coverage	10-13
E. Authorized Discharges	13
F. Narrative Effluent Limitations	13
G. Control Measures	14
H. Non-Numeric Technology-Based Effluent Limitations	14-17
I. Numeric Technology-Based Effluent Limitations	18
J. Stormwater Pollution Prevention Plan – General Requirements	18-19
K. Stormwater Pollution Prevention Plan – General Contents	19-22
L. Stormwater Pollution Prevention Plan – Control Measures	22
M. Stormwater Pollution Prevention Plan – Records	23
N. Monitoring Requirements	24-31
O. SWPPP Review and Corrective Actions	32-34
P. Retention of Records	34
Q. Reopening of Permit For Modification	34
R. Severability	35

ATTACHMENT A – SIC/NAICS Codes Covered by the General Permit

APPENDIX A. Sector A: Timber Products
APPENDIX B. Sector B: Paper and Allied Products Manufacturing
APPENDIX C. Sector C: Chemical and Allied Products Manufacturing, and Refining
APPENDIX D. Sector D: Asphalt Paving and Roofing Materials and Lubricant Manufacturers
APPENDIX E. Sector E: Glass, Clay, Cement, Concrete, and Gypsum Products
APPENDIX F. Sector F: Primary Metals
APPENDIX G. Sector G: Metal Mining
APPENDIX H. Sector H: Coal Mines and Coal Mining-Related Facilities
APPENDIX I. Sector I: Oil and Gas Extraction
APPENDIX J. Sector J: Non-Metallic Mineral Mining and Dressing
APPENDIX K. Sector K: Hazardous Waste Treatment, Storage, or Disposal
APPENDIX L. Sector L: Landfills, Land Application Sites, and Open Dumps
APPENDIX M. Sector M: Automobile Salvage Yards
APPENDIX N. Sector N: Scrap Recycling and Waste Recycling
APPENDIX O. Sector O: Steam Electric Power Generating Facilities

APPENDIX P. Sector P: Land Transportation and Warehousing
APPENDIX Q. Sector Q: Water Transportation
APPENDIX R. Sector R: Ship and Boat Building and Repair Yards
APPENDIX S. Sector S: Air Transportation
APPENDIX T. Sector T: Treatment Works
APPENDIX U. Sector U: Food and Kindred Products
APPENDIX V. Sector V: Textile Mills, Apparel, and Other Fabric Products
APPENDIX W. Sector W: Furniture and Fixtures
APPENDIX X. Sector X: Printing and Publishing
APPENDIX Y. Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries
APPENDIX Z. Sector Z: Leather Tanning and Finishing
APPENDIX AA. Sector AA: Fabricated Metal Products
APPENDIX AB. Sector AB: Transportation Equipment, Industrial or Commercial Machinery
APPENDIX AC. Sector AC: Electronic, Electrical Equipment and Components Photographic and Optical Goods
APPENDIX AD: Sector AD: Stormwater Designated by the Department as Requiring a Permit

STANDARD CONDITIONS

FACT SHEET

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

MULTI-SECTOR GENERAL PERMIT FOR	)	MAINE POLLUTANT DISCHARGE
STORMWATER DISCHARGE ASSOCIATED	)	ELIMINATION SYSTEM PERMIT
WITH INDUSTRIAL ACTIVITY	)	
STATE OF MAINE	)	AND
#MER050000	)	WASTE DISCHARGE LICENSE
#W008227-MN-C-R **APPROVAL**	)	**RENEWAL**

In compliance with applicable provisions of *Pollution Control*, 38 M.R.S. §§ 411 – 424-B, *Water Classification Program*, 38 M.R.S. §§ 464 – 470 and *Federal Water Pollution Control Act*, Title 33 U.S.C. § 1251, and applicable rules of the Maine Department of Environmental Protection (Department hereinafter), the Department has considered the renewal of Maine Pollutant Discharge Elimination System (MEPDES hereinafter) General Permit #MER050000 / Waste Discharge License (WDL) #W008227-5Y-B-R, which was issued on April 26, 2011, for a five-year term, with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

PROCEDURAL AND REGULATORY SUMMARY

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referenced as the MEPDES permit program.

On April 26, 2011, the Department issued *Stormwater Discharge Associated With Industrial Activity Multi-Sector General Permit* (General Permit) #MER050000 / WDL #W008227-5Y-B-R, for a five-year term. The April 26, 2011 General Permit superseded the initial General Permit, #MER050000 / WDL #W008227-5Y-A-N, which was issued on October 11, 2005 for a five-year term.

Beginning March 14, 2016, the Department commenced renewal proceedings and provided public notice of its intent to renew the April 26, 2011 General Permit in the *Bangor Daily*, *Kennebec Journal*, *Sun-Journal*, and *Portland Press Herald* newspapers. The notice solicited comments on a draft permit, when available, and provided an opportunity to request a public hearing.

CONCLUSIONS

Based on the findings in the attached permit and incorporated Fact Sheet, dated September 29, 2016, and subject to the special and standard conditions that follow, this Department makes the following **CONCLUSIONS:**

1. The discharge(s) covered under this General Permit, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge(s) covered under this General Permit, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with State law.

3. The provisions of the State's antidegradation policy, *Classification of Maine waters*, 38 M.R.S. § 464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) Where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing water quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge(s) covered under this General Permit is subject to effluent limitations that require application of best practicable treatment as defined in *Conditions of licenses*, 38 M.R.S. § 414-A(1)(D).

ACTION

Based on the findings and conclusions as stated above, the Department APPROVES the renewal of *Multi-Sector General Permit for Stormwater Discharge Associated With Industrial Activity*, #MER050000, for the discharge of stormwater associated with industrial activity and certain non-stormwater discharges to surface waters of the State, SUBJECT TO THE ATTACHED CONDITIONS, including:

1. The attached Special Conditions, including any effluent limitations and monitoring requirements.

2. *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, copy attached.

3. This General Permit and the authorization to discharge become effective **ninety (90) days** following the date of signature below and expire at midnight five (5) years from the effective date. Prior to expiration of this General Permit, the Department must make a determination if it is to be renewed, and, if so, must commence renewal proceedings. If this General Permit is to be renewed, it must remain in force until the Department takes final action on the renewal. [*Maine Administrative Procedure Act*, 5 M.R.S. § 10002, *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 C.M.R. 2(21)(A) (last amended October 19, 2015), and *General Permits for Certain Wastewater Discharges*, 06-096 C.M.R. 529(3)(c) (last amended June 27, 2007)]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

DONE AND DATED AT AUGUSTA, MAINE, THIS __7th__DAY OF __December___, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: ___/s/ Michael Kuhns for_____
PAUL MERCER, Commissioner

Date of Public Notice _____March 14, 2016_____.

Date filed with Board of Environmental Protection __December 8, 2016_____

This Order prepared by Bill Hinkel/Gregg Wood, BUREAU OF WATER QUALITY

SPECIAL CONDITIONS

A. AUTHORITY

A permit is required for the direct or indirect discharge of pollutants to waters of the State and United States. *Waste discharge licenses*, 38 M.R.S. § 413(1) and *Federal Water Pollution Control Act*, Title 33 U.S.C. § 1251, *et seq*. The Department is authorized by the USEPA to administer the NPDES permit program in Maine. The Department may issue a general permit authorizing the discharge of certain pollutants from multiple individual discharge sources and locations which all have the same type of discharges and which involve situations where the Department determines there is a relatively low risk for significant environmental impact. 06-096 C.M.R. 529. The Department has determined that discharges resulting from stormwater discharge associated with industrial activities located within the geographic area of coverage and that conform to the applicability and coverage standards established herein may be authorized by a general permit.

B. DEFINITIONS

In addition to the definitions found in *Definitions in the Waste Discharge Permitting Program*, 06-096 C.M.R. 520 (effective January 12, 2001) and in the waste discharge program and water classification laws, the following terms have the following meanings when used in this General Permit.

1. **Co-located Industrial Activities** – any industrial activities, excluding your primary industrial activity(ies), located on-site that are defined by the stormwater regulations at 06-096 CMR 521 §9(b)(14)(i) through (x) and 06-096 CMR 521 §9(b)(14)(xi). An activity at a facility is not considered co-located if the activity, when considered separately, does not meet the description of a category of industrial activity covered by the stormwater regulations or identified by the SIC code list in Attachment A of this permit or your primary industrial activity does not meet the description of a category of industrial activity covered by the stormwater regulations or identified by the SIC code list in Attachment A of this permit.

2. **Corrective Action**. "Corrective action" means any action taken, or required to be taken, to (1) repair, modify, or replace any stormwater control used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; and (3) remedy a violation of this General Permit.

3. **Discharge Point (Outfall).** – for the purposs of this permit the location where collected and concentrated stormwater flows are discharged from the facility such that the first receiving waterbody into which the discharge flows, either directly or through a separate storm sewer system, is a water of the State.

4. **Impaired Waters.** "Impaired Waters" means waters identified by the Department as not meeting an applicable water quality standard, and require development of a total maximum daily load (TMDL) (pursuant to Section 303(d) of the CWA), or are addressed by a USEPA-approved or established TMDL, or are covered by pollution controls requirements that meet the requirements of 40 CFR 130.7(b)(1). For discharges that enter a separate storm sewer system prior to discharge, the first water of the State to which you discharge is the waterbody that receives the stormwater discharge from the storm sewer system.

SPECIAL CONDITIONS

B. DEFINITIONS (cont'd)

5. **Industrial Activity.** "Industrial Activity" means the 10 categories of industrial activities included in the definition of "stormwater discharges associated with industrial activity" as defined in 06-096 C.M.R. 521(9)(b)(14)(i) through (x) and 06-096 C.M.R. 521(9)(b)(14)(xi).

6. **Municipal Separate Storm Sewer System ("MS4").** "Municipal Separate Storm Sewer System" or "MS4" means conveyances for stormwater, including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels or storm drains (other than publicly owned treatment works and combined sewers) owned or operated by any municipality, sewer or sewage district, Maine Department of Transportation, Maine Turnpike Authority, State agency or Federal agency or other public entity that ultimately discharges directly to waters of the State other than ground water.

7. NEG – means National Effluent Guideline.

8. **No Exposure.** "No exposure" means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. See 40 CFR 122.26(g).

9. **Notice of Intent ("NOI").** "Notice of Intent" or "NOI" means a notification of intent to seek coverage under this General Permit made by the applicant to the Department on a form provided by the Department.

11. **Notice of Termination ("NOT").** "Notice of Termination" or "NOT" means a notification to end coverage under this General Permit on a form provided by the Department.

12. **Primary Industrial Activity** – Is the activity in which a facility is primarily engage in that meets the definition of Industrial Activity of these definitions. For a facility where therte is more than one activity or operation covered by a SIC code in Attachment A, it is recommended that the primary industrial determination be based on the value of receipts or revenues related to the operation in question or, if such information is not available for a particular facility, the number of employees or production rate for each operation may be compared. The operation that generates the most revenue or employs the most personnel is the operation in which the facility is primarily engaged. In situations where the vast majority of on-site activity falls within one SIC code, that activity may be the primary industrial activity.]

13. **Process Waste Water**. Means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by product or waste product.

14. **Qualifying Storm Event.** "Qualifying Storm Event" means precipitation or ice/snow melt waters that produce a measurable discharge of 0.1 inch or more in a 24-hour period at an outfall and occurs at least 72 hours from a previous qualifying storm event.

SPECIAL CONDITIONS

B. DEFINITIONS (cont'd)

15. **Representative Outfalls.** "Representative Outfalls" means two or more outfalls within a single drainage area that are anticipated to discharge substantially similar pollutants resulting from substantially similar industrial activities, materials or practices. If the facility contains representative outfalls, the permittee may conduct monitoring of one of the outfalls during a given sampling period provided that subsequent samples are taken from a different outfall within the representative outfalls' drainage area. The permittee will not be required to monitor more than one representative outfall within a designated drainage area per monitoring event. For this to be permissible, the SWPPP must include the permittee's narrative and include the following: locations of the outfalls and associated drainage area; why the outfalls are expected to discharge substantially identical effluents; and, estimates of the size of the drainage area (in square feet) for each outfall(s).

16. **Spill.** "Spill" means the release of a hazardous or toxic substance from its container or containment.

17. **Stormwater.** "Stormwater" means precipitation including runoff from rain, snow melt or ice melt that flows across the surface as sheet flow, shallow concentrated flow or in drainage ways. "Stormwater" means the same as "storm water".

18. **Stormwater Discharge Associated with Industrial Activity.** "Stormwater Discharge Associated with Industrial Activity" means the discharge from any point source which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial facility. The term does not include discharges from facilities or activities excluded from the MEPDES program under 38 M.R.S. § 413. For the categories of industries identified at 06-096 C.M.R. 521(9)(b)(14)(i) through (x) and 06-096 C.M.R. 521(9)(b)(14)(xi), the term includes, but is not limited to, stormwater discharges from industrial facility yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters; sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on facility lands separate from the facility's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas. Industrial facilities include those that are federally, State, or municipally owned or operated that meet the description of the facilities listed in 06-096 C.M.R. 521(9)(b)(14). The term also includes those facilities designated under the provisions of 06-096 C.M.R. 521(a)(1)(v).

19. **Watershed Management Plan.** "Watershed Management Plan" means a plan, subject to Department review and approval, to address stormwater discharges to an impaired water body. An acceptable plan capable of providing structural or operational best management practices to prevent discharges of pollutants that would cause or contribute to impairment of the water body.

SPECIAL CONDITIONS

C. APPLICABILITY AND ELIGIBILITY

To be eligible to discharge under this General Permit, an applicant must (1) have an allowable stormwater discharge, 2) an allowable non-stormwater discharge associated with industrial activity from the primary industrial activity, provided the primary industrial activity is included in Attachment A of this General Permit, or (3) be notified by the Department that you are eligible for coverage under Sector AD of this General Permit. Stormwater that is conveyed to a treatment facility regulated by the Department or the USEPA for treatment, is not a discharge for which a waste discharge permit is required pursuant to 38 M.R.S. § 413(1).

1. **Area of coverage.** The geographic area covered by this General Permit is the entire State of Maine. Subject to all terms and conditions specified herein, this General Permit authorizes the discharge of stormwater associated with industrial activity to Class GPA, tributaries to Class GPA, Classes AA, A, B, and C, Classes SA, SB, and SC, and those waters classified as such and having drainage areas of less than ten square miles.

2. **Allowable non-stormwater discharges.** The following allowable non-stormwater discharges may be covered by this General Permit provided that the discharge, either alone or in conjunction with other discharges, do not cause or contribute to a violation of an applicable water quality standard. The use of best management practices to minimize the contribution of pollutants from these discharges and the location(s) to where each source is anticipated to be discharged must be documented in the Storm Water Pollution Prevention Plan (SWPPP).[1]

   a. Discharges from emergency and unplanned fire-fighting activities;
   b. Fire hydrant flushings, provided the discharge does not cause or contribute to a violation of water quality standards as determined by the Department and the activity is documented in the SWPPP;
   c. Potable water, including water line flushings, provided they do not contribute to a violation of water quality standards as determined by the Department and the activity documented in the SWPPP;
   d. Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
   e. Irrigation drainage;
   f. Landscape watering, provided any pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling;
   g. Routine external building washdown / power wash water that does use detergents or hazardous cleaning products (e.g. those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols);
   h. Uncontaminated ground water and springs;
   i. Uncontaminated utility vault dewatering;
   j. Water from building foundations or footings that is not contaminated by contact with process materials;
   k. Incidental mist from cooling towers that collects on rooftops or adjacent portions of a facility, but not intentional discharge from cooling towers (e.g. “piped” cooling tower blowdown; drains.

1 The Department reserves the right to exclude non-stormwater discharges on a case-by-case basis if the permittee cannot objectively demonstrate to the Department’s satisfaction that the discharge will not violate an applicable water quality standard.

SPECIAL CONDITIONS

C. APPLICABILITY AND ELIGIBILITY (cont'd)

l. Incidental water that does not contain detergent draining from vehicles leaving an on-site rinse station, provided the waters from the rinse station itself are properly managed through best management practices addressed in the SWPPP; and

m. Incidental quantities of condensed steam that do not contributing to a violation of water quality standards (e.g. steam trap condensate).

n. Wash waters from cleaning roads, parking lots, sidewalks and other paved surfaces, provided no detergents or hazardous cleaning products are used (e.g. bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonlphenols) and the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities or any other toxic or hazardous materials, unless residues are first cleaned up using dry clean up methods (e.g. applying absorbent materials and sweeping, using hydrophobic mops/rags) and one has implemented appropriate control measures to minimize discharges of mobilized solids and other pollutants (e.g. filtration, detention, settlement).

o. The washing of new or used vehicles or equipment is allowed with the following prohibitions and recommended best management practices:

i. Engine, undercarriage and transmission washing is prohibited. Cleaning operations should minimize the detachment of paint residues, heavy metals or any other potentially hazardous materials from surfaces. .

ii .Vehicle and equipment washing should occur, where possible, on an impermeable surface (i.e., concrete, asphalt, plastic or other) and utilize an area that extends to a minimum of four (4) feet on all sides of the vehicle or equipment so that wash water and overspray falls initially on the impermeable surface. From the impermeable surface, wash water should then be directed to a vegetated area.

iii. Vehicles and equipment should not be washed near uncovered repair areas or chemical storage areas such that chemicals can be transported in wash water runoff. All wash water runoff should drain away from a shop repair or chemical storage area.

iv Wash water from cleaning the interior of truck trailers and other large commodity carrying containers must be collected and discharged to a POTW or treated in a closed-loop, wash water recycling system.

p. Non-stormwater discharges authorized in Sectors A through AD of this General Permit.

SPECIAL CONDITIONS

C. APPLICABILITY AND ELIGIBILITY (cont'd)

3. **Exclusions and restrictions.** The following exclusions and restrictions for coverage under this General Permit apply.

   a. Stormwater discharges that are comingled with other sources authorized by another MEPDES permit if the co-mingled waters cannot be separately characterized;
   b. Stormwater discharges which the Department has determined are or would cause or contribute to a violation of an applicable water quality standard. This exclusion does not apply if the applicant demonstrates participation and compliance with a Watershed Management Plan; and
   c. Stormwater discharges associated with construction activity disturbing one (1) acre or more, unless in conjunction with mining activities or certain oil and gas extraction activities as specified in Sectors G, H, I, and J of this General Permit.

4. **Conditional exclusion for no exposure.** Discharges composed entirely of stormwater are not stormwater discharges associated with industrial activity if there is no exposure of industrial materials and activities to rain, snow, snowmelt and/or runoff, and the discharger satisfies the conditions in this section. To qualify for exclusion, the permittee must submit the Department's No Exposure Certification Form DEPLW0968.

   a. Qualification requirements. To qualify for this exclusion, the permittee covered by this General Permit that becomes eligible for a no exposure exclusion must:

      1. Provide a storm resistant shelter to protect industrial materials and activities from exposure to rain, snow, snow melt, and runoff;
      2. Complete and sign a certification that there are no discharges of stormwater contaminated by exposure to industrial materials and activities from the entire facility;

      3. Submit the signed certification to the Department once every five years;
      4. Allow the Department to inspect the facility to determine compliance with the no exposure conditions;
      5. For facilities that discharge through an MS4, upon request, submit a copy of the certification of no exposure to the MS4 operator, as well as allow inspection and public reporting by the MS4 operator; and
      6. Notify the Department of changes in facility ownership in accordance with Special Condition D.7, *Changed conditions*.

   b. Shelter exclusions. To qualify for this exclusion, storm resistant shelter is not required for:

      1. Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated, do not leak or do not otherwise contribute pollutants to stormwater;
      2. Adequately maintained vehicles used in material handling; and
      3. Products that would not contribute pollutants to stormwater.

SPECIAL CONDITIONS

C. APPLICABILITY AND ELIGIBILITY (cont'd)

c. Changed circumstances. If circumstances change and industrial materials or activities become exposed to rain, snow, snow melt, and/or runoff, the conditions for this exclusion no longer apply. In such cases, the discharge becomes subject to enforcement for un-permitted discharge. Any conditionally exempt discharger who anticipates changes in circumstances should apply for and obtain permit authorization prior to the change of circumstances.

5. **Co-located facilities.** Where more than one sector of industrial activity applies to a single facility, the permittee must comply with the requirements of all applicable sectors. In the case of a difference between numeric effluent limitations for a facility subject to multiple sectors, compliance is required with the more stringent limitation.

6. **Stormwater discharges to impaired waters.** Coverage under this General Permit for stormwater discharges associated with an industrial activity to impaired waters may only be approved if the Department determines that the discharge(s) does not cause or contribute to the failure of the water body to meet the standards of classification. The Department will determine whether a facility discharges to an impaired water based on receiving water information provided by the applicant on the NOI form. In making this determination, the entity seeking coverage must provide the Department with clear and compelling evidence that the discharge does not contain pollutants in concentrations or quantity that would cause or contribute to the impairment condition. Evidence may consist of, but is not necessarily limited to, effluent analytical data for the pollutants of concern, documentation from the facility's SWPPP that there is no exposure of all sources of the pollutants of concern at the facility and / or that treatment devices are installed to eliminate or sufficiently minimize the pollutants of concern from stormwater runoff. The Department reserves the right to require additional monitoring on a case-by-case basis to ensure stormwater discharges to impaired waters comply with applicable water quality laws and this General Permit.

D. NOTIFICATION, DECISIONS AND EFFECTIVE TERM OF COVERAGE

1. **Notice of Intent (NOI)**. The owner or operator of a facility discharging stormwater associated with industrial activity, as an applicant, and seeking coverage under this General Permit must submit a completed NOI to the Department for review and approval within **sixty (60) days** of the date the permit is signed by the Commissioner of the Department. NOI forms must be mailed or hand-delivered to:

   Department of Environmental Protection
   Bureau of Water Quality
   Division of Water Quality Management
   17 State House Station
   Augusta, ME 04333-0017

   The Department reserves the right to request additional information from the applicant based on review of the NOI. Permitting information, forms, and Augusta office directions may be obtained by contacting the Department's Waste Discharge Permitting Unit at 1-207-287-7688. Additionally, the General Permit, associated fact sheet and other forms are available for review and download at: http://www.maine.gov/dep/water/wd/multisector/index.html.

SPECIAL CONDITIONS

D. NOTIFICATION, DECISIONS AND EFFECTIVE TERM OF COVERAGE (cont'd)

2. **NOI information**. A complete NOI must contain the following information.

   a. The legal name, mailing address, e-mail address and telephone number of the owner and operator (*i.e.*, applicant) of the facility;
   b. The name and street address of the facility;
   c. A topographic or similar type map extending approximately one mile beyond the boundaries of the facility generating stormwater and the geographic coordinates (latitude and longitude) of the facility's main entrance or office, if known;
   d. The name(s) or descriptions of all known water bodies into which the stormwater discharge is conveyed, or the MS4 into which the discharge(s) is connected;
   e. The Standard Industrial Code(s) (SIC) or NAICS Code(s) and identification of the Sectors of the General Permit that apply to the industrial activity conducted at the facility;
   f. A copy of a signed participating landowner agreement associated with a Watershed Management Plan in which the facility is participating , if applicable;
   g. A statement that a complete and up-to-date SWPPP[2] is available;
   h. Evidence of title, right or interest (TRI) in all of the property that is proposed for development or use in accordance with 06-096 C.M.R. 2(11)(D);
   i. For corporations, a *Certificate of Good Standing* or a statement signed by a corporate officer affirming that the corporation is in good standing; and
   j. The signature of an authorized person in accordance with *Applications for Waste Discharge Licenses*, 06-096 C.M.R. 521(5) (effective January 12, 2001).

   Failure to submit all required NOI information may result in finding the NOI incomplete for processing and may delay processing or result in denial of the NOI.

3. **Decisions.**

   a. **Effective date of coverage**. The Department must approve or deny each NOI submitted for coverage under this General Permit: 1) within 31 calendar days of receipt of a complete NOI if discharging to waters not listed as impaired waters; 2) within 61 calendar days of receipt of a complete NOI if discharging to impaired waters; or 3) on the effective date of this General Permit, whichever is later. If the Department does not notify the applicant within the specified timeframe, the NOI is automatically approved and becomes effective as if signed by the Commissioner in accordance with 06-096 C.M.R. 2(19)(E). In the event coverage is denied, the Department must notify the applicant of the reason(s) for denial. Denial of coverage under this General Permit is not appealable to the Board of Environmental Protection and is not final agency action. The approval of coverage under this General Permit is appealable in accordance with 06-096 C.M.R. 2(24)(B).

2 For purposes of this section, complete and up-to-date SWPPP means a SWPPP that contains all of the components required by this General Permit.

SPECIAL CONDITIONS

E. NOTIFICATION, DECISIONS AND EFFECTIVE TERM OF COVERAGE (cont'd)

b. **Individual permit coverage**. The Department may require, or an interested party may request for consideration, that a facility covered under this General Permit obtain an individual MEPDES permit for any of the reasons specified at 06-096 C.M.R. 529(2)(b)(3)(i)(A-G). The owner or operator of a facility eligible for coverage under this General Permit may request to be excluded from this General Permit and instead apply for an individual MEPDES permit as provided at 06-096 C.M.R. 529(2)(b)(3)(iii).

4. **Effective term of coverage.** The term of this General Permit is five years. Coverage under this General Permit will be continued from year to year provided payment of an applicable annual fee pursuant to *Maine Environmental Protection Fund*, 38 M.R.S. § 353-B, and that there are no significant changes in the facility or its operation as described in the NOI.

   Prior to expiration of this General Permit, the Department must make a determination if it is to be renewed, and, if so, will commence renewal proceedings. Not less than 6 months prior to expiration of this General Permit, the Department must provide notice of its intent to renew or not renew the General Permit. If the General Permit is to be renewed, it will remain in force until the Department takes final action on the renewal. Upon reissuance of a renewal General Permit, persons wishing to continue coverage must apply for coverage under the renewal General Permit not later than 30 days following the issuance date of the new General Permit.

5. **Transfer of ownership.** In the event that the ownership of a facility is transferred to a new owner or operator, coverage under this General Permit may be transferred to the new owner or operator notifying the Department in writing within two weeks of the transfer. The notice must include documentation that the new owner or operator has: 1) a *Certificate of Good Standing* or a statement signed by a corporate officer affirming that the corporation is in good standing; 2) title, right or interest in the facility; 3) the technical and financial capacity to comply with this General Permit; and 4) a SWPPP that meets all requirements of this General Permit and that is certified in accordance with the signatory requirements of 06-096 C.M.R. 521(5). If increases or significant changes in the discharge(s) are proposed, a new NOI must be filed.

6. **Changed conditions**. In the event a permittee covered by this General Permit proposes to make significant changes in the nature or scope of the operations of facilities described in a NOI previously approved, the permittee must notify the Department as soon as becoming aware of and before implementing such changes. Based on its evaluation of the proposed changes, the Department may require the submittal of a new NOI or that an individual permit be obtained.

SPECIAL CONDITIONS

D. NOTIFICATION, DECISIONS AND EFFECTIVE TERM OF COVERAGE (cont'd)

7. **Notice of termination.** A permittee covered under this General Permit that has 1) ceased operations and has eliminated the potential for discharges of stormwater associated with industrial activity; or 2) has obtained coverage for the discharge covered under this General Permit through another MEPDES permit must, within 30 days of either condition, submit a request for permit termination to the Department by submitting a complete Department Form DEPLW0967. The Department will notify an entity that requested permit termination of the Department's decision to terminate coverage under this General Permit, including, but not limited to, identification of additional requirements necessary to make the permittee eligible for permit termination. In accordance with Standard Condition A.5, *Permit actions*, the filing of a request for permit termination does not eliminate any General Permit condition, including payment of an annual waste discharge license fee pursuant to Standard Condition A.11, *Other laws*, and *Annual waste discharge license fees*, 38 M.R.S. § 353-B.

E. AUTHORIZED DISCHARGES

A permittee covered under this General Permit is authorized to discharge: 1) only in accordance with the permittee's Notice of Intent; and 2) only in accordance with the terms and conditions of this General Permit. Discharges of pollutants from any other point source are not authorized under this General Permit, and must be reported in accordance with Standard Condition D(1)(f), *Twenty-four hour reporting*, of *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, attached to this General Permit. Any non-stormwater discharges not explicitly authorized pursuant to Special Condition C.2 of this General Permit are not covered and must be eliminated, or in the alternative, covered by a separate MEPDES permit.

F. NARRATIVE EFFLUENT LIMITATIONS

In addition to compliance with the numeric and non-numeric technology-based effluent established in this General Permit, the permittee must comply with the following narrative effluent limitations.

1. An entity covered under this General Permit must not discharge, at any time, effluent that contains a visible oil sheen, foam or floating solids, which would impair the uses designated for the classification of the receiving waters.

2. An entity covered under this General Permit must not discharge, at any time, effluent that contains materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the uses designated for the classification of the receiving waters.

3. An entity covered under this General Permit must not discharge, at any time, effluent that imparts color, taste, turbidity, toxicity, radioactivity or other properties which cause those waters to be unsuitable for the designated uses and characteristics ascribed to their classification.

4. An entity covered under this General Permit must not discharge effluent that lowers the quality of any classified body of water below such classification, or lowers the existing quality of any body of water if the existing quality is higher than the classification

SPECIAL CONDIONS

G. CONTROL MEASURES

The permittee must select, design, install and implement control measures, adhering to good engineering practices and manufacturer's specifications, to minimize pollutant discharges from all potential sources. The control measure(s) selected must be capable of meeting 1) the non-numeric technology-based effluent limitations established in Special Condition H of this General Permit; 2) the numeric limitations specified in Special Condition I of this General Permit; and 3) all applicable water quality standards, including the goals of approved total maximum daily load (TMDLs) and water quality-based effluent limitations where established. Where more than one standard exists for a specific pollutant, compliance with this General Permit and the control measure design must be based on the most stringent standard. In selecting control measures, the permittee must address the following design and selection considerations.

1. Preventing stormwater from coming into contact with polluting materials;
2. Using control measures in combination;
3. Assessing the type and quantity of pollutants, including their potential to impact receiving water quality;
4. Minimizing impervious areas at the facility and infiltrating runoff onsite (including bioretention cells, green roofs, and pervious pavement, among other approaches) in accordance with State laws and regulations;
5. Attenuating flow using open vegetated swales and natural depressions;
6. Conserving and/or restoring riparian buffers; and
7. Using treatment interceptors (*e.g.*, swirl separators and sand filters).

H. NON-NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITATIONS

The permittee must comply with the following non-numeric effluent limitations in addition to any non-numeric effluent limitations specified in Sectors A through AD of this General Permit.

1. **Minimize exposure.** The permittee must minimize the exposure of manufacturing, processing, and material storage areas (including, but not limited to, loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff in order to minimize pollutant discharges. Unless impractical, the permittee must also:

    a. Use grading, berming or curbing to prevent runoff of contaminated flows and divert run-on away from these areas;
    b. Locate materials, equipment, and activities so that potential leaks and spills are contained or able to be contained or diverted before discharge;
    c. Clean up spills and leaks promptly using dry methods (*e.g.*, absorbents) to prevent the discharge of pollutants;

SPECIAL CONDITIONS

H. NON-NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITATIONS (cont'd)

d. Properly dispose of materials used for spill or leak clean up to prevent used clean up materials from being a source of pollutants in stormwater;
e. Store leaky vehicles and equipment indoors or, if stored outdoors, use drip pans and absorbents;
f. Use spill/overflow protection equipment;
g. The washing of new or used vehicles or equipment is allowed with the following prohibitions and recommended best management practices:
   1. Engine, undercarriage and transmission washing is prohibited**.** Cleaning operations should minimize the detachment of paint residues, heavy metals or any other potentially hazardous materials from surfaces. Information on temporary berms and magnetic storm drain covers is attached to this guidance.
   2. Vehicle and equipment washing should occur, where possible, on an impermeable surface (i.e., concrete, asphalt, plastic or other) and utilize an area that extends to a minimum of four (4) feet on all sides of the vehicle or equipment so that wash water and overspray falls initially on the impermeable surface. From the impermeable surface, wash water should then be directed to a vegetated area. Information on temporary berms and magnetic storm drain covers and suppliers is attached to this guidance.
   3. Vehicles and equipment should not be washed near uncovered repair areas or chemical storage areas such that chemicals can be transported in wash water runoff. All wash water runoff should drain away from a shop repair or chemical storage area.
   4. Wash water from cleaning the interior of truck trailers and other large commodity carrying containers must be collected and discharged to a POTW or treated in a closed-loop, wash water recycling system.
h. Drain fluids from equipment and vehicles that will be decommissioned, and, for any equipment and vehicles that will remain unused for extended periods of time, inspect at least quarterly for leaks.
i. locate industrial materials and activities inside or protecting them with storm resistant coverings where practical to do so.

2. **Good housekeeping.** The permittee must keep clean all exposed areas that are potential sources of pollutants. The permittee must perform good housekeeping measures in order to minimize pollutant discharges, including but not limited to, the following:

   a. Sweep or vacuum at regular intervals as a primary measure or, alternatively, wash down the area as a secondary measure and collect and/or treat, and properly dispose of the washdown water;
   b. Store materials in appropriate containers that are labeled to specify contents;
   c. Keep all dumpster lids closed when not in use, or provide secondary containment to ensure that discharges have a control. For dumpsters, waste bins and roll-off containers that do not have lids and could leak, ensure that discharges have a control (e.g. secondary containment, treatment). Dumpsters and roll-off containers should only be used to hold solid waste materials and never used to hold liquid wastes. This permit does not authorize any dry weather discharges from dumpsters or roll-off containers;

SPECIAL CONDITIONS

H. NON-NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITATIONS (cont'd)

d. Minimize the potential for waste, garbage and floatable debris to be discharged by keeping exposed areas free of such materials, or by intercepting them before they are discharged;
e. For facilities that handle pre-production plastic, implement best management practices to eliminate discharges of plastic in stormwater; and
f. Site and operate snow storage and disposal areas to prevent or minimize discharges of pollutants from snow maintenance activities.

3. **Maintenance.** The permittee must maintain all control measures that are used to achieve the effluent limits in this General Permit in effective operating condition, as well as all industrial equipment and systems, in order to minimize pollutant discharges. This includes:

   a. Performing and documenting inspections and preventive maintenance of stormwater drainage, source controls, treatment systems, and plant equipment and systems that could fail and result in contamination of stormwater;
   b. Diligently maintaining non-structural control measures (*e.g.*, keep spill response supplies available, personnel appropriately trained);
   c. Inspecting and maintaining baghouses at least quarterly to prevent the escape of dust from the system and immediately removing any accumulated dust at the base of the exterior baghouse; and
   d. Cleaning catch basins when the depth of sediment or debris reaches 2/3rds of the sump depth and keeping the sediment and debris surface at least six inches below the lowest outlet pipe or alternatively, establish a routine maintenance schedule such each catch basin is cleaned oat least nce per year.

4. **Spill prevention and response.** The permittee must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur in order to minimize pollutant discharges. The permittee must conduct spill prevention and response measures, including but not limited to, the following:

   a. Plainly label containers 55 gallons or greater *(e.g.*, "Used Oil," "Spent Solvents," "Fertilizers and Pesticides") that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
   b. Implement procedures for material storage and handling, including the use of secondary containment and barriers between material storage and traffic areas, or a similarly effective means designed to prevent the discharge of pollutants from these areas;
   c. Develop training on spill response procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. As appropriate, execute such procedures as soon as possible;
   d. Keep adequate and accessible spill kits on-site, located near areas where spills may occur or where a rapid response can be made; and
   e. Notify appropriate facility personnel when a leak, spill, or other release occurs.

5. **Erosion and sediment controls.** The permittee must minimize erosion by stabilizing exposed soils at the facility in order to minimize pollutant discharges and by placing flow velocity dissipation devices in stormwater swales and ditches at discharge locations, as necessary, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points. The permittee must also use structural and non-structural control measures, as necessary, to minimize the discharge of sediment.

SPECIAL CONDITIONS

H. NON-NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITATIONS (cont'd)

6. **Management of runoff**. The permittee must divert, infiltrate, reuse, contain, or otherwise manage stormwater runoff to minimize pollutants in the discharges.

7. S**alt storage piles or piles containing salt.** Unless otherwise authorized by variance pursuant to *Siting and Operation of Road Salt and Sand-Salt Storage Areas*, 06-096 C.M.R. 574 (effective December 3, 2001), the permittee must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, in order to minimize pollutant discharges. This includes preventing stormwater runoff from coming into contact with covered piles. The permittee must implement appropriate measures (*e.g.*, good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile.

8. **Employee training.** Annually, the permittee must train all employees who work in areas where industrial materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (*e.g.*, inspectors, maintenance personnel), including all members of the facility's stormwater pollution prevention team. The permittee must ensure the following personnel understand the requirements of this permit and their specific responsibilities with respect to those requirements:

   a. Personnel who are responsible for the design, installation, maintenance, and/or repair of controls (including pollution prevention measures);
   b. Personnel responsible for the storage and handling of chemicals and materials that could become contaminants in stormwater discharges;
   c. Personnel who are responsible for conducting and documenting monitoring and inspections pursuant to this General Permit; and
   d. Personnel who are responsible for taking and documenting corrective actions pursuant to this General Permit.

   Personnel must be trained in at least the following if related to the scope of their job duties (*e.g.*, only personnel responsible for conducting inspections need to understand how to conduct inspections):

   e. An overview of what is in the SWPPP;
   f. Spill response procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases, good housekeeping, maintenance requirements, and material management practices;
   g. The location of all controls on the site required by this General Permit, and how they are to be maintained;
   h. The proper procedures to follow with respect to the General Permit's pollution prevention requirements; and
   i. When and how to conduct inspections, record applicable findings, and take corrective actions.

9. **Dust generation and vehicle tracking of industrial materials.** The permittee must utilize control measures to minimize generation of dust and off-site tracking of raw, final, or waste materials. Discharges of pollutants associated with an industrial activity as the result of off-site tracking are not authorized by this General Permit.

SPECIAL CONDITIONS

I. NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITATIONS

A permittee covered under this General Permit engaging in the following regulated activities must comply with all numeric effluent limitations specified in the Sector applicable to the facility.

Regulated Activity	40 CFR Part/Subpart	Applicable Sector
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	Part 429, Subpart I	A
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products	Part 418, Subpart A	C
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D
Runoff from material storage piles at cement manufacturing facilities	Part 411, Subpart C	E
Runoff from coal piles at any coal mine at which the extraction of coal is taking place	Part 434, Subpart A	H
Mine dewatering discharges at crushed stone (SIC 1422-1429), construction sand and gravel (SIC 1442), or industrial sand mining facilities (SIC 1446)	Part 436, Subparts B, C, or D	J
Runoff from hazardous waste landfills	Part 445, Subpart A	K
Runoff from non-hazardous waste landfills	Part 445, Subpart B	L
Runoff from coal storage piles at steam electric generating facilities	Part 423	O
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Part 449	S

J. STORMWATER POLLUTION PREVENTION PLAN – GENERAL REQUIREMENTS

1. **Availability of SWPPP.** The permittee must prepare a SWPPP for the facility prior to submission of a NOI for authorization to discharge stormwater associated with industrial activity under this General Permit. If a permittee prepared a SWPPP for coverage under a previous version of this General Permit, the permittee must review and update the SWPPP to implement all provisions of this General Permit prior to submitting a NOI. Upon receiving authorization under this General Permit, a copy of the SWPPP must be available to appropriate facility staff, Department and USEPA staff, and the operator of an MS4 receiving discharges from the facility. The permittee must keep a copy of the SWPPP on-site at all times for reference and review.

2. **SWPPP preparation.** The SWPPP must be prepared in accordance with good engineering practices and to industry standards. The SWPPP may be developed by either a person on the facility's staff or a third party, but it must be developed by a "qualified person" and must be certified in accordance with the signatory requirements of 06-096 C.M.R. 521(5). A "qualified person" is a person knowledgeable in the principles and practices of industrial stormwater controls and pollution prevention, and possesses the education and ability to assess conditions at the industrial facility that could impact stormwater quality,

SPECIAL CONDITIONS

J. STORMWATER POLLUTION PREVENTION PLAN – GENERAL REQUIREMENTS (cont'd)

and the education and ability to assess the effectiveness of stormwater controls selected and installed to meet the requirements of the permit. A qualified person may include facility staff that is familiar with the facility's industrial activity and control measures necessary to reduce or eliminate the discharge of pollutants associated with the industrial activity.

3. **Amended SWPPP.** The permittee must amend the SWPPP within thirty (30) calendar days of completion of any of the following:

   a. A change in design, construction, operation, or maintenance at the facility that may have a significant effect on the discharge or potential for discharge of pollutants from the facility including the addition or reduction of industrial activity;
   b. Monitoring, inspections, or investigations by the permittee or by local, State, or Federal officials which determine the SWPPP is ineffective in eliminating or significantly minimizing the intended pollutants;
   c. A discharge under this General Permit that is determined by Department to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard.

K. STORMWATER POLLUTION PREVENTION PLAN – GENERAL CONTENTS

This subsection describes the minimum requirements that must be addressed or contained within an acceptable SWPPP.

1. **Stormwater Pollution Prevention Team.** The SWPPP must identify the individual(s) (by name or title) who comprise the facility's Stormwater Pollution Prevention Team. The Stormwater Pollution Prevention Team is responsible for assisting the facility/plant manager in developing, implementing, maintaining and revising the facility's SWPPP. Responsibilities of each team member must be listed.

2. **Nature of activities.** The SWPPP must provide a description of the nature of the industrial activities at the facility.

3. **Maps.** The SWPPP must contain a general location map with sufficient detail to identify the location of the facility and all receiving waters for all stormwater discharges. In addition to any Sector-specific map requirements, a site map (or multiple as necessary) depicting the following features must also be included with the SWPPP.

   a. Boundaries of the property and the size of the property in acres;
   b. Location and extent of significant structures and impervious surfaces;
   c. Directions of stormwater flow (use arrows);
   d. Locations of all stormwater control measures;
   e. Locations of all receiving waters, including wetlands, in the immediate vicinity of the facility;
   f. Locations of all stormwater conveyances including catch basins, ditches, pipes, and swales;
   g. Locations of potential pollutant sources;

SPECIAL CONDITIONS

K. STORMWATER POLLUTION PREVENTION PLAN – GENERAL CONTENTS (cont'd)

h. The location of all above ground wastewater or process water containment tanks;
i. For the purposes of the site map, identify areas of frequent spills (greater than three occurrences per year) and large spills (greater than 10 gallons) that have occurred in the last three years. All locations of fuel frequent/large spills must be documented within the SWPPP or applicable Spill Prevention Control & Counter Measure (SPCC) Plan;
j. Locations of all stormwater monitoring points;
k. Locations of stormwater inlets and outfalls, with a unique identification code for each outfall (*e.g.*, Outfall 001, 002) and an approximate outline of the areas draining to each outfall;
l. Locations of the following activities where such activities are exposed to precipitation:
   - fueling stations;
   - vehicle and equipment maintenance and/or cleaning areas;
   - loading/unloading areas;
   - locations used for the treatment, storage, or disposal of wastes;
   - liquid storage tanks;
   - processing and storage areas;
   - immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility;
   - transfer areas for substances in bulk;
   - machinery; and
   - locations and sources of run-on to the site from adjacent property that contains significant quantities of pollutants.

4. **Summary of potential pollutant sources.** The SWPPP must provide a description of the areas at the facility where industrial materials or activities are exposed to stormwater or from which allowable non-stormwater discharges originate. Industrial materials or activities include, but are not limited to: material handling equipment or activities; industrial machinery; raw materials; industrial production and processes; and intermediate products, by-products, final products, and waste products. Material handling activities include, but are not limited to: the storage, loading and unloading, transportation, disposal, or conveyance of any raw material, intermediate product, final product or waste product. Structures located in areas of industrial activity are potential sources of pollutants.

   For each separate area identified, the description must include the following.

   a. Activities in the area. A list of the industrial activities exposed to stormwater and the predicted direction of flow of stormwater from each activity and outfall.

   b. Pollutants. A list of pollutants associated with each identified activity, which could be exposed to rainfall or snowmelt and could be discharged from the facility. The pollutant list must include all significant materials that have been handled, treated, stored or disposed, and that have been exposed to stormwater in the three years prior to the date you prepare or amend your SWPPP.

SPECIAL CONDITIONS

K. STORMWATER POLLUTION PREVENTION PLAN – GENERAL CONTENTS (cont'd)

c. Spills and leaks. The permittee must document where potential spills and leaks could occur that could contribute pollutants to stormwater discharges, and the corresponding outfall(s) that would be affected by such spills and leaks. The permittee must document all frequent or large spills and leaks of oil or toxic or hazardous substances that actually occurred at exposed areas, or that drained to a stormwater conveyance, in the three years prior to the date the SWPPP was prepared or last amended. The permittee must document the circumstances leading to the release and actions taken in response to the release and the measures taken to prevent the recurrence of such releases.

d. Wastewater or process water containment. Any stationary above ground tank, container, or container storage area used for the storage of wastewater or process water that has the potential to discharge to surface waters or a stormwater conveyance during a malfunction must be held in a secondary containment device capable of containing 100% of the contents of the tank, plus precipitation. The containment devices must meet all Federal and State rules for primary and secondary containment. Secondary containment requirements are waived if the tank is equipped with a level sensor and alarm to signal an overflow or leak and the facility has a contingency plan in place to remove excess liquid to a second containment structure or off site treatment facility to prevent exposure to stormwater. The containment structures must be visually inspected for signs of deterioration at least once per year. The contingency plan and tank inspection procedure must be documented in the SWPPP.

e. Non-stormwater discharges – The permittee must document that it has evaluated its site for the presence non-stormwater discharges not listed in Section C(2). Documentation must include the following.

   1. The date of the evaluation;
   2. A description of the evaluation criteria used;
   3. A list of the outfalls or onsite drainage points that were directly observed during the evaluation; and
   4. The action(s) taken, such as a list of control measures used to eliminate unauthorized discharge(s), or documentation that a separate MEPDES permit was obtained.

f. Salt storage. The permittee must document the location of any storage piles containing salt used for deicing or other commercial or industrial purposes.

g. Sampling data. Existing dischargers must summarize all stormwater discharge sampling data collected at the facility during the previous permit term. The summary must include a narrative description (and may include data tables/figures) that adequately summarizes the collected sampling data to support identification of potential pollution sources at the facility. New dischargers and new sources must provide a summary of any available stormwater runoff data they may have.

h. Method of on-site storage or disposal. A storage practice or disposal method must be detailed for all raw materials, intermediate materials, final products and waste materials. Waste materials must be handled in accordance with applicable federal and State waste management rules and regulations.

SPECIAL CONDITIONS

K. STORMWATER POLLUTION PREVENTION PLAN – GENERAL CONTENTS (cont'd)

5. **Procedures for conducting monitoring.** The SWPPP must document the procedures and frequencies for conducting the three types of analytical monitoring (Benchmark, Numeric, and Impaired Waters) and Visual Monitoring where applicable. SWPPP documentation must include the following.

    a. Location of sample collection (outfall designation);
    b. Sampling parameters and sampling frequency for each parameter including the benchmark or limit associated with that parameter; and
    c. Monitoring schedule including monitoring exceptions, adverse weather conditions, and waivers.

L. STORMWATER POLLUTION PREVENTION PLAN – CONTROL MEASURES

This condition contains SWPPP requirements for control measures to meet effluent limitations. The permittee must review all control measures at least quarterly and complete corrective action(s) to modify any control measures that are not achieving the intended effect of minimizing pollutant discharges. The SWPPP must document the type and location of all control measures selected to ensure compliance with technology-based and water quality-based effluent limitations.

1. **Best management practices (BMPs) considerations.** Best management practices must be applied to all areas described in the summary of potential pollutant sources documented in the SWPPP. The SWPPP must include an implementation schedule for all proposed BMPs. The permittee must consider, at a minimum, the following in selection of BMPs:

    a. The quantity and nature of the pollutants, and their potential to impact the water quality of receiving waters;
    b. Preventing stormwater from coming into contact with polluting materials;
    c. Using control measures in combination to minimize pollutants in stormwater discharges;
    d. Opportunities to offset stormwater and temperature impacts from impervious areas on dry weather flows and low flow situations to streams;
    e. Minimizing impervious areas at the facility and infiltrating runoff onsite (including bioretention cells, green roofs, and pervious pavement, among other approaches);
    f. Attenuating flow using open vegetated swales and natural depressions; and
    g. Use of treatment interceptors (*e.g.*, swirl separators, sand filters, catch basin inserts/filters) to minimize the discharge of pollutants.

2. **Non-structural control measures** The permittee must comply with the non-structural control measures in Special Condition H, *Non-Numeric Technology Based Effluent Limitations*, of this permit.

SPECIAL CONDITIONS

M. STORMWATER POLLUTION PREVENTION PLAN – RECORDS

The permittee must keep the following inspection, monitoring and certification records on site with the SWPPP.

1. A copy of the NOI submitted to the Department for coverage under this General Permit;

2. A copy of the NOI approval issued by the Department for coverage under this General Permit;

3. A paper or electronic copy of this General Permit and any Sectors that are applicable to the facility;

4. Documentation of maintenance and repairs of control measures, including the date(s) of regular maintenance, date(s) of discovery of areas in need of repair/replacement, and for repairs, date(s) that the control measure(s) returned to full function, and the justification for any extended maintenance/repair schedules;

5. All inspection reports and monitoring data required by this General Permit, including any required sector-specific reports and monitoring data;

6. Documentation of monitoring exceedances and the permittee's response;

7. A description of any deviations from the schedule for visual assessments and/or monitoring, and the reason for the deviations (*e.g.*, adverse weather or it was impracticable to collect samples within the first 60 minutes of a measurable storm event);

8. Dates and descriptions of all spills and leaks that must be documented by this General Permit;

9. Corrective Action Reports and summary of completed actions taken at the site, including event(s) and date(s) when problems were discovered and modifications occurred; and

10. Documentation to support any determination that pollutants of concern are not expected to be present above natural background levels if the permittee discharges directly to impaired waters, and that such pollutants were not detected in the discharge or were solely attributable to natural background sources.

11. A copy of records for all employee training as required by Section H(8) of this permit.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS

1. **Monitoring Generally.**

   a. **Monitoring categories and methods.** This General Permit contains the following types of monitoring: routine facility inspections; visual monitoring; Sector-specific benchmark monitoring; numeric technology-based effluent limitation monitoring; and water quality-based impaired waters monitoring. The monitoring requirements and numeric limitations applicable to a facility depend on the types of industrial activities conducted and the receiving water quality. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the discharge over the sampling and reporting period. The permittee must conduct sampling and analysis in accordance with a) methods approved by 40 CFR Part 136; b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136; or c) as otherwise specified by the Department. Samples that are sent out for analysis must be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services for wastewater. Samples that are sent to a publicly owned treatment works licensed pursuant to *Waste discharge licenses*, 38 M.R.S. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 C.M.R. 263 (effective April 1, 2010). If the permittee monitors any pollutant more frequently than required by this General Permit using test procedures approved under 40 CFR Part 136 or as specified in this General Permit, the results of this monitoring must be maintained with the SWPPP.

      Monitoring prescribed in this subsection is not required for entities covered under this General Permit that are participating in a Watershed Management Plan. The Long Creek Watershed Management Plan in the municipalities of South Portland, Portland, Westbrook and Scarborough is a Department Approved Watershed Management Plan.

   b. **Monitoring timing.** Stormwater samples should, whenever practicable, be collected within the first sixty (60) minutes of the beginning of a discharge during a qualifying storm event. If a sample cannot be collected within the first 60 minutes, the permittee must document with inspection forms the reason(s) or circumstance(s) why it was not practicable to obtain a timely sample. Samples collected more than 2.25 hours following the beginning of a discharge during a qualifying storm event are not acceptable and will be rejected by the Department.

      In the case of snowmelt, samples must be collected during a period with a measurable discharge from the representative outfall.

      If a stormwater discharge event associated with a qualifying storm event does not occur during normal operating business hours an entire calendar quarter, the permittee must document in the SWPPP that there was no discharge to sample. Monitoring requirements under these circumstances are waived.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

2. **Routine Facility Inspections.**

a. **Applicability.** All permittees covered under this General Permit must conduct routine facility inspections of areas of the facility covered by the requirements in this General Permit, including, but not limited to, the following:

1. Areas where industrial materials or activities are exposed to stormwater;
2. Areas identified in the SWPPP and those that are potential pollutant sources;
3. Areas where spills and leaks have occurred in the past three years;
4. Discharge points; and
5. Control measures used to comply with the effluent limits contained in this General Permit.

b. **Minimum inspection requirements.** Routine facility inspections must be conducted once per calendar quarter each year the permittee is covered under this General Permit. These inspections must be equally spaced with a minimum of sixty (60) days between inspections. At least once each calendar year, the routine inspection must be conducted during a period when a stormwater discharge is occurring. Alternatively, a permittee with multiple outfalls may inspect one outfall from each sector provided that it is representative of the entire sector. Representative outfalls must be rotated and all outfalls must be inspected over the course of the five-year permit cycle. The permittee must document findings from each routine facility inspection in a signed, certified report maintained with the SWPPP including, but not limited to, the following:

1. The inspection date and time;
2. The name(s) and signature(s) of the inspector(s);
3. Weather information (precipitation in the previous 48 hour period of time);

4. All observations relating to the implementation of control measures at the facility, including:
   a. A description of any discharges occurring at the time of the inspection;
   b. Any new discharges from and/or pollutants at the site;
   c. Any evidence of, or the potential for, pollutants entering the drainage system;
   d. Observations regarding the physical condition of and around all outfalls, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water;
5. Any control measures needing maintenance, repairs, or replacement;
6. Any additional control measures needed to comply with the General Permit requirements; and
7. Any incidents of noncompliance.

Visual monitoring requirements required by this General Permit may be satisfied at the same time a routine facility inspection is conducted provided all components of both monitoring types are included in the report.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

c. **Exception for inactive and unstaffed sites.** The requirement to conduct facility inspections on a routine basis does not apply at a facility that is inactive and unstaffed (temporarily or permanently closed), provided that there are no industrial materials or activities exposed to stormwater. Such a facility is only required to conduct an annual site inspection in accordance with the other requirements of this subsection. To invoke this exception, the permittee must maintain a signed and certified statement with the facility SWPPP stating that the site is inactive and unstaffed, and that there is no exposure to stormwater.

If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable monitoring requirements as if it was in the first year of permit coverage.

3. **Visual Monitoring.**

a. **Applicability.** All permittees covered under this General Permit must conduct visual monitoring.

b. **Minimum monitoring requirements.** Visual monitoring must be conducted once per calendar quarter each year the permittee is covered under this General Permit. The permittee must collect a stormwater sample from each outfall or a representative outfall during a qualifying storm event and conduct a visual assessment of these samples. See section B(13) of this permit for documenting a representative outfall. These samples are not required to be collected in accordance with 40 CFR Part 136 procedures but must be collected in such a manner that the samples are representative of the stormwater discharge. The sample must be collected in a clean, colorless glass or plastic container, and examined in a well-lit area. The visual assessment must be performed and documented in accordance with standard operating procedures outlined in document DEPLW0768, Visual Monitoring of Stormwater Discharges Associated with Industrial Activity, hereby incorporated into this General Permit.

c. **Monitoring parameters.** The permittee must visually inspect or observe the sample for the following water quality characteristics:

1. Color;
2. Odor;
3. Clarity (diminished);
4. Floating solids;
5. Settled solids;
6. Suspended solids;
7. Foam;
8. Oil sheen; and
9. Other obvious indicators of stormwater pollution

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

d. **Exception for inactive and unstaffed sites.** The requirement for visual monitoring does not apply at a facility that is inactive and unstaffed, provided that there are no industrial materials or activities exposed to stormwater. To invoke this exception, the permittee must maintain a signed and certified statement with the facility SWPPP stating that the site is inactive and unstaffed, and that there is no exposure to stormwater.

4. **Sector-Specific Benchmark Monitoring.**

a. **Applicability.** This General Permit specifies pollutant benchmark thresholds that are applicable to certain Sectors. The permittee must monitor for any benchmark parameters specified for the industrial Sector(s), both primary industrial activity and any co-located industrial activities, applicable to the discharge. The sector-specific benchmark thresholds are listed in the sector-specific sections appended to this General Permit. The benchmark thresholds are not effluent limitations; a benchmark exceedance, therefore, is not a violation of this General Permit. However, if corrective action is required as a result of a benchmark exceedance, failure to conduct required corrective action is a violation of this General Permit.

b. **Minimum monitoring requirements.** Benchmark monitoring must be conducted quarterly for the first four full calendar quarters of coverage under this General Permit. When conditions prevent the permittee from obtaining four samples in four consecutive quarters, the permittee must continue monitoring until the four samples required for calculating your benchmark monitoring average have been obtained. The permittee must collect a stormwater sample from each outfall or a representative outfall for sector-specific benchmark monitoring. See section B(13) of this permit for documenting a representative outfall.

c. **Exceedances.** After collection of four quarterly samples, if the average of the four monitoring values for any parameter exceeds the benchmark threshold, the permittee must review the selection, design, installation, and implementation of the control measures to determine if modifications are necessary to meet the effluent limits in this General Permit, and either:

1. Make the necessary modifications and continue quarterly monitoring until the permittee has completed four additional quarters of monitoring for which the average does not exceed the benchmark; or

2. Propose to the Department that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice to meet the technology-based effluent limits or are necessary to meet applicable water-quality-based effluent limitations, in which case the permittee must continue monitoring quarterly, unless other requirements to reduce pollutants are imposed by the Department. The permittee must also document its rationale for concluding that no further pollutant reductions are achievable, and retain all records related to this documentation with the SWPPP. The Department will evaluate each proposal and make a determination as to whether or not additional pollutant reductions are technologically available and economically practicable and achievable.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

The permittee must review its control measures and perform any required corrective action within fourteen (14) calendar days (or document why no corrective action is required) without waiting for the full four quarters of monitoring data, when an exceedance of the four quarter average is mathematically certain. If after modifying the control measures and conducting four additional quarters of monitoring, the average still exceeds the benchmark (or if an exceedance of the benchmark by the four quarter average is mathematically certain prior to conducting the full four additional quarters of monitoring), the permittee must again review its control measures and take one of the two actions above.

Following the first four quarters of benchmark monitoring, if the average concentration of a pollutant exceeds a benchmark value, and that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background, the permittee is not required to perform corrective action or additional benchmark monitoring provided that:

3. The average concentration of the benchmark monitoring results is less than or equal to the concentration of that pollutant in the natural background; and

4. The permittee documents and maintains with the SWPPP supporting rationale, including data, literature studies any other pertinent information, for concluding that benchmark exceedances are in fact attributable solely to natural background pollutant levels.

d. **Exception for inactive and unstaffed sites.** Notwithstanding applicable sector-specific requirements, the requirement for benchmark monitoring does not apply at a facility that is inactive and unstaffed (temporarily or permanent), provided that there are no industrial materials or activities exposed to stormwater. To invoke this exception, the permittee must maintain a signed and certified statement with the facility SWPPP stating that the site is inactive and unstaffed, and that there is no exposure to stormwater.

If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable benchmark monitoring requirements as if it was in the first year of permit coverage.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

5. **Numeric Technology-Based Effluent Limitation Monitoring.**

   a. **Applicability.** Special Condition I of this General Permit establishes numeric technology-based effluent limitations based on USEPA effluent guidelines limitations. A permittee covered under this General Permit engaging in the regulated activities specified in Special Condition I of this General Permit must comply with all numeric effluent limitations specified in the Sector applicable to the facility. The effluent limitations guidelines are listed in the sector-specific sections appended to this General Permit. The effluent limitations set forth for each Sector are enforceable effluent limitations; an exceedance of an effluent limitation is a violation of this General Permit.

   b. **Minimum monitoring requirements.** Stormwater effluent monitoring must be conducted once per year each calendar year the permittee is covered under this General Permit, except for permittees subject to Sectors A & J, which includes non-stormwater discharges. Minimum monitoring requirements for Sector A & J facilities are specified in Appendix A & J of this General Permit. The permittee must collect a stormwater sample from each representative outfall for numeric monitoring.

   c. **Exceedances.** If any monitoring value exceeds a numeric effluent limitation contained in this General Permit, the permittee must:

      1. Submit the monitoring results to the Department within 14 days of receiving monitoring results;

      2. Comply with all applicable requirements for SWPPP Review and Correction Actions as specified in Special Condition O of this General Permit;

      3. Conduct follow-up monitoring within 30 calendar days (or during the next qualifying storm event, should none occur within 30 days) of implementing corrective action(s). If any follow-up monitoring result exceeds a numeric effluent limitation contained in this General Permit, submit the monitoring results to the Department within 14 days of receiving monitoring results; and

      4. Continue to monitor, at least quarterly, until your discharge is in compliance with the numeric effluent limit or until the Department waives the requirement for additional monitoring.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

6. **Impaired Waters Monitoring.**

a. **Applicability.** Impaired waters monitoring applies to stormwater discharges to a water body listed on the 303(d) list of the current USEPA-approved Integrated Water Quality Monitoring and Assessment Report. The Department will determine whether a facility discharges to an impaired water based on receiving water information provided by the applicant on the NOI form.

b. **Minimum monitoring requirements.**

1. If a total maximum daily load (TMDL) has not been approved for the water body, stormwater effluent monitoring must be conducted once per year each calendar year the permittee is covered under this General Permit; or

2. For storm water discharges to impaired waters with a USEPA approved or established TMDL, permittee's are not required to monitor for the pollutant(s) for which the TMDL was written unless the Department's informs the permittee, upon examination of the applicable TMDL and its wasteload allocation, that the permittee is subject to such a requirement consistent with the assumptions and requirements of the applicable TMDL and its wasteload allocation. The Department's notice will include specifications on monitoring parameters and testing frequency. Permittees must consult the Department for guidance regarding required monitoring under this section. See Attachment B of the Fact Sheet associated with this permit for a list of pollutant causing potential impairments, the specific monitoring parameters associated with the pollutant and the EPA approved method numbers. The list is being provided as guidance in the event a permittee chooses to be proactive in monitoring prior to being notified by the Department of specifications on monitoring parameters and testing frequency.

No monitoring is required when a water body's biological communities are impaired but no pollutant, including indicator or surrogate pollutants, is specified as causing the impairment, or when a water body's impairment is related to hydrologic modifications, impaired hydrology, or other non-pollutant.

c. **Monitoring parameters.** If the pollutant of concern for the impaired water body is suspended solids, turbidity or sediment/sedimentation, the permittee must monitor stormwater effluent for total suspended solids (TSS). If a pollutant of concern is expressed in the form of an indicator or surrogate pollutant, the permittee must monitor for that indicator or surrogate pollutant. Monitoring is required for all pollutants for which the water body is impaired and for which a standard analytical method exists pursuant to 40 CFR Part 136. Monitoring for specific parameters may cease when the discharge does not exceed or have reasonable potential to exceed ambient water quality criteria (AWQC) and is at or below natural background levels.

SPECIAL CONDITIONS

N. MONITORING REQUIREMENTS (cont'd)

If the pollutant of concern is not detected and not expected to be present in the discharge, or it is detected but the permittee has determined that its presence is caused solely by natural background sources, the permittee may discontinue monitoring for that pollutant. To support a determination that the pollutant's presence is caused solely by natural background sources, the permittee must keep the following documentation of this discharge with the facility's SWPPP.

1. An explanation of why the permittee believes that the presence of the pollutant of concern in the discharge is not related to the activities or materials at the facility; and
2. Data or studies which link the presence of the pollutant causing the impairment to what can be considered natural background sources in the watershed.

d. **Exceedances.** If any monitoring value exceeds a water quality-based limitation or ambient water quality criterion (AWQC), the permittee must:

1. Submit the monitoring results to the Department within 14 days of receiving monitoring results;

2. Comply with all applicable requirements for SWPPP Review and Correction Actions as specified in Special Condition O of this General Permit;

3. Conduct follow-up monitoring within 30 calendar days (or during the next qualifying storm event, should none occur within 30 days) of implementing corrective action(s). If any follow-up monitoring result exceeds a water quality-based limitation or AWQC, submit the monitoring results to the Department within 14 days of receiving monitoring results; and

4. Continue to monitor, at least quarterly, until your discharge is in compliance with the numeric effluent limit or until the Department waives the requirement for additional monitoring.

e. **Exception for inactive and unstaffed sites.** The requirement for impaired waters monitoring does not apply at a facility that is inactive and unstaffed (temporarily or permanently closed), provided that there are no industrial materials or activities exposed to stormwater. To invoke this exception, the permittee must maintain a signed and certified statement with the facility SWPPP stating that the site is inactive and unstaffed, and that there is no exposure to stormwater.

If circumstances change and industrial materials or activities become exposed to stormwater or the facility becomes active and/or staffed, this exception no longer applies and the permittee must immediately begin complying with the applicable impaired waters monitoring requirements as if it was in the first year of permit coverage.

SPECIAL CONDITIONS

O. SWPPP REVIEW AND CORRECTIVE ACTIONS

1. **Conditions Requiring SWPPP Review and Revision to Ensure Effluent Limits are Met.**

   When any of the following conditions occur or are detected during an inspection, monitoring or other means, or the Department or the operator of the MS4 through which the facility discharges informs the permittee that any of the following conditions have occurred, the permittee must review and revise, as appropriate, the SWPPP (*e.g.*, sources of pollution; spill and leak procedures; non-stormwater discharges; the selection, design, installation and implementation of your control measures) so that this General Permit's effluent limits are met and pollutant discharges are minimized:

   a. An unauthorized release or discharge (*e.g.*, spill, leak, or discharge of non-stormwater not authorized by this or another MEPDES permit to a water of the State) occurs at the facility;
   b. A discharge violates a numeric effluent limitation contained in this General Permit, including Sector-specific effluent guidelines limitations, or an applicable water quality-based limitation or ambient water quality criteria associated with impaired waters monitoring;
   c. The control measures are not stringent enough for the discharge to meet applicable water quality standards or the non-numeric effluent limits in this permit;
   d. A required control measure was never installed, was installed incorrectly, or is not being properly operated or maintained; or
   e. Whenever a visual assessment shows evidence of stormwater pollution (*e.g.*, color, odor, floating solids, settled solids, suspended solids, foam).

2. **Conditions Requiring SWPPP Review to Determine if Modifications Are Necessary.**

   If any of the following conditions occur, the permittee must review the SWPPP to determine if modifications are necessary to meet the effluent limitations in this General Permit:

   a. Construction or a change in design, operation, or maintenance at the facility that significantly changes the nature of pollutants discharged in stormwater from the facility, or significantly increases the quantity of pollutants discharged; or
   b. The average of four quarterly sampling results exceeds an applicable benchmark. If less than four benchmark samples have been taken, but the results are such that an exceedance of the four quarter average is mathematically certain (*i.e.*, if the sum of quarterly sample results to date is more than four times the benchmark level) this is considered a benchmark exceedance, triggering this review.

SPECIAL CONDITIONS

O. SWPPP REVIEW AND CORRECTIVE ACTIONS (cont'd)

3. **Corrective Actions and Deadlines.**

a. **Immediate actions.** If corrective action is needed, the permittee must immediately take all reasonable steps necessary to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational, including cleaning up any contaminated surfaces so that the material will not discharge in subsequent storm events.

Note: In this context, the term "immediately" requires the permittee to, on the same day a condition requiring corrective action is found, take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational. However, if a problem is identified at a time in the work day when it is too late to initiate corrective action, the initiation of corrective action must begin no later than the following work day. "All reasonable steps" means that the permittee has undertaken initial actions to assess and address the condition causing the corrective action, including, for example, cleaning up any exposed materials that may be discharged in a storm event (e.g., through sweeping, vacuuming) or making arrangements (i.e., scheduling) for a new BMP to be installed at a later date. "All reasonable steps" for purposes of complying with Special Condition O.2, Conditions Requiring SWPPP Review to Determine if Modifications Are Necessary, when the permittee concludes a corrective action is, in fact, not necessary, could include documenting why a corrective action is unnecessary

b. **Subsequent actions.** If the permittee determines that additional actions are necessary beyond those implemented in accordance with immediate action response, the permittee must complete the corrective actions (*e.g.*, install a new or modified control and make it operational, complete the repair) before the next storm event if possible, and within 14 calendar days from the time of discovery of the corrective action condition. If it is infeasible to complete the corrective action within 14 calendar days, the permittee must document why it is infeasible to complete the corrective action within the 14-day timeframe. The permittee must also identify the schedule for completing the work, which must be done as soon as practicable after the 14-day timeframe but no longer than 45 days after discovery. If the completion of corrective action will exceed the 45-day timeframe, the permittee may take the minimum additional time necessary to complete the corrective action, provided that the permittee notifies the Department of the intention to exceed 45 days, the permittee's rationale for an extension, and a completion date, which the permittee must also include in its corrective action documentation. Where the permittee's corrective actions result in changes to any of the controls or procedures documented in your SWPPP, the permittee must modify the SWPPP accordingly within 14 calendar days of completing corrective action work.

c. **Corrective Action Report (CAR).** A Corrective Action Report is a signed, certified report to document actions taken in response to triggering the need for corrective action review due to an exceedance of a water quality based limitation, ambient water quality criterion or a deficiency identified in a Department inspection report.

SPECIAL CONDITIONS

O. SWPPP REVIEW AND CORRECTIVE ACTIONS (cont'd)

The existence of any of the conditions listed Special Condition O.1 and O.2 of this General Permit triggers the need for corrective action review.

A complete CAR must contain the following information:

1. The existence of any of the conditions listed Special Condition O.1 and O.2 of this General Permit and description of the condition triggering the need for corrective action review;
2. For any spills or leaks: a description of the incident including material, date/time, amount, location, and cause for spill, and any leaks, spills or other releases that resulted in discharges of pollutants to waters of State, through stormwater or otherwise;
3. Date the condition was identified;
4. Description of immediate actions completed, including measures taken to prevent the reoccurrence of such releases;
5. A description of the corrective actions taken or to be taken as a result of the identified conditions;
6. The dates when each corrective action was initiated and completed (or is expected to be completed); and
7. If the event triggering corrective action is associated with an outfall that had been identified as a representative outfall, documentation that the permittee assessed the need for corrective action for all related representative outfalls. All of the subsequent actions and deadlines specified above apply to representative outfalls.

d. **Effect of corrective action.** If the event triggering the review is a violation of this General Permit (*e.g.*, non-compliance with an effluent limit), correcting it does not remove the original violation. Additionally, failing to take corrective action in accordance with this section is an additional violation of this General Permit.

P. RETENTION OF RECORDS

The permittee shall retain copies of the SWPPP, all reports, certifications and monitoring results required by this General Permit, and records of all data used to complete the Notice of Intent to be covered by this General Permit, for a period beginning the date that the facility is covered under this General Permit and lasts through the date of renewed coverage under a subsequent permit or through the date the permittee submits a Notice of Termination (NOT) for coverage under this permit.

Q. REOPENING OF PERMIT FOR MODIFICATION

In accordance with 38 M.R.S. § 414-A(5), the Department may, with notice to the permittee, reopen this General Permit to add or change conditions or effluent limitations for toxic compounds, to include specific limitations based on new information, or based on any other pertinent information obtained during the term of this General Permit.

SPECIAL CONDITIONS

R. SEVERABILITY

In the event that any provision, or part thereof, of this General Permit is declared to be unlawful by a reviewing court, the remainder of the General Permit must remain in full force and effect, and must be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

APPENDIX D

2016 MEDEP MSGP SECTOR-SPECIFIC REQUIREMENTS

Appendix L

Sector L - Landfills, Land Application Sites, and Open Dumps

L.1 Covered Stormwater Discharges.

The requirements in Sector L apply to stormwater discharges associated with industrial activity from Landfills and Land Application Sites as identified by the Activity Code specified in Sector L of Attachment A of the General Permit.

L.2 Industrial Activities Covered by Sector L.

This permit may authorize stormwater discharges for Sector L facilities associated with waste disposal at landfills, land application sites that receive or have received industrial waste, including sites subject to regulation under Subtitle D of RCRA. This permit does not cover discharges from landfills that receive only municipal wastes.

L.3 Limitations on Coverage.

L.3.1 ***Prohibition of Non-Stormwater Discharges.*** The following discharges are not authorized by this permit: leachate, gas collection condensate, drained free liquids, contaminated ground water, laboratory wastewater, and contact wash water from washing truck and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

L.3.2 ***Prohibition Stormwater Discharges from Open Dumps.*** Discharges from open dumps as defined under RCRA are also not authorized under this permit.

L.4 Definitions.

L.4.1 ***Contaminated stormwater*** – stormwater that comes into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Some areas of a landfill that may produce contaminated stormwater include (but are not limited to) the open face of an active landfill with exposed waste (no cover added); the areas around wastewater treatment operations; trucks, equipment, or machinery that has been in direct contact with the waste; and waste dumping areas.

L.4.2 ***Drained free liquids*** – aqueous wastes drained from waste containers (e.g., drums) prior to landfilling.

L.4.3 ***Landfill wastewater*** – as defined in 40 CFR Part 445 (Landfills Point Source Category) all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated stormwater, contaminated ground water, and wastewater from recovery pumping wells. Landfill process wastewater includes, but is not limited to, leachate; gas collection condensate; drained free liquids; laboratory-derived wastewater; contaminated stormwater; and contact wash water from washing truck, equipment, and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

L.4.4 ***Leachate*** – liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

L.4.5 ***Non-contaminated stormwater*** – stormwater that does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Non-contaminated stormwater includes stormwater that flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill.

L.5 Additional Technology-Based Effluent Limits.

L.5.1 ***Preventive Maintenance Program.*** As part of your preventive maintenance program, maintain the following: all elements of leachate collection and treatment systems, to prevent commingling of leachate with stormwater; the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary), to minimize the effects of settlement, sinking, and erosion.

L.5.2 ***Erosion and Sedimentation Control.*** Provide temporary stabilization (e.g., temporary seeding, mulching, and placing geotextiles on the inactive portions of stockpiles) for the following in order to minimize discharges of pollutants in stormwater: materials stockpiled for daily, intermediate, and final cover; inactive areas of the landfill or open dump; landfills or open dump areas that have gotten final covers but where vegetation has yet to establish itself; and land application sites where waste application has been completed but final vegetation has not yet been established.

L.6 Additional SWPPP Requirements.

L.5.1 ***Drainage Area Site Map.*** Document in your SWPPP where any of the following may be exposed to precipitation or surface runoff: active and closed landfill cells or trenches, active and closed land application areas, locations where open dumping is occurring or has occurred, locations of any known leachate springs or other areas where uncontrolled leachate may commingle with runoff, and leachate collection and handling systems.

L.5.2 ***Summary of Potential Pollutant Sources.*** Document in your SWPPP the following sources and activities that have potential pollutants associated with them: fertilizer, herbicide, and pesticide application; earth and soil moving; waste hauling and loading or unloading; outdoor storage of significant materials, including daily, interim, and final cover material stockpiles as well as temporary waste storage areas; exposure of active and inactive landfill and land application areas; uncontrolled leachate flows; and failure or leaks from leachate collection and treatment systems.

L.7 Additional Inspection Requirements.

L.7.1 ***Inspections of Active Sites.*** Inspect operating landfills, open dumps, and land application sites at least once every 7 days. Focus on areas of landfills that have not yet been finally stabilized; active land application areas, areas used for storage of material and wastes that are exposed to precipitation, stabilization, and structural control measures; leachate collection and treatment systems; and locations where equipment and waste trucks enter and exit the site. Ensure that sediment and erosion control measures are operating properly. For stabilized sites and areas where land application has been completed, or where the climate is arid or semi-arid, conduct inspections at least once every month.

L.7.2 ***Inspections of Inactive Sites.*** Inspect inactive landfills, open dumps, and land application sites at least quarterly. Qualified personnel must inspect landfill (or open dump) stabilization and structural erosion control measures, leachate collection and treatment systems, and all closed land application areas.

L.8 Additional Post-Authorization Documentation Requirements.

L.8.1 ***Recordkeeping and Internal Reporting.*** Keep records with your SWPPP of the types of wastes disposed of in each cell or trench of a landfill or open dump. For land application sites, track the types and quantities of wastes applied in specific areas.

L.9 Sector-Specific Benchmarks.

No benchmarks are established for Sector L.

L.10. Effluent Limitations Based on Effluent Limitations Guidelines.

Table L-2 identifies effluent limitations that apply to the industrial activities described below. Compliance with these effluent limitations is to be determined based on discharges from these industrial activities independent of commingling with any other waste streams that may be covered under this permit.

Table L-2[1]

Industrial Activity	Parameter	Effluent Limitation
Discharges from non-hazardous waste landfills subject to effluent limitations in 40 CFR Part 445 Subpart B.	Biochemical Oxygen Demand (BOD_5)	140 mg/L, daily maximum
		37 mg/L, monthly avg. maximum
	Total Suspended Solids (TSS)	88 mg/L, daily maximum
		27 mg/L, monthly avg. maximum
	Ammonia	10 mg/L, daily maximum
		4.9 mg/L, monthly avg. maximum
	Alpha Terpineol	0.033 mg/L, daily maximum
		0.016 mg/L monthly avg. maximum
	Benzoic Acid	0.12 mg/L, daily maximum
		0.071 mg/L, monthly avg. maximum
	p-Cresol	0.025 mg/L, daily maximum
		0.014 mg/L, monthly avg. maximum
	Phenol	0.026 mg/L, daily maximum
		0.015 mg/L, monthly avg. maximum
	Total Zinc	0.20 mg/L, daily maximum
		0.11 mg/L, monthly avg. maximum
	pH	Within the range of 6-9 standard pH units (s.u.)

[1] Monitor annually. As set forth at 40 CFR Part 445 Subpart B, these numeric limitations apply to contaminated stormwater discharges from MSWLFs that have not been closed in accordance with 40 CFR 258.60, and to contaminated stormwater discharges from those landfills that are subject to the provisions of 40 CFR Part 257 except for discharges from any of the following facilities:

(a) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives only wastes generated by the industrial or commercial operation directly associated with the landfill;

(b) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes, provided that the other wastes received for disposal are generated by a facility that is subject to the same provisions in 40 CFR Subchapter N as the industrial or commercial operation, or that the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;

(c) landfills operated in conjunction with CWT facilities subject to 40 CFR Part 437, so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for discharge. A landfill directly associated with a CWT facility is subject to this part if the CWT facility discharges landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills;

Appendix N

Sector N - Scrap Recycling and Waste Recycling

N.1 Covered Stormwater Discharges.

The requirements in Sector N apply to stormwater discharges associated with industrial activity from Scrap Recycling and Waste Recycling facilities as identified by the SIC Code specified in Sector N of Attachment A of the General Permit.

N.2 Limitation on Coverage.

Separate permit requirements have been established for recycling facilities that receive, process, and do wholesale distribution of only source-separated recyclable materials primarily from non-industrial and residential sources (i.e., common consumer products including paper, newspaper, glass, cardboard, plastic containers, and aluminum and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

N.2.1 ***Prohibition of Non-Stormwater Discharges.*** Non-stormwater discharges from turnings containment areas are not covered by this General Permit. Discharges from containment areas in the absence of a storm event are prohibited unless covered by a separate MEPDES permit.

N.3 Additional Technology-Based Effluent Limits.

N.3.1 ***Scrap and Waste Recycling Facilities (Non-Source Separated, Nonliquid Recyclable Materials).*** The following requirements are for facilities that receive, process, and do wholesale distribution of non-source separated, nonliquid recyclable wastes (e.g., ferrous and nonferrous metals, plastics, glass, cardboard, and paper). These facilities may receive both nonrecyclable and recyclable materials. This section is not intended for those facilities that accept recyclables only from primarily non-industrial and residential sources.

N.3.1.1 ***Inbound Recyclable and Waste Material Control Program.*** Minimize the chance of accepting materials that could be significant sources of pollutants by conducting inspections of inbound recyclables and waste materials and through implementation of control measures such as the following, where determined to be feasible (list not exclusive): providing information and education to suppliers of scrap and recyclable waste materials on draining and properly disposing of residual fluids (*e.g.*, from vehicles and equipment engines, radiators and transmissions, oil filled transformers, and individual containers or drums) and removal of mercury switches from vehicles before delivery to your facility; establishing procedures to minimize the potential of any residual fluids from coming into contact with precipitation or runoff; establishing procedures for accepting scrap lead-acid batteries (additional requirements for the handling, storage, and disposal or recycling of batteries are contained in the scrap lead-acid battery program provisions in Part N.3.1.6); providing training targeted for those personnel engaged in the inspection and acceptance of inbound recyclable materials; and establishing procedures to ensure that liquid wastes, including used oil, are stored in materially compatible and non-leaking containers and are disposed of or recycled in accordance with the Resource Conservation and Recovery Act (RCRA).

N.3.1.2 ***Scrap and Waste Material Stockpiles and Storage (Outdoor).*** Minimize contact of stormwater runoff with stockpiled materials, processed materials, and nonrecyclable wastes through implementation of control measures such as

the following, where determined to be feasible (list not exclusive): permanent or semi-permanent covers; sediment traps, vegetated swales and strips, catch basin filters, and sand filters to facilitate settling or filtering of pollutants; dikes, berms, containment trenches, culverts, and surface grading to divert runoff from storage areas; silt fencing; and oil and water separators, sumps, and dry absorbents for areas where potential sources of residual fluids are stockpiled (e.g., automobile engine storage areas).

N.3.1.3 ***Stockpiling of Turnings Exposed to Cutting Fluids (Outdoor Storage)***. Minimize contact of surface runoff with residual cutting fluids by storing all turnings exposed to cutting fluids under some form of permanent or semi-permanent cover, or establishing dedicated containment areas for all turnings that have been exposed to cutting fluids. Any containment areas must be constructed of concrete, asphalt, or other equivalent types of impermeable material and include a barrier (*e.g.*, berms, curbing, elevated pads) to prevent contact with stormwater run-on. Stormwater runoff from these areas can be discharged, provided that any runoff is first collected and treated by an oil and water separator or its equivalent. You must regularly maintain the oil and water separator (or its equivalent) and properly dispose of or recycle collected residual fluids.

N.3.1.4 ***Scrap and Waste Material Stockpiles and Storage (Covered or Indoor Storage).*** Minimize contact of residual liquids and particulate matter from materials stored indoors or under cover with surface runoff through implementation of control measures such as the following, where determined to be feasible (list not exclusive): good housekeeping measures, including the use of dry absorbents or wet vacuuming to contain, dispose of, or recycle residual liquids originating from recyclable containers, and mercury spill kits for spills from storage of mercury switches; not allowing wash water from tipping floors or other processing areas to be discharged to waters of the State; and disconnecting or sealing off all floor drains connected to the storm sewer system.

N.3.1.5 ***Scrap and Recyclable Waste Processing Areas.*** Minimize surface runoff from coming in contact with scrap processing equipment. Pay attention to operations that generate visible amounts of particulate residue (e.g., shredding) to minimize the contact of accumulated particulate matter and residual fluids with runoff (i.e., through good housekeeping, preventive maintenance). To minimize discharges of pollutants in stormwater from scrap and recyclable waste processing areas, implement control measures such as the following, where determined to be feasible (list not exclusive): at least once per month inspecting equipment for spills or leaks and malfunctioning, worn, or corroded parts or equipment; establishing a preventive maintenance program for processing equipment; using dry-absorbents or other cleanup practices to collect and dispose of or recycle spilled or leaking fluids or use mercury spill kits for spills from storage of mercury switches; on unattended hydraulic reservoirs over 150 gallons in capacity, installing protection devices such as low-level alarms or equivalent devices, or secondary containment that can hold the entire volume of the reservoir; implementing containment or diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, and grading to minimize contact of stormwater runoff with outdoor processing equipment or stored materials; using oil and water separators or sumps; installing permanent or semi-permanent covers in processing areas where there are residual fluids and grease; and using

retention or detention ponds or basins, sediment traps, vegetated swales or strips, and/or catch basin filters or sand filters for pollutant settling and filtration.

N.3.1.6 ***Scrap Lead-Acid Battery Program.*** To minimize the discharge of pollutants in stormwater from lead-acid batteries, properly handle, store, and dispose of scrap lead-acid batteries, and implement control measures such as the following, where determined to be feasible (list not exclusive): segregating scrap lead-acid batteries from other scrap materials; properly handling, storing, and disposing of cracked or broken batteries; collecting and disposing of leaking lead-acid battery fluid; minimizing or eliminating (if possible) exposure of scrap lead-acid batteries to precipitation or runoff; and providing employee training for the management of scrap batteries.

N.3.1.7 ***Spill Prevention and Response Procedures.*** Install alarms and/or pump shutoff systems on outdoor equipment with hydraulic reservoirs exceeding 150 gallons in the event of a line break. Alternatively, a secondary containment system capable of holding the entire contents of the reservoir plus room for precipitation can be used. Use a mercury spill kit for any release of mercury from switches, anti-lock brake systems, and switch storage areas.

N.3.1.8 ***Supplier Notification Program.*** As appropriate, notify major suppliers which scrap materials will not be accepted at the facility or will be accepted only under certain conditions.

N.3.2 ***Waste Recycling Facilities*** (Liquid Recyclable Materials).

N.3.2.1 ***Waste Material Storage (Indoor).*** Minimize or eliminate contact between residual liquids from waste materials stored indoors and from surface runoff. The plan may refer to applicable portions of other existing plans, such as Spill Prevention, Control, and Countermeasure (SPCC) plans required under 40 CFR Part 112. To minimize discharges of pollutants in stormwater from indoor waste material storage areas, implement control measures such as the following, where determined to be feasible (list not exclusive): implementing procedures for material handling (including labeling and marking); cleaning up spills and leaks with dry absorbent materials and/or a wet vacuum system; installing appropriate containment structures (e.g., trenching, curbing, gutters, etc.); and installing a drainage system, including appurtenances (e.g., pumps or ejectors, manually operated valves), to handle discharges from diked or bermed areas. Drainage should be discharged to an appropriate treatment facility or sanitary sewer system, or otherwise disposed of properly. These discharges may require coverage under a separate MEPDES wastewater permit or industrial user permit under the pretreatment program.

N.3.2.2 ***Waste Material Storage (Outdoor).*** Minimize contact between stored residual liquids and precipitation or runoff. The plan may refer to applicable portions of other existing plans, such as SPCC plans required under 40 CFR Part 112. Discharges of stormwater from containment areas containing used oil must also be in accordance with applicable sections of 40 CFR Part 112. To minimize discharges of pollutants in stormwater from outdoor waste material storage areas, implement control measures such as the following, where determined to be feasible (list not exclusive): appropriate containment structures (*e.g.*, dikes, berms, curbing, pits) to store the volume of the largest tank, with sufficient extra capacity for precipitation; drainage control and other diversionary structures; corrosion protection and/or leak detection

systems for storage tanks; and dry-absorbent materials or a wet vacuum system to collect spills.

N.3.2.3 ***Trucks and Rail Car Waste Transfer Areas.*** Minimize pollutants in stormwater discharges from truck and rail car loading and unloading areas. Include measures to clean up all spills and leaks resulting from the transfer of liquid wastes. To minimize discharges of pollutants in stormwater from truck and rail car waste transfer areas, implement control measures such as the following, where determined to be feasible (list not exclusive): containment and diversionary structures to minimize contact with precipitation or runoff; and dry clean-up methods, wet vacuuming, roof coverings, and/or runoff controls. Utilize track mats to contain oily fluids whenever locomotives will be idle in one location for more than 2 hours.

N.3.3 ***Recycling Facilities (Source-Separated Materials).*** The following requirements are for facilities that receive only source-separated recyclables, primarily from non-industrial and residential sources.

N.3.3.1 ***Inbound Recyclable Material Control.*** Minimize the chance of accepting nonrecyclables (*e.g.*, hazardous materials) that could be a significant source of pollutants by conducting inspections of inbound materials and through the implementation of control measures such as the following, where determined to be feasible (list not exclusive): providing information and education measures to inform suppliers of recyclables about acceptable and non-acceptable materials; training drivers responsible for pickup of recycled material; clearly marking public drop-off containers regarding which materials can be accepted; rejecting nonrecyclable wastes or household hazardous wastes at the source; and establishing procedures for handling and disposal of nonrecyclable material.

N.3.3.2 ***Outdoor Storage.*** Minimize exposure of recyclables to precipitation and runoff by using good housekeeping measures to prevent accumulation of particulate matter and fluids, particularly in high traffic areas and through implementation of control measure such as the following, where determined to be feasible (list not exclusive): providing totally enclosed drop-off containers for the public; installing a sump and pump with each container pit and treat or discharge collected fluids to a sanitary sewer system; providing dikes and curbs for secondary containment (*e.g.*, around bales of recyclable waste paper); diverting surface water runoff away from outside material storage areas; providing covers over containment bins, dumpsters, and roll-off boxes; and storing the equivalent of one day's volume of recyclable material indoors.

N.3.3.3 ***Indoor Storage and Material Processing.*** Minimize the release of pollutants from indoor storage and processing areas through implementation of control measures such as the following, where determined to be feasible (list not exclusive): scheduling routine good housekeeping measures for all storage and processing areas; prohibiting tipping floor wash water from draining to the storm sewer system; and providing employee training on pollution prevention practices.

N.3.3.4 ***Vehicle and Equipment Maintenance***. Minimize the discharge of pollutants in stormwater from areas where vehicle and equipment maintenance occur outdoors through implementation of control measures such as the following, where determined to be feasible (list not exclusive): minimizing or eliminating

outdoor maintenance areas; establishing spill prevention and clean-up procedures in fueling areas; avoiding topping off fuel tanks; diverting runoff from fueling areas; storing lubricants and hydraulic fluids indoors; and providing employee training on proper handling and storage of hydraulic fluids and lubricants.

N.4 Additional SWPPP Requirements.

N.4.1 ***Drainage Area Site Map.*** Document in your SWPPP the locations of any of the following activities or sources that may be exposed to precipitation or surface runoff: scrap and waste material storage; outdoor scrap and waste processing equipment; and containment areas for turnings exposed to cutting fluids.

N.4.2 ***Maintenance Schedules/Procedures for Collection, Handling, and Disposal or Recycling of Residual Fluids at Scrap and Waste Recycling Facilities.*** If you are subject to Part N.3.1.3, your SWPPP must identify any applicable maintenance schedule and the procedures to collect, handle, and dispose of or recycle residual fluids.

N.5 Additional Inspection Requirements.

N.5.1 ***Inspections for Waste Recycling Facilities.*** The inspections must be performed quarterly, and include, at a minimum, all areas where waste is generated, received, stored, treated, or disposed of and that are exposed to either precipitation or stormwater runoff.

N.6 Sector-Specific Benchmarks.

Table N-1 identifies benchmarks that apply to Sector N. These benchmarks apply to both your primary industrial activity and any co-located industrial activities.

Table N-1.

Subsector (You may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector N1. Scrap Recycling and Waste Recycling Facilities	Total Suspended Solids (TSS)	100 mg/L
	Total Petroleum Hydrocarbons	100 mg/L
	pH	6.0 – 9.0 SU

APPENDIX E

SPILL REPORTING FORM

SPILL REPORTING FORM

Emergency Contact Information	
Fire Department	911
Medical Emergency	911
MEDEP Oil Spill Response Hotline	1-800-482-0777
National Response Center	1-800-424-8802

Spill Information		
Site Name/Company:		
Street Address:	City or Town/State:	
Date & Time of Spill:	Product Spilled:	Quantity Spilled:
Location of Spill:	Source of Spill:	
Immediate Measures Taken to Control Spill:		
Measures Taken to Prevent Re-Occurrence:		

Notifications	**Yes**	**Not Required**	**Date & Time**	**Contact Name**
911				
MEDEP 1-800-482-0777				
Other				

Name **Signature**

APPENDIX F

INITIAL EVALUATION OF NON-STORMWATER DISCHARGES

INITIAL EVALUATION OF NON-STORMWATER DISCHARGES

Site Name/Company: Pine Tree Landfill/ New England Waste Services of ME, Inc.	
Evaluation Date: 1/4/17	Evaluation Time: 10:00 AM
Inspector Name/Title: Anthony Ortiz/Project Mgr.	Inspector Signature:
Which of the outfalls described in the SWPPP were observed during the evaluation?	Outfalls #1-8
The following non-stormwater discharges are authorized under the MSGP: • Firefighting activities • Fire hydrant flushing • Portable water, including water line • Uncontaminated condensate from air conditioners, coolers, other compressors, and outside storage of refrigerated gases or liquids • Irrigation drainage • Landscape watering • Routine external building wash-down/power wash water not contaminated with detergents or hazardous cleaning products • Uncontaminated groundwater and springs • Uncontaminated utility vault dewatering • Water from building foundations or footings not contaminated by contact with process materials • Incidental mist from cooling towers that collects on roofs or adjacent portions of the site • Incidental water that does not contain detergents from on-site rinse stations • Incidental condensed steam that does not contribute to violations of water quality standards • Wash water from cleaning roads, parking lots, sidewalks or other paved surfaces that does not contain detergents, hazardous cleaning products, oil & grease, or toxic pollutants • Wash water from vehicles and equipment cleaning • Non-stormwater discharges explicitly authorized in Sectors A through AD	
Unauthorized discharges or outfalls observed?	None observed.
Source of the unauthorized discharge?	N/A
Actions taken to control measures to eliminate unauthorized discharges:	N/A
New MEPDES permit required?	N/A

APPENDIX G

ROUTINE INSPECTION FORM

ROUTINE INSPECTION REPORT

Site Name/Company	Pine Tree Landfill/ New England Waste Services of ME, Inc.
Location	358 Emerson Mill Road, Hampden, Maine 04444
Date of Visit	
Inspector Name/Signature	
Weather	

Does this inspection qualify as the one required annual inspection conducted during qualifying storm event? ☐ Yes ☐ No

Are there any new discharges or pollutants at the site? ☐ Yes ☐ No

Table 1
Inspection of Potential Pollutant Sources (PPS)

Description	
Industrial Activity or Area	**Describe where any of the following were observed:** • **Any discharges present at the time of inspection;** • **Any evidence of pollutants entering the drain system or outfalls;** • **The condition of the outfalls, including any restricted flow;** • **Industrial materials, residue or trash on the ground;** • **Leaks or spills from industrial equipment, drums, barrels, tanks or other containers;** • **Offsite tracking of industrial or waste materials or sediment; and** • **Tracking or blowing of raw, final, or waste materials.**
Equipment/Materials Laydown Area	
Container Storage Area	
Area C	
500-Gallon Diesel AST	
Truck Scale and Truck Scale House	

Table 1
Inspection of Potential Pollutant Sources (PPS)

Description	
Industrial Activity or Area	**Describe where any of the following were observed:** • **Any discharges present at the time of inspection;** • **Any evidence of pollutants entering the drain system or outfalls;** • **The condition of the outfalls, including any restricted flow;** • **Industrial materials, residue or trash on the ground;** • **Leaks or spills from industrial equipment, drums, barrels, tanks or other containers;** • **Offsite tracking of industrial or waste materials or sediment; and** • **Tracking or blowing of raw, final, or waste materials.**
Leachate Storage Tank Truck Loading Facility	
900,000-Gallon Leachate Storage Tank	
Wet Scrubber Building	
LFGTE Facility	
Soil Stockpile Area	
Leachate Recirculation System	
Administrative Parking Area	
Maintenance Garage	
Access Roads	

Table 2
Inspection of Structural Control Measures and Outfalls

BMP	Describe where any of the following were observed: • Any evidence that the BMP is not functioning properly; • Any evidence of erosion; and • Industrial materials, residue, or trash.
Spill Kits	
Drainage Channels & Check Dams	
Outlet Weir	
Outfall #5 By-Pass Structure	
Litter Fencing	
Landfill Cover	
900,000-Gallon Leachate Storage Tank Containment	
LFGTE Facility Secondary Containment Basin	
North Detention Basin	
South Detention Basin	
Container Storage Area Detention Pond	
Equipment Laydown Detention Area	
Rip rap and level spreaders	

Table 2
Inspection of Structural Control Measures and Outfalls

BMP	Describe where any of the following were observed: • Any evidence that the BMP is not functioning properly; • Any evidence of erosion; and • Industrial materials, residue, or trash.
Bark Mulch Sediment Berms and/or Silt Fence/Hay bales	
Liner & Leachate Collection System	
Outfalls	

Table 3
Corrective Actions Required for PPS(s) and/or Existing Structural Control Measures

Reference	Description/Schedule	Date Completed

Table 4
Recommendation for New PPS(s) and/or Structural Control Measures

Reference	Description/Schedule	Date Completed

Table 5
Modifications Required to SWPPP or Site Plan

Reference	Description

Certification

☐ Site is in compliance with SWPPP and MSGP. ☐ Site is not in compliance with SWPPP and MSGP and either structural control measure maintenance, additional controls, or modifications to the SWPPP are required.	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
Name:	**Telephone:**
Signature:	**Date:**

APPENDIX H

SWPPP TRAINING LOG

SWPPP TRAINING LOG

Trainer Name:	**Location:**
Title:	
Date:	

Training Topics:

- An overview of what is in the SWPPP;
- Spill response procedures, good housekeeping, maintenance requirements, and material management practices;
- The location of all controls on the site required by the MSGP, and how they are to be maintained;
- The proper procedures to follow with respect to the MSGP's pollution prevention requirements;
- When and how to conduct inspections and visual monitoring, record applicable findings, and take corrective actions; and
- Sector specific training requirements as applicable.

Name	**Signature**

APPENDIX I

VISUAL MONITORING OF STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY MEDEP PROCEDURE – DEPLW0768

Instructions for Completing the Visual Monitoring Form

1. Completely fill out all required information on the top of the visual monitoring form.

2. Pour the sample into a 1 L clear polycarbonate Imhoff cone or 1000 ml graduated cylinder. Record the total sample volume measured in the cone or graduated cylinder to the nearest 10 milliliter. Evaluate the sample for the following parameters according to the following instructions.

   - **Odor:** The must be recorded first. If the sample has no odor other than natural rainwater or snowmelt, write "normal" on the visual monitoring form. Note the presence of any of the following odors if detected: Gasoline, diesel, oil, solvents (WD-40, other petroleum products, etc.), landfill, fishy, glycol, any other unusual odors not normally present in clean stormwater runoff from the area(s) sampled.

   - **Foam:** This must be recorded second. Examine the sample for foam immediately after pouring it into the cone. Record foam results on the visual monitoring form as they most closely match one of the descriptions listed below.

     i. **None**-Most bubbles break down within ten (10) seconds of pouring; only a few large bubbles persist longer than ten (10) seconds.

     ii. **Moderate**-Many small bubbles are present but these bubbles persist for less than two (minutes) after pouring.

     iii. **High**-Many small bubbles are present and they persist longer than two (2) minutes after pouring.

3. Examine the sample for the following criteria after it has settled for ten (10) minutes. Record the results on the visual monitoring form as they most closely match the descriptions listed below.

   - **Color:** Record the best description of the sample color in the appropriate space on the visual monitoring form.

   - **Clarity:** Record sample clarity results as they most closely match one of the descriptions listed below.

     i. **Clear**-Sample doesn't filter out any light, can be seen through regardless of color.

     ii. **Cloudy-**Sample filters out some light; not clear but objects can still be identified when looking through the cone.

     iii. **Very Cloudy**-Sample filters out most light; objects are indiscernible when looking through the cone.

iv. **Opaque**-Sample doesn't allow any light to pass through; objects cannot be seen when looking through the cone.

- **Floating Solids:** Give a general description of the type of floating solids present (wood chips, leaf debris, algae, etc) in the general comments section for each sample. Record results for amount floating solids present as they most closely match the descriptions listed below. Record amount data in the appropriate box on page 1 of the visual monitoring form.

  i. **None**- No floating solids present on the surface of the sample.

  ii. **Slight**-Only a few floating particles observed on the surface of the sample.

  iii. **Moderate**- Less than 20% of the surface of the sample is covered with floating solids.

  iv. **High**- More than 20% of the surface of the sample is covered with floating solids.

- **Settled Solids:** Give a general description of the type of settled solids present (sand, decayed plant matter, rust particles etc) in the general comments section for each sample. Allow settle for one hour. Measure the settled solids in the bottom of the cone to the nearest milliliter and record the results in the appropriate box on page 1 of the visual monitoring form.

- **Suspended solids:** In the general comments section for each sample, give a general description of the type of solids present if any are observed suspended below the sample surface. Record whether or not settled solids were present in the appropriate box on page 1 of the visual monitoring form.

- **Oil Sheen:** Record whether or not an oil sheen is present in the sample.

- **General Comments Section on Page 2:** Make sure you have described the type of floating, settled and suspended solids observed in the samples in the general comments section provided for each outfall sample. Also note the following conditions at each outfall during the time sampled: General volume of water and flow, algae (if any is present), odor, color, and any other unusual characteristics noticed at the sampling location. Record the number of days since the last known measurable storm or runoff event.

4. Ensure that all visual monitoring forms are filed on site with the Stormwater Pollution Prevention Plan (SWPPP) each time visual monitoring is performed.

APPENDIX J

QUARTERLY VISUAL MONITORING FORM

QUARTERLY VISUAL MONITORING FORM

Person Collecting Sample:

Person Performing Visual Assessment:

Site Name and Address: Pine Tree Landfill, 358 Emerson Mill Road, Hampden, Maine

Date and Time of Sample Collection:

Time Since Previous Storm Event:

Time Since Current Storm Event Began:

Measurable Discharge from Outfall(s):

Outfall	Time	Type of Discharge (rainfall/ snowmelt)	**Observations**								
			color	odor	clarity	floating solids	settled solids	suspended solids	foam	oil sheen	other
Outfall #2A											
Outfall #2B											
Outfall #4											
Outfall #8											
Comments											

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:_____Title:_____ Date:_____

APPENDIX K

CORRECTIVE ACTION REPORT

CORRECTIVE ACTION REPORT

Site Name/Company: Pine Tree Landfill	
Location: 358 Emerson Mill Road, Hampden, Maine	
Contact Name:	**Contact Signature:**
Date of Discovery:	
Date of Corrective Action Initiation:	
Date of Corrective Action Completion:	
Condition Requiring Corrective Action	
Immediate Measures Taken to Control	
Measures Taken to Prevent Re-Occurrence	

Corrective actions must be completed within 14 days of the discovery of the condition. SWPPP modifications must be completed within 14 days of the completion of the corrective action. In the case of a spill, fill out Appendix E – Spill Report in addition to this form.

If it is not feasible to complete the corrective action within 14 days, please describe the reason and proposed schedule for completion: _____

_____

_____

If corrective actions cannot be completed within 45 days of discovery, MEDEP must be notified.

Appendices K-3

PINE TREE LANDFILL
-POST CLOSURE QUARTERLY INSPECTION REPORT-

INSPECTION DATE:_____

NAME OF INSPECTOR:_____

INSPECTION ITEM DESCRIPTION	INSPECTED NO ACTION TAKEN	NEEDS ACTION (See Comments)
LEACHATE MANAGEMENT		
Build-up of sediment in wetwells		
Pumps & valves functioning properly		
Flow conditions		
Pump station vented properly		
Electrical panel inspection		
Flow meter inspection		
Manholes intact and serviceable		
Inspection of leachate storage tank		
Storage tank containment		
Tank pump station		
Inspection of loading rack system		
Leachate forcemain system		
STORM WATER COLLECTION & CONTROL SYSTEMS		
Check outlet structures for condition		
Drainage ditches clear and flowing		
Signs of erosion		
Check dams		
Detention ponds		
Check roadway ditches for erosion		
ACTIVE GAS COLLECTION & FLARE SYSTEMS		
Condensate knockout system		
Condition of wellheads ok		
Presence of leakage on assembly		
Flare operation ok		
Noise/vibration in flare motor or blower		
Maintenance up-to-date		
Condition of igniter system		
COVER SYSTEMS		
Landfill cover intact		
No signs of ponding or erosion		
Cover growth being maintained		
No signs of excessive settlement		
All final cover subsurface drainage outlets functioning properly as designed		
Slope stability		
Secure II surface water drainage checked for integrity		
SITE ACCESS & SECURITY		
All landfill roads accessible by vehicles		
Main gate fully functional		
Security fencing & gates intact and locked		
No signs of security breech or vandalism		
All electrical panels & switches secured		
MISC.		
No noticeable onsite or offsite odors		
Combustible gas monitoring at facility property lines		
Combustible gas monitoring at facility structures		
Emergency generator operational		
Buffer areas inspected		

COMMENTS SECTION ON NEXT PAGE

PINE TREE LANDFILL
-POST CLOSURE QUARTERLY INSPECTION REPORT-

COMMENTS:

REVIEW BY ENVIRONMENTAL COMPLIANCE MANAGER:

Signature Date

Distribution: General Manager
PCE Manager