PHASE 14 SOLID WASTE PERMIT APPLICATION

VOLUME V OF VI

Site Operations Manual

Crossroads Landfill

Norridgewock, Maine

Prepared for

Waste Management Disposal Services of Maine, Inc.

357 Mercer Road
Norridgewock, Maine

Prepared by

Geosyntec Consultants, Inc.
289 Great Road, Suite 202
Acton, Massachusetts 01720

Project BE0232

October 2019

STATE OF MAINE
SCOTT M. LUETTICH
No. 7452
LICENSED PROFESSIONAL ENGINEER

Scott Luettich

1. INTRODUCTION

1.1 Purpose and Organization

This document presents Volume V – Site Operations Manual of the Phase 14 Solid Waste Permit Application at the Crossroads Landfill (Crossroads). This document was prepared by Mr. Nick J. Yafrate, Mr. Youngmin Cho, and Mr. Scott M. Luettich, P.E. (Maine PE # 7452), all of Geosyntec Consultants (Geosyntec), for Waste Management Disposal Services of Maine, Inc. (WMDSM).

This document was prepared to satisfy the requirements established in applicable sections of Chapter 401.2.L of the Maine Solid Waste Management Rules (Maine SWMR), effective 2 November 1998 (revisions effective 12 April 2015) for submittal of a solid waste permit application. This document represents Volume V of the Phase 14 Solid Waste Permit Application package, which, in its entirety, is organized as follows:

Volume I	Application Form and General Information Requirements
Volume II	Natural Resources Protection Act (NRPA) Application
Volume III	Geologic and Hydrogeologic Assessment
Volume IV	Landfill Engineering Report
Volume V	Site Operations Manual
Volume VI	Draft Construction Bid Documents

1.2 Site Operations Manual

WMDSM currently utilizes a Site Operations Manual, dated December 2016, which governs the operational and filling procedures for the landfill units as well as other activities at the Crossroads facility, an electronic version of which was submitted to MEDEP on 31 December 2016 via email. It is WMDSM's understanding that the 2016 Site Operations Manual is under the review of the Maine Department of Environment Protection (MEDEP). The Site Operations Manual is provided in Appendix A of this document.

WMDSM will update the Site Operations Manual prior to the Phase 14 construction and during its operations as necessary. The anticipated updates include:

- **Section III – Leachate Management Plan:** will be updated to include leachate management activities for Phase 14.

- **Section V – Storm Water Pollution Prevention Plan (SWPPP):** the Phase 14 area will be incorporated into the SWPPP.

- **Section VI – Landfill Gas:** updates will include a description of the Phase 14 landfill gas collection and control devices, pipelines, and condensate management system as well as air monitoring program.

- **Section VII – Stability Monitoring:** the Phase 14 Stability and Settlement Monitoring Plan, presented in Appendix IV(h) of Volume IV of the Phase 14 solid waste permit application package, will be incorporated into Section VII.

- **Section VIII – Post Closure Monitoring and Maintenance Program:** Phase 14 will be included in the post closure monitoring and maintenance program prior to its final closure.

- **Section IX – Erosion Control Plan:** the erosion control plan will be updated to include the Phase 14 area.

- **Section X – Water Quality Monitoring Plan:** the Phase 14 water quality monitoring program, presented in Section 7 of Volume III of the Phase 14 permit application package, will be incorporated into Section X.

APPENDIX A

WMDSM Site Operations Manual

WASTE MANAGEMENT

CROSSROADS LANDFILL
P.O. Box 629
357 Mercer Road
Norridgewock, ME 04957
(207) 634-2714
(207) 634-4519 Fax

December 31, 2016

Ms. Linda J. Butler
Environment Services Specialist III
Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
17 State House Station
Augusta, ME 04333-0017

Re: Site Operations Manual
2016 Annual Update
Waste Management Disposal Services of Maine, Inc. – Crossroads (WMDSM)
Norridgewock, Maine

Dear Linda:

Please find attached Controlled Copy No. 3 and 4 of WMDSM's Site Operations Manual dated December 2016. Each manual consists of two three-ring binders and includes all sections regardless of the regulating authority. The 2016 update of the manual includes the same sections as previously submitted to the MDEP. A clean version of Controlled Copy No. 3 and 4 is being provided with this cover letter, which incorporates all changes made to each section of the manual. WMDSM will provide the Site Operations Manual electronically to the Department with 2016 tracked (redline/strikeout) changes made to the text of each section. The enclosed copies of the 2016 update of the Site Operations Manual is intended to supersede all previous versions.

WMDSM will address any review comments to the Site Operations Manual provided by the MDEP. If these comments result in changes to the manual, WMDSM will provide updated text, without indicated track changes, to the MDEP for incorporation into their controlled copies. Upon MDEP approval of the Site Operations Manual, Controlled Copy No. 5 will be forwarded to the Town of Norridgewock.

Please do not hesitate to contact me at 634-2714 ext. 223 should you have any questions regarding this submittal.

Sincerely,
Waste Management Disposal Services of Maine, Inc. - Crossroads

Sherwood McKenney

Sherwood McKenney
District Engineer

Enclosures

cc: Jeff McGown – WMDSM (with Controlled Copies No. 1 and 2)
John Chessa – WMDSM (w/o attachments)
Kathy Tarbuck, P.E. - MDEP (w/o attachments)

file: Site Operations Manual – 2016 Update

WMDSM SITE OPERATIONS MANUAL
Norridgewock, Maine

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WMDSM SITE OPERATIONS MANUAL
Norridgewock, Maine

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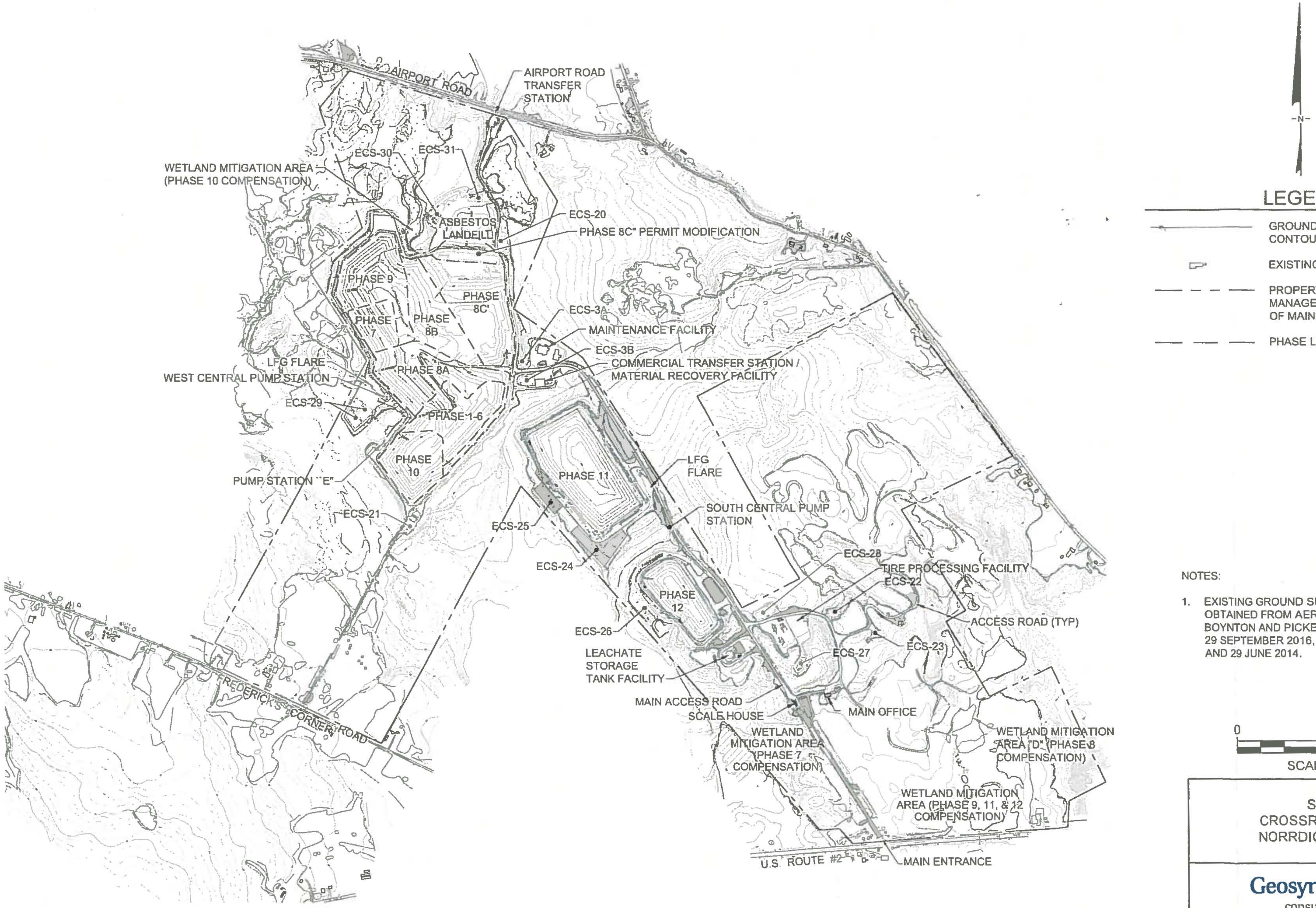

LEGEND

———	GROUND SURFACE ELEVATION CONTOUR
▭	EXISTING BUILDINGS
— — —	PROPERTY BOUNDARY - WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
— — —	PHASE LIMITS

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM AERIAL SURVEYS COMPILED BY BOYNTON AND PICKET LLC AND CONDUCTED ON 29 SEPTEMBER 2016, 31 MARCH 2016, 31 MARCH 2015, AND 29 JUNE 2014.

0 500' 1000'

SCALE IN FEET

SITE PLAN
CROSSROADS LANDFILL
NORRDIGEWOCK, MAINE

Geosyntec
consultants

FIGURE
1

PROJECT NO BE0201
DECEMBER2016

L:\B\BOSTON JOBS\CROSSROADS\FIGURES\SITE PLAN - DEC 2016\0201 P003A (SITE PLAN)

SECTION I - PART A

GENERAL

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Refer to TOC*	Response to DEP comments on Rev. No. 0, annual update	ivs(GZA)
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accept 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	No changes	Accept 2005 and 2007 edits; 2008 annual review	WMDSM
8	Mar. 13	Edits tracked	Accepted 2008 and 2010 edits; 2013 annual update	WMDSM
9	Dec. 16	Edits tracked	Accepted 2013 edits; 2016 update	WMDSM
	* "TOC" refers to the Table of Contents			

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GENERAL

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SECTION I - PART A

GENERAL

1. INTRODUCTION

The purpose of this Site Operations Manual is to establish and standardize the procedures needed to conduct daily operations at Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill (WMDSM). This Manual has been prepared in accordance with the requirements of the following:

- The Maine Solid Waste Management Regulations (Regulations);
- Operating licenses issued by the Maine Department of Environmental Protection (MDEP);
- Internal policies of Waste Management (WM);
- Efficient, environmentally sound operating practices; and
- Effective health and safety programs.

The Manual is intended to be a "living" document and will be reviewed at least annually by the site staff and updated as necessary to reflect current operations at Crossroads. The Site Engineer is responsible for coordinating and implementing manual updates, including distributing copies to holders of controlled copies of the manual. As updates are proposed by site staff, the Site Engineer will assess whether an alteration requires notification to the MDEP or can be handled/submitted as part of the annual update. A revision block has been included with all sections on which to track changes. This manual is a controlled document and copies are assigned as follows.

Controlled Copy Number	Assigned
1 & 2	WMDSM Main Office
3 & 4	MDEP
5	Town of Norridgewock

The Site Operations Manual is contained in two volumes. Volume I contains Section I through IV; Volume II contains Section V through X.

It is the responsibility of each manual holder to keep their copy current by inserting all changes into the manual and destroying the obsolete pages. The Site Manager, Operations Supervisor, and Site Engineer are responsible for ensuring that Crossroads Landfill employees understand and adhere to the policies and procedures established in this Manual.

Controlled Copy Number 5 will be transmitted to the Town of Norridgewock upon MDEP's approval of the manual.

2. RESPONSIBILITIES

The management team at Crossroads Landfill has the following general responsibilities:

Site Manager (District Manager) - responsible for site operational activities. He/she is responsible for ensuring that the site is operated in a manner that promotes environmental protection and employee safety. Reports to the Area Director of Disposal Operations.

Accountant Analysis (Accountant) - manages financial activities for the site.

Site Engineer (District Engineer) - oversees environmental compliance requirements, site engineering and consulting work, and construction projects. Responsible for coordinating updates to the operations manual and preparation of the annual report. The District Engineer reports to the Area Director of Disposal Operations.

Operations Supervisor (Operations Manager) - has direct supervisory control of the daily operations at the site. Reports to the Site Manager.

3. OPERATING HOURS

Crossroads will normally accept waste 5 days per week. The posted operating hours are as follows:

Monday through Friday	7:15 AM - 5:00 PM

The (Residential) Airport Road Transfer Station will be open as follows:

Wednesday through Friday	9:30 AM -6:00 PM
Saturday	7:30 AM – 4:00 PM

The disposal of waste at the Crossroads facility will normally occur between 7:15 a.m. and 5:00 p.m. However, the landfill may be required to operate during special hours (outside the posted operating hours, weekends, and holidays) to accommodate customers who generate waste 24 hours per day, customers who do not have storage capabilities, and/or waste stream jobs that require acceptance beyond the stated operating hours. These special hours are intended to be 6:30am to 9:30pm, as agreed upon with the Town of Norridgewock and represented within the Host Community Agreement. Operating the site for waste disposal outside these special hours will be allowed for time sensitive loads only. The MDEP will be notified if Crossroads is required to operate outside these special hours. These deliveries will be prearranged with the Crossroads Landfill staff. Waste shipments received before or after normal operating hours (including weekends and holidays), will be met at the site by a landfill employee who will oversee the disposal activities. Waste load vehicles are discouraged from entering Norridgewock prior to 7:00 a.m. No waste load vehicles will be permitted to park on the site access road outside the main gate or on public roads before or after the posted site operating hours. WM owned and/or operated transport vehicles may leave the site outside the posted operating hours. The operating hours presented herein for the Crossroads Facility are intended to take precedence over the operating hours stipulated in Board Order #S-10735-WD-UW-N, the Host Community Agreement, and the Transporter Rules and Regulations.

The normal operating hours are posted at the Route 2 entrance gate and at the Airport Road Transfer Station entrance.

4. ACCESS CONTROL

Access to the facility is controlled so that the public is not exposed to potential health and safety hazards. Vehicles hauling waste shall enter the facility from Route 2 and proceed directly to the scales and check in with the scale operator. All waste loads are to be weighed prior to proceeding to the disposal area.

Waste streams authorized to be temporarily stored in the Container Storage Area are not required to be weighed, but must receive approval by the Operations Supervisor prior to placement. All loads in the Container Storage Area must be weighed before disposal.

WMDSM personnel and others approved by WMDSM, shall have unrestricted access to the Crossroads facility. Others include certain contractors, vendors, and/or emergency responders that require site access outside the normal operating hours. WMDSM is responsible for assigning those that are given access. All visitors shall enter from Route 2 and proceed to the main office or scale house to sign in prior to accessing the site. The gate at Route 2 and Airport Road shall be locked during non-operating hours. The gate at Pion Road shall be locked unless in use.

The MDEP staff has the right to access the site at any reasonable time of day upon presentation of official credentials to an operating or supervisory employee of Crossroads Landfill. MDEP visitors will be escorted while on site by a supervisory employee of WMDSM and/or a representative assigned by WMDSM.

5. DESCRIPTION OF WASTES ACCEPTED

Crossroads is comprised of several solid waste management facilities (i.e., Material Recovery Facility, Commercial Transfer Station, (Residential) Airport Road Transfer Station, Secure Landfills, Woodwaste Facility, Tire Processing Facility) which manage a variety of solid waste materials. A site plan is attached as Figure IA-1. A description of acceptable and unacceptable wastes for each of these operating units is presented in Section I - Part B of this Site Operations Manual.

6. SAFETY

WMDSM considers safety to be everyone's responsibility. Selected qualified staff members are responsible for overseeing the site safety program. It is their responsibility to conduct safety training monthly, at a minimum, for site personnel. In addition, the site is periodically inspected for unsafe conditions by site staff or supervisory employees and reported to the Operations Supervisor. Please refer to Section I - Part D of this Site Operations Manual for detailed information concerning the WMDSM Safety and Health program.

In the event of an accident or injury, the main office shall be notified immediately. The telephone and two-way radio are the primary means of contact between the main office and the site. The individual(s) reporting the accident or injury will describe the incident and extent of the injuries (if any) and request emergency personnel, if required. The main office is equipped with phones that can be utilized to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. Refer to Section I - Part E of this Site Operations Manual for a directory of emergency phone numbers.

7. TRAINING

A training file will be maintained for each employee in accordance with the WM Safety and Health policy. All training provided shall be documented. These files will be maintained by the Operations Supervisor or a designated employee.

It is the responsibility of the Site Manager to ensure that employees are properly trained.

In addition to on-going training for all site personnel as appropriate for job position, at least two key personnel (Site Manager, Site Engineer, and Operations Supervisor) must complete a training course, and be familiar with State solid waste regulations and this manual. Crossroads Landfill may develop a site-specific training program for key personnel, or gain certification through the Solid Waste Association of North America (SWANA) operator training certification program. Site-specific training must be sufficient to demonstrate that key personnel have adequate knowledge to operate the landfill in accordance with provisions of this Site Operations Manual, and must include provisions for 8 hours annually of refresher training. This training must be documented and kept on file for 5 years. SWANA certification is valid for three years. Key personnel must maintain a valid SWANA certification or maintain up-to-date site-specific training at all times.

8. COMPLIANCE MANAGEMENT SYSTEM

WMDSM utilizes a computer-based system for tracking compliance referred to as CYCLE (Compliance: Your Complete Link to Excellence). All permit conditions, State and Federal regulations, and company requirements are entered into this program. On a regular basis, each employee receives a printout or accesses the web database that outlines his/her tasks and includes such information as due date, requirement, reporting, etc. The employee documents completion of the task and this information is input into the computer database. This program acts as a "tickler" system to remind employees when reports or inspections are due and acts as a means of documenting compliance. CYCLE is reviewed on a regular basis as necessary. Refer to Section I - Part C of this Site Operations Manual for a more comprehensive description of site compliance management measures.

9. OPERATIONAL RECORDS

WMDSM maintains records of operational information that includes, but is not limited to:

- Type, quantity, and origin of waste received;
- Type and quantity of cover material used;
- The active landfill area and the specific portion of the landfill used for the disposal of certain waste streams (e.g., asbestos waste);
- Deviations from approved plans and specifications;
- Monitoring results;
- Fiscal information;
- Equipment and personnel time on-site;
- Equipment breakdowns causing interruption of service;
- Inspection records; and
- Information regarding spills, fires, and accidents.

An annual report will be submitted to the MDEP by April 30 of each year for the previous calendar year in accordance with Paragraph 400.3.E(2); Paragraph 401.4.D; Paragraph 402.5; and Paragraph 409.4.H of the Regulations. Copies of the annual report will be kept on-file at the site.

10. EQUIPMENT

WMDSM owns or leases heavy equipment such as bulldozers, front end loaders, compactors, and excavators, and employs mechanics to ensure that Crossroads Landfill equipment is in good operating condition. Preventative maintenance is conducted in accordance with Waste Management policies and is tracked and documented using a software program.

If additional equipment is needed to complete work at WMDSM, there are a number of local contractors with equipment who can be employed. Equipment is also available at other Waste Management sites, including TREE in Rochester, New Hampshire.

In the unforeseen event that multiple equipment breakdowns cause a disruption in landfill operations, WMDSM will verbally notify the MDEP within 48 hours. WMDSM will submit a written notice to the MDEP staff within 7 days explaining the problem and the corrective measures being taken.

11. SITE MAINTENANCE

11.1 Litter Control

WMDSM will periodically police roadsides around the Crossroads Facility to maintain cleanliness of the site.

11.2 Road Maintenance

WMDSM employs a road maintenance program to maintain proper access road grade (centerline as well as cross slope). WMDSM may choose to hire a grader to grade site gravel roads, as necessary. A WMDSM-owned sweeper is also used to clean paved roads and parking lots.

11.3 Dust Control

WMDSM owns a water truck that is used to water the site access roads as necessary to control dust. For safety purposes this procedure is employed only when the temperature is above freezing.

11.4 Sitewide Vector Control Program

Disease vectors have not been a problem at the Crossroads site. However, each waste handling unit (e.g., secure landfill, residential transfer station) is evaluated to determine the need for vector control procedures and a control program will be implemented if needed. Refer to the specific operations manual sections for the individual waste handling units included in Section II of this Site Operations Manual.

11.5 Setbacks and Buffers

Setbacks for the various waste handling areas have been established by regulation, design, and permit. Alterations to the limits of waste handling areas require prior approval by the Site Engineer based on regulatory requirements, licenses, and approval by MDEP. Buffer strips, typically natural wooded areas or landscaped tree areas, will be maintained in accordance with MDEP approvals/licenses.

Figure IA-1

SITE PLAN

SECTION I - PART B

WASTE CHARACTERIZATION / ACCEPTANCE

REVISION BLOCK

REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accept 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	App. A only	Accept 2005 edits; 2008 annual update; replace App. A with updated profile sheet	WMDSM
8	Jul. 14	Edits tracked	Accepted 2008 and 2010 edits; 2014 annual update	WMDSM
9	Dec. 16	Edits tracked	Accepted 2014 edits; 2016 update	WMDSM
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SECTION I - PART B

WASTE CHARACTERIZATION / ACCEPTANCE

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SECTION I - PART B

WASTE CHARACTERIZATION / ACCEPTANCE

1. PURPOSE

WMDSM operates six distinct waste acceptance/handling units at the Crossroads facility located in Norridgewock, Maine. These include the following:

- (Residential) Airport Road Transfer Station
- Commercial Transfer Station
- Woodwaste Processing Facility
- Secure Landfill(s)
- Material Recovery Facility (located within Commercial Transfer Station)
- Tire Processing Facility

The types of waste accepted at each of these units are dictated by State and Federal Regulations and company policies. The purpose of this section is to identify acceptable and unacceptable wastes for each waste handling unit, and to establish a means for characterizing and screening waste streams for determining acceptance. Additionally, this section establishes appropriate characterization and management procedures for site-generated special wastes.

2. RESPONSIBILITIES

Site Manager - responsible for implementation of the Special Waste Program. The Site Manager has ultimate approval authority for all waste managed at WMDSM.

Waste Approvals Manager – responsible for performing technical reviews of waste profile submittals for prospective waste streams to be considered for disposal at WMDSM. The Waste Approvals Manager determines the acceptability of the waste based on the process generating the waste, its physical and chemical characteristics, and the facility's license. This position is also responsible for identifying special handling requirements to protect worker health and safety and ensure that WMDSM is prepared for acceptance of the waste.

Technical Services Manager - responsible for overseeing daily operations of the technical service center, processing approvals for national accounts, providing backup support for technical service representatives and quality assurance for all special waste projects.

Technical Services Representatives – responsible for handling inbound third party customer calls, providing technical support and customer service for special waste customers from initial waste characterization through final invoicing for all special approvals.

Scale Operator - responsible for ensuring all waste is properly approved prior to being scaled in.

Operations Supervisor - responsible for supervising operational personnel to ensure waste is managed in an appropriate manner.

3. IMPLEMENTATION

This section identifies acceptable and unacceptable wastes for each waste handling unit at the Crossroads facility. Wastes are accepted only if managed in accordance with the appropriate section of this Site Operations Manual.

3.1 (Residential) Airport Road Transfer Station

The Airport Road Transfer Station is intended to serve only residential users. Commercial haulers and industrial users must use the Commercial Transfer Station or Secure Landfill.

3.1.1 Acceptable Waste:

- Municipal Solid Waste (MSW)
- White Goods
- Tires
- Construction & Demolition Debris, including Wood & Brush*
- Scrap Metal
- Stove Ash
- Batteries (automotive type only)
- Recycling Material

3.1.2 Unacceptable Waste:

- Commercial/Industrial Waste
- Special Wastes (not identified above)
- Hazardous Waste
- Contained Gases (i.e., full propane tanks)

* Note that construction and demolition debris, wood, and brush waste received at the Airport Road Transfer Station and the Commercial Transfer Station shall be segregated such that treated wood is stored separately from non-treated wood, and shall be subsequently managed through either the Woodwaste Facility or the Secure Landfill. Treated wood, such as pressure-treated lumber or creosote-treated utility poles or railroad

ties, shall be disposed of in the Secure Landfill. Non-treated wood may be handled at the Woodwaste Facility or Secure Landfill.

3.2 Commercial Transfer Station

3.2.1 Acceptable Waste:

- MSW
- Construction and Demolition Debris*
- MDEP-Approved Special Waste
- Recycling Material

3.2.2 Unacceptable Waste:

- Non-MDEP-Approved Special Waste
- Hazardous Waste
- Liquid Waste
- Contained Gases
- Medical Waste
- Radioactive Waste

* Note that construction and demolition debris, wood, and brush waste received at the Airport Road Transfer Station and the Commercial Transfer Station shall be segregated such that treated wood is stored separately from non-treated wood, and shall be subsequently managed through either the Woodwaste Facility or the Secure Landfill. Treated wood, such as pressure-treated lumber or creosote-treated utility poles or railroad ties, shall be disposed of in the Secure Landfill. Non-treated wood may be handled at the Woodwaste Facility or Secure Landfill.

3.3 Woodwaste Facility

3.3.1 Acceptable Waste:

- Demolition Wood (no special waste or treated wood)
- Brush and Logs
- Stumps

3.3.2 Unacceptable Waste:

The Woodwaste Facility is permitted to accept only the above-listed waste wood materials. No other waste materials may be accepted at this facility unless specifically approved by the MDEP. Specifically, no treated wood shall be managed through the Woodwaste Facility.

3.4 Secure Landfill

3.4.1 Acceptable Waste:

- Municipal Solid Waste (MSW)
- Front End Process Residues (FEPR)
- MSW Incinerator Ash
- Fossil Fuel and Biomass Boiler Ash
- Open Burn Ash (i.e., town burn piles)
- Pulp and Papermill Sludge
- Municipal Wastewater Treatment Plant Sludge
- Contaminated Soils/Urban Fill Materials
- Sandblast Grit
- Leather Product Manufacturing Wastes
- Municipal Wastewater Treatment Plant Grit and Screenings
- Other Special Wastes as Approved by the MDEP
- Properly Sized Demolition Debris
- Off-Spec Commercial Chemical Products
- Biomedical Incinerator Ash
- Agricultural/Organic Wastes
- MDEP-Approved Land Utilization Wastes
- Laundry Sludge
- Alum Sludge
- Dredge Spoils

Asbestos and special wastes must be pre-approved in accordance with standard profiling procedures. WMDSM's Scale Operator will accept each asbestos waste or special waste load contingent upon receipt of thoroughly completed shipping documentation. A Waste Shipment Record is required for each asbestos load, while special wastes must be shipped on a Non-Hazardous Waste Manifest, Bill of Lading, or equivalent. Shipping documentation must be fully executed by all appropriate parties (i.e. generator/contractor, hauler, disposal facility) and must specifically identify the contents of the load and its corresponding approved waste profile number.

3.4.2 Unacceptable Waste:

- Hazardous wastes as defined under Federal (40 CFR Part 261) or State (06-096 Chapter 850) law
- Liquid wastes
- Contained gases
- Medical wastes
- Radioactive wastes as defined by the Atomic Energy Act of 1954, as amended
- PCB wastes regulated under TSCA (40 CFR Part 761), as amended
- Non MDEP-approved wastes
- CFCs, as prohibited by Title 6 of the Clean Air Act, as amended (40 CFR Part 82)

3.5 Material Recovery Facility

3.5.1 Acceptable Waste:

- Paper (assorted grades)
- Cardboard
- Plastic
- Tin
- Glass

3.5.2 Unacceptable Waste:

- Special and/or Hazardous Waste
- Other Types of MSW not specifically referenced above

3.6 Tire Processing Facility

3.6.1 Acceptable Waste:

- Scrap Tires
- Appropriate Non-Scrap Tires
- Other approved rubber products

3.6.2 Unacceptable Waste:

- Non-Tire Waste Streams

4. SPECIAL WASTE PROGRAM

WMDSM has established a special waste approvals program to identify non-hazardous wastes streams that require special management and to preclude the disposal of prohibited wastes. The Hazardous and Special Waste Handling and Exclusion Plan provided in Appendix 1B-A, provides guidance in determining acceptable waste to be disposed at Crossroads Landfill. All special wastes must be approved through WM's profiling and approval process to ensure that they are non-hazardous and may be accepted under the facility's licenses.

The first step of special waste management is the identification of special wastes produced by our customers. WMDSM takes steps to inform generators and haulers about waste types that are acceptable at the facility and those that are prohibited. The initial screening of waste streams generated by customers is typically conducted by Technical Service Representatives and Account Managers.

Special waste customers are directed to WM's web-based special waste program at www.wmsolutions.com. WM Solutions is an interactive website that provides customers with waste disposal information and guides them through the waste profiling process. Customers answer a series of questions about their specific waste stream, and their responses help to generate a profile sheet referred to as WM EZ Profile (Appendix 1B-B). The customers review the profile sheet for accuracy and may print and sign, or sign electronically. In addition, customers upload all applicable information used to document proper waste characterization such as process information, analytical data, safety data sheets, etc. Additional information may be requested by the Waste Approvals Manager during the waste review process as appropriate. Review and approval of profiles may be performed electronically for select well-defined waste streams, or may be reviewed by a Waste Approvals Manager. Waste streams not suitable for management at WMDSM are re-directed to an alternate facility permitted to accept it.

Approved wastes are assigned a unique profile number that must be printed on the shipping document and presented to the scale attendant at the time of delivery. The scale attendant enters the profile number into the scale system to verify that it is an approved waste, and to generate a scale ticket identifying the waste by description and profile number. Only approved profile numbers can be entered into the facility's scale system. In the event, unapproved special waste is delivered to the site, it will be rejected and the procedures for obtaining approval may be initiated.

In addition to evaluating new waste streams, the waste streams of existing customers are also reviewed periodically. This review may involve site visits, recertification/renewal of the waste profile, and review of safety data sheets, current waste stream analysis, load inspections, or the re-evaluation of special waste management decisions.

WMDSM special waste approvals program is based on compliance with all applicable State and Federal regulations, and on standards established by Waste Management. As part of WMDSM's special waste approvals program, an approval package must include, but not be limited to, the following integral documents:

- WM EZ Profile sheet and a WM EZ Profile Addendum sheet (as necessary), completed and signed by the generator of the waste.
- DEP license. The DEP license pertaining to special waste acceptance criteria (#S-010735-WD-QO-M), any subsequent revisions to it, or a separate license issued by the Department specific to a waste stream or waste generator.
- Waste Management Service Agreement.

5. MANAGEMENT OF SITE-GENERATED SPECIAL WASTE

Crossroads has developed this special waste characterization and management plan specific to site-generated special waste. Characterization of site-generated special waste may differ in some instances from customer-generated special waste. A more refined characterization process is based on our first-hand knowledge of the products and processes involved with site-generated wastes. Table 1 identifies site-generated wastes and related management and characterization practices. Site-generated special wastes not identified on the following table must receive Waste Approvals Manager review and approval prior to disposal of any nature.

TABLE 1

MANAGEMENT OF SITE-GENERATED SPECIAL WASTE

TABLE 1 – MANAGEMENT OF S GENERATED SPECIAL WASTE

NAME OF WASTE	MANAGEMENT METHOD	ON-GOING CHARACTERIZATION
Leachate	Treated at: Sappi/Somerset K.S.T.D./AMSD	Annual TCLP test and tri-annual testing to demonstrate leachate meets the management facility's acceptance limits
Solids Removed from Leachate Collection and Storage System During Repair and/or Maintenance	Landfilled in the WMDSM Secure Landfill	No testing, provided the on-going leachate testing does not indicate areas of concern
Used Oil	Use as fuel for garage space heater	Minimum testing of one sample every year
Garage Floor Sweepings	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Used Diesel Fuel, Oil, Coolant, Transmission and Air Filters	Punch hole for better drainage, drain for 24 hours, landfill in WMDSM Secure Landfill	No on-going testing based on initial characterization
Used Anti-Freeze	Recycle on site (filter and reuse)	No testing
Residue from Landfill Tire Wash Unit	Landfilled in the WMDSM Secure Landfill	No testing
Waste Sludge from Garage Floor Drain Collection System	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Contaminated Debris from Oil Releases < 10 Gallons	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Woodwaste Area Maintenance Cleanup Material	Landfill in the WMDSM Secure Landfill. May use as Alternate Daily Cover material	No on-going testing
Debris from on-site Tire Recycling Operation	Landfilled in the WMDSM Secure Landfill	No testing
Liquids collected from floor drain system at the Commercial Transfer Station, Material Recovery Facility, and Maintenance Facility	Dispose of in the Leachate Collection System, and handle as landfill leachate	Tri-annual leachate testing
Spent Abrasive Blasting Grit	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Empty Aerosol Cans	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Spent Mercury-containing Lamps and Cathode Ray Tubes	Recycled at Electronics End in Brewer, Maine	No testing, provided the lamps and cathode ray tubes are recycled
Spent Lead Acid Batteries (non-leaking)	Recycled at Interstate Batteries	No testing, provided the batteries are recycled

TABLE 1 – MANAGEMENT OF S[illegible] GENERATED SPECIAL WASTE

NAME OF WASTE	MANAGEMENT METHOD	ON-GOING CHARACTERIZATION
Scrap Tires	Recycled on Site by BDS	No testing
Absorbent Pads with Used Oil and Diesel Fuel	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Used Granular Absorbent/Used Speedi-dri	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Waste Parts Washer Solution	Treated at Sappi/Somerset K.S.T.D./AMSD	No on-going testing based on initial characterization
Truck/Equipment Wash Water	Disposed in the Leachate Collection System, and Landfill Leachate Treated at Sappi/Somerset K.S.T.D./AMSD	No on-going testing based on initial characterization
Used Rags with Oil, Greases and Cleaners	Landfilled in the WMDSM Secure Landfill	No on-going testing based on initial characterization
Used Gasoline Filters and Gasoline Contaminated Granular Absorbent	Disposed at Licensed Hazardous Waste Facility	No on-going testing based on initial characterization

APPENDIX IB-A

Hazardous and Special Waste Handling and Exclusion Plan

HAZARDOUS AND SPECIAL WASTE HANDLING AND EXCLUSION PLAN

Waste Management Disposal Services of Maine, Inc., - Crossroads Landfill
Norridgewock, Maine

As required by Maine Department of Environmental Protection (MDEP) 06-096 Chapter 400(9), this Hazardous and Special Waste Handling and Exclusion Plan (HSWHEP) has been developed for the detection, identification, handling, storage, transportation, and disposal of unpermitted wastes received at the facility. This document has been prepared as an appendix to Section I - Part B, Waste Characterization / Acceptance of the facility's Site Operations Manual, which describes Waste Management Disposal Services of Maine, Inc.'s (WMDSM's) procedures to characterize and screen wastes prior to acceptance at the facility. Only permitted wastes are accepted for disposal or transfer at the facility. However, unacceptable wastes are occasionally discovered after being discharged or placed at the facility. This HSWHEP details the processes and procedures to protect worker and public health and safety, prevent or mitigate environmental impact, and meet regulatory requirements when unpermitted wastes are identified.

As described in Section I – Part B of the Site Operations Manual, WMDSM operates five permitted disposal units at the Crossroads facility. At the (Residential) Airport Road Transfer Station, wastes are generally unloaded by residents manually and placed in designated areas or containers. At the Commercial Transfer Station[*], Woodwaste Processing Facility[*], and Material Recovery Facility (MRF), materials are typically discharged from commercial waste collection and hauling vehicles to a concrete or asphalt tipping surface. In the Secure Landfills, wastes are discharged from commercial waste collection and hauling vehicles to the active landfill face.

1. General Administration

(a) **Facility Safety Officer:** The District Manager is designated as the "Facility Safety Officer" (FSO) with respect to 06-096 Chapter 400(9)(B)(2). The FSO is responsible for health and safety concerns associated with the implementation of this plan, including providing training on applicable aspects of this plan to appropriate operational personnel. When the FSO is not available, the Operations Manager, District Engineer, or other supervisory personnel are designated to act on behalf of the FSO.

(b) **Emergency Information:** Notifications to outside responders and agencies should generally be made by the FSO or WMDSM managers on duty. However, in emergency situations involving critical injury or exposure, or immediate threats to employee or public health and safety, any employee may dial 911 to summon emergency responders. The following emergency telephone numbers are provided to supervisors and available at facility reception:

WMDSM Emergency Numbers

---

[*] As of March 2016, the Commercial Transfer Station (CTS) and Woodwaste Processing Facility were not operating. However, this plan was prepared inclusive of those permitted operations, should activity resume in the future. The MRF is operating in the building originally permitted as the CTS.

Ambulance	**911**
Norridgewock Fire Department	**911** or (207) 634-3330 or 2208
Maine State Police	**911** or (800) 452-4664
Somerset County Sheriff	**911** or (207) 474-9591
Redington-Fairview General Hospital (Directions below)	(207) 474-5121
Northern New England Poison Center:	(800) 222-1222
Asbestos Abatement Program (MDEP)	(207) 287-2651
Oil Spills (MDEP):	(800) 482-0777
Hazardous Material Spills (State Police/MDEP):	(800) 452-4664
Spills to Water Ways (National Response Center)	(800) 424-8802
MDEP Central Regional Office, Waste Management Division	(207) 287-7688

(c) **Hospital Directions:** The closest location for emergency medical care is Redington-Fairview General Hospital in Skowhegan, Maine. To get there:

- Exit the facility to the south from the facility access road
  (from the Airport Road Transfer Station, take a right and proceed south on Airport Road)
- Turn left onto Route 2, heading east
- At the light in Norridgewock, take a left, continuing on Route 2
- In Skowhegan, turn right onto Main Street
- At top of the hill, bear left onto Fairview Ave./Route 104
- The hospital is on the left - follow the signs to the Emergency Room Entrance.

(d) **Emergency Access/Egress:** Egress routes are posted in facility buildings, and personnel assembly points are located in front of the MRF and Main Office. If evacuation is necessary, landfill personnel will assemble in front of the MRF. If necessary, the Airport Road Transfer Station attendant will direct evacuation of that area to outside the gate on Airport Road. Emergency access for responders will be communicated during notification, and will typically be via the main facility access road from Route 2, unless the emergency is occurring at the Airport Road Transfer Station, in which case it will be directly to the Airport Road gate.

2. Training

(a) **Initial Training:** Employees are provided initial training by the FSO, or their designee, upon placement into roles that involve management of waste or recycling materials, or that include activities within the active disposal units at the Crossroads facility. Training includes review and discussion of the HSWHEP, and may involve additional instruction as applicable to employees' respective roles. Training will be documented in facility training records, and at a minimum, initial training will include:

- HSWHEP availability and administration
- WMDSM chain of command
- Emergency notification process and numbers
- Basic hazard assessment

- Evacuation procedures and egress routes
- Detection and identification of unacceptable wastes
- Handling and storage of unacceptable wastes
- Transportation and disposal of special and hazardous wastes
- Reporting requirements

(b) **Refresher Training:** Refresher training is provided to applicable employees on an annual basis, and includes a review of this HSWHEP. Refresher training may provide updates based on employee roles, and include reviews of specific incidents or situations. Refresher training is documented in the facility training records.

(c) **Related Training:** WMDSM follows a thorough annual training program covering many aspects of solid waste management and general health and safety. Many of these training programs overlap with aspects of the HSWHEP, and may be used, in part, to comprise refresher training.

3. Reporting

(a) **Random Inspection and Unacceptable Waste Log:** The results of random inspections of discharged wastes in the Secure Landfill, and unacceptable wastes that have been discharged or deposited and are observed through the course of normal operations at any of the disposal units, are documented on the Random Inspection and Unacceptable Waste Log. A copy of the log form is attached to this HSWHEP.

(b) **Hazardous Waste & Hazardous Material Spill Reports:** Written reports are required to be submitted to MDEP Bureau of Remediation and Waste Management within 15 days for any incident involving hazardous waste, and within 30 days for any incident involving hazardous materials. The report should be prepared on a form provided by MDEP, and attached to this HSWHEP. Copies of reports should be provided to the Solid Waste Management Division, and kept in the facility records.

(c) **WM Spill Form:** Spills of oil or hazardous materials should also be documented on Waste Management's internal spill report form and provided to WM Environmental Protection.

4. Detection of Unacceptable Wastes

WMDSM's waste characterization and acceptance program prevents the receipt of most unacceptable wastes. However, unacceptable wastes are occasionally deposited at the facility's disposal units. WMDSM enables the detection of unacceptable waste through the following processes:

(a) **Operational Observation:** WMDSM's operators are trained to recognize different types of unacceptable wastes. The greatest opportunity to detect unacceptable items is through a high level of awareness and observation during the course of regular operations.

(b) Random Inspections: Random inspections are conducted on the secure landfill working face on an average of at least once per operating day, with loads selected at random by the landfill operators. These inspections involve a more focused observation of a load of waste during and following discharge from the hauling vehicle than under normal operations. For safety reasons, operators will generally not leave their equipment for these inspections. The inspections are recorded on the Random Inspection and Unacceptable Waste Log.

(c) Suspicious Load Inspections: There are some observations that may lead to suspicion of possible unacceptable wastes in a load. When Waste Management personnel observe these items or conditions, additional inspection and investigation of the load may be warranted to confirm that the waste load is acceptable. The following are some indicators of a suspicious load:

- Chemical or product containers (e.g., buckets, drums, bottles, gas cylinders)
- Warning or danger labels (e.g. toxic, reactive, flammable, biohazard, radioactive)
- Chemical or petroleum odors
- Dust, vapors, or other emissions
- Suspect asbestos-containing materials (e.g., transite, floor tiles, insulation)
- Electronics, electrical equipment, or appliances
- Red bags, or medical wastes
- Oil or chemical staining
- Liquid wastes
- Wastes inconsistent with a provided profile

5. Identification and Notification

Following detection of unacceptable wastes, facility personnel need to take safety precautions, secure the waste from disturbance, ensure proper internal and external notifications are made, and proceed with identification of the material. These steps are important for safeguarding the health and safety of facility personnel and the public, and ensuring that appropriate support and regulatory resources are involved.

(a) Safety Precautions: Upon detection of an unacceptable waste, personnel should take initial steps to assess hazards and protect employee and public safety. Although initial hazard assessment is crucial, health and safety assessment should be an ongoing activity until the unacceptable waste has been addressed. Any material that displays signs of an immediate health and safety hazard should result in the evacuation of that immediate area or facility until the appropriate responders (emergency contacts are provided in Section 1(b), above) can identify, contain, and neutralize the hazard. Immediate health and safety hazards include, but are not limited to:

- Fire
- Suspected asbestos dust
- Smoke, vapors, or fumes
- Active chemical reaction
- Unexploded ordnance
- Extreme hazard labeling
- Evidence of human exposure symptoms

If there is no evidence of a health and safety hazard, the immediate area around the suspected unacceptable waste may be cordoned off to prevent disturbance of the waste and, at the direction of the FSO or their designee, other operations may continue as is safely feasible. Other safety measures could include covering or containment, wetting (asbestos), and donning personal protective equipment.

(b) **Notifications:** Employees that have detected an unacceptable waste should immediately notify their supervisor of the type (if known) and disposition of the waste, observed or suspected hazards, and any initial actions that have been taken – including 911 calls for emergency situations – and the supervisors should immediately inform the FSO. Waste Management Environmental Protection or Engineering personnel should be notified as soon as practicable. The FSO or their designee will contact emergency and/or agency personnel as is applicable for the nature of the unacceptable waste and associated hazards, if any. If the waste has not yet been identified, and taking into account the urgency of necessary response actions, the FSO or their designee may elect to attempt to identify the material prior to making external notifications. Notifications to MDEP will be made as soon as practicable, and generally within 2 hours. WMDSM will endeavor to notify MDEP when an unacceptable waste has been received but identification efforts are ongoing.

(c) **Identification:** The FSO or their designee will attempt to identify the waste based on container markings, physical appearance, origin (if know), and other observations. If waste cannot be readily identified, or if it is unsafe to attempt to do so, internal Waste Management specialists or external contractors or agencies with appropriate expertise will be consulted to assist. Photographs and video may be used to expedite identification.

6. Handling, Storage, Transportation, and Disposal

(a) **Handling:** Small quantities of contained, intact, and stable materials may be relocated by WMDSM to the interim special and hazardous waste storage container located at the Airport Road Transfer Station, prior to removal for off-site disposal by an appropriate agency or contractor. Improperly profiled or unpermitted special waste received in the landfill, which does not present a health and safety hazard or other condition exacerbated by disturbance, may be handled using landfill equipment at the direction of the FSO. In cases of larger volumes, spills of hazardous materials or hazardous wastes, or materials presenting an active health and safety hazard, handling and storage will be coordinated with, or directed by, the appropriate regulatory agency or emergency responder. Wastes that pose an immediate health and safety hazard will typically be handled only by emergency response agencies (e.g. Fire Department or State HazMat Team) or qualified hazardous materials contractors. WMDSM shall only handle those wastes that are within their capability, training, and expertise, and as allowed by regulation (e.g. 29 CFR 1910.120 OSHA HAZWOPER). Clean-up and decontamination will be performed as necessary and applicable to the waste involved, and by qualified WMDSM personnel, agencies, or contractors.

(b) **Storage:** Storage at the facility should be avoided or minimized whenever possible. Small, contained, intact, and stable materials may be temporarily placed in the interim special and hazardous waste storage container at the Airport Road Transfer Station. At the direction of the FSO, some special wastes may be staged or stockpiled temporarily in the Secure Landfill pending characterization, profiling, or transport off-site. Any containerized storage (i.e. drums or lab packs) that is pending off-site transportation should be limited to discrete areas on pavement, secure from unauthorized access, and protected from vehicular damage. All containers must be closed and properly labeled.

(c) **Transportation and Disposal:** Transportation and disposal will be coordinated with appropriately licensed transporters and facilities under required profiles, shipping records and/or manifests. For some special wastes, the Crossroads Landfill may be an acceptable disposal location. Shipping documentation should be included with incident reports and retained in facility records.

(d) **Reports:** Incident reports are required for releases of hazardous materials and hazardous wastes, and may be required by MDEP for other incidences of unacceptable waste receipt. The content of incident reports is described in Section 3.

Random Inspection and nacceptable Waste Log

Waste Management Disposal Services of Maine, Inc.

FACILITY: ☐Secure LF ☐Airport Road TS ☐MRF ☐Commercial TS ☐Woodwaste

TYPE[1] (RI, O)	DATE TIME	TRUCK NO. or PLATE	COMPANY or RESIDENT NAME	UNACCEPTABLE WASTE(S)	RESPONSE	MGR NOTIFIED	INITIALS
O	12/31/16 12:35 PM	406252	Waste Hauler, Inc.	Two 5 gallon buckets of pool chemicals.	Checked buckets for leaks and damage (none) and placed in interim storage container.	John Doe	BDD

[1] **RI = Random Inspection** (may result in no unacceptable materials identified), **O = Other Observation** that detected unacceptable waste.

REVISED 3/30/2016

APPENDIX IB-B

WM EZ Profile

WM
WASTE MANAGEMENT

EZ Profile™

Requested Facility: ______________________ ☐ Unsure Profile Number: __________

☐ Multiple Generator Locations (Attach Locations) ☐ Request Certificate of Disposal ☐ Renewal? Original Profile Number: __________

A. GENERATOR INFORMATION (MATERIAL ORIGIN)

1. Generator Name: __________
2. Site Address: __________
   (City, State, ZIP) __________
3. County: __________
4. Contact Name: __________
5. Email: __________
6. Phone: __________ 7. Fax: __________
8. Generator EPA ID: __________ ☐ N/A
9. State ID: __________ ☐ N/A

B. BILLING INFORMATION

☐ SAME AS GENERATOR

1. Billing Name: __________
2. Billing Address: __________
   (City, State, ZIP) __________
3. Contact Name: __________
4. Email: __________
5. Phone: __________ 6. Fax: __________
7. WM Hauled? ☐ Yes ☐ No
8. P.O. Number: __________
9. Payment Method: ☐ Credit Account ☐ Cash ☐ Credit Card

C. MATERIAL INFORMATION

1. Common Name: __________

Describe Process Generating Material: ☐ See Attached

2. Material Composition and Contaminants: ☐ See Attached

1.	
2.	
3.	
4.	
Total comp. must be equal to or greater than 100%	≥100%

3. State Waste Codes: __________ ☐ N/A
4. Color: __________
5. Physical State at 70°F: ☐ Solid ☐ Liquid ☐ Other: __________
6. Free Liquid Range Percentage: ______ to ______ ☐ N/A
7. pH: ______ to ______ ☐ N/A
8. Strong Odor: ☐ Yes ☐ No Describe: __________
9. Flash Point: ☐ <140°F ☐ 140°–199°F ☐ ≥200° ☐ N/A

D. REGULATORY INFORMATION

1. EPA Hazardous Waste? ☐ Yes* ☐ No
   Code: __________
2. State Hazardous Waste? ☐ Yes ☐ No
   Code: __________
3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? ☐ Yes* ☐ No
4. Contains Underlying Hazardous Constituents? ☐ Yes* ☐ No
5. From an industry regulated under Benzene NESHAP? ☐ Yes* ☐ No
6. Facility remediation subject to 40 CFR 63 GGGGG? ☐ Yes* ☐ No
7. CERCLA or State-mandated clean-up? ☐ Yes* ☐ No
8. NRC or State-regulated radioactive or NORM waste? ☐ Yes* ☐ No

***If Yes, see Addendum (page 2) for additional questions and space.**

9. Contains PCBs? → If Yes, answer a, b and c. ☐ Yes ☐ No
   a. Regulated by 40 CFR 761? ☐ Yes ☐ No
   b. Remediation under 40 CFR 761.61 (a)? ☐ Yes ☐ No
   c. Were PCB imported into the US? ☐ Yes ☐ No
10. Regulated and/or Untreated Medical/Infectious Waste? ☐ Yes ☐ No
11. Contains Asbestos? ☐ Yes ☐ No
    → If Yes: ☐ Non-Friable ☐ Non-Friable – Regulated ☐ Friable

E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION

1. Analytical attached ☐ Yes
   Please identify applicable samples and/or lab reports:
2. Other information attached (such as MSDS)? ☐ Yes

F. SHIPPING AND DOT INFORMATION

1. ☐ One-Time Event ☐ Repeat Event/Ongoing Business
2. Estimated Quantity/Unit of Measure: __________
   ☐ Tons ☐ Yards ☐ Drums ☐ Gallons ☐ Other: __________
3. Container Type and Size: __________
4. USDOT Proper Shipping Name: ☐ N/A
   ____

G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to Waste Management prior to providing the material to Waste Management

If I am an agent signing on behalf of the Generator, I have confirmed with the Generator that information contained in this Profile is accurate and complete.

Name (Print): __________ Date: __________

Title: __________

Company: __________

Certification Signature

THINK GREEN.

QUESTIONS? CALL 800 963 4776 FOR ASSISTANCE

Revised June 30, 2015

WASTE MANAGEMENT

EZ Profile™ Addendum

Only complete this Addendum if prompted by responses on EZ Profile™ (page 1) or to provide additional information. Sections and question numbers correspond to EZ Profile™.

Profile Number: ______________

C. MATERIAL INFORMATION

Describe Process Generating Material (Continued from page 1): If more space is needed, please attach additional pages.

Material Composition and Contaminants (Continued from page 1): If more space is needed, please attach additional pages.

5.	
6.	
7.	
8.	
9.	
Total composition must be equal to or greater than 100%	≥100%

D. REGULATORY INFORMATION

Only questions with a "Yes" response in Section D on the EZ Profile™ form (page 1) need to be answered here.

1. EPA Hazardous Waste
   a. Please list all USEPA listed and characteristic waste code numbers:
   b. Is the material subject to the Alternative Debris standards (40 CFR 268.45)? ☐ Yes ☐ No
   c. Is the material subject to the Alternative Soil standards (40 CFR 268.49)? → If Yes, complete question 4. ☐ Yes ☐ No
   d. Is the material exempt from Subpart CC Controls (40 CFR 264.1083)? ☐ Yes ☐ No
      → If Yes, please check **one** of the following:
      ☐ Waste meets LDR or treatment exemptions for organics (40 CFR 264.1082(c)(2) or (c)(4))
      ☐ Waste contains VOCs that average <500 ppmw (CFR 264.1082(c)(1)) – will require annual update.
2. State Hazardous Waste → Please list all state waste codes: ______________
3. For material that is Treated, Delisted, or Excluded → Please indicate the category, below:
   ☐ Delisted Hazardous Waste ☐ Excluded Waste under 40 CFR 261.4 → Specify Exclusion: ______________
   ☐ Treated Hazardous Waste Debris ☐ Treated Characteristic Hazardous Waste → If checked, complete question 4.
4. Underlying Hazardous Constituents → Please list all Underlying Hazardous Constituents:
5. Industries regulated under Benzene NESHAP include petroleum refineries, chemical manufacturing plants, coke by-product recovery plants, and TSDFs.
   a. Are you a TSDF? → If yes, please complete Benzene NESHAP questionnaire. If not, continue. ☐ Yes ☐ No
   b. Does this material contain benzene? ☐ Yes ☐ No
      1. If yes, what is the flow weighted average concentration? __________ ppmw
   c. What is your facility's current total annual benzene quantity in Megagrams? ☐ <1 Mg ☐ 1–9.99 Mg ☐ ≥10 Mg
   d. Is this waste soil from a remediation? ☐ Yes ☐ No
      1. If yes, what is the benzene concentration in remediation waste? __________ ppmw
   e. Does the waste contain >10% water/moisture? ☐ Yes ☐ No
   f. Has material been treated to remove 99% of the benzene or to achieve <10 ppmw? ☐ Yes ☐ No
   g. Is material exempt from controls in accordance with 40 CFR 61.342? ☐ Yes ☐ No
      → If yes, specify exemption: ______________
   h. Based on your knowledge of your waste and the BWON regulations, do you believe that this waste stream is subject to treatment and control requirements at an off-site TSDF? ☐ Yes ☐ No
6. 40 CFR 63 GGGGG → Does the material contain <500 ppmw VOHAPs at the point of determination? ☐ Yes ☐ No
7. CERCLA or State-Mandated clean up → Please submit the Record of Decision or other documentation with process information to assist others in the evaluation for proper disposal. A "Determination of Acceptability" may be needed for CERCLA wastes not going to a CERCLA approved facility.
8. NRC or state regulated radioactive or NORM Waste → Please identify Isotopes and pCi/g: ______________

WASTE MANAGEMENT

Additional Profile Information

Profile Number: ____________

C. MATERIAL INFORMATION

Material Composition and Contaminants (Continued from page 2): If more space is needed, please attach additional pages.

10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
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28.		
29.		
30.		
31.		
32.		
33.		
34.		
35.		
36.		
37.		
38.		
39.		
40.		
	Total composition must be equal to or greater than 100%	≥100%

D. REGULATORY INFORMATION

1. EPA Hazardous Waste

   a. Please list all USEPA listed and characteristic waste code numbers (Continued from page 2):

SECTION I - PART C

ENVIRONMENTAL COMPLIANCE PROGRAM

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Rev. block only	Accept 2003 and 2004 edits; annual review – no changes	WMDSM
7	Feb. 08	No changes	2008 Annual review; no changes	WMDSM
8	Mar. 13	Edits tracked	Accepted 2008 and 2010 edits; 2013 annual update	WMDSM
9	Dec. 16	Edits tracked	Accepted 2013 edits; 2016 update	WMDSM
	* "TOC" refers to the Table of Contents			

SECTION I – PART C

ENVIRONMENTAL COMPLIANCE PROGRAM

TABLE OF CONTENTS

SECTION I - PART C

ENVIRONMENTAL COMPLIANCE PROGRAM

1. PURPOSE

The purpose of this section is to describe the Environmental Compliance Program at the Crossroads facility. The goal of the program is to ensure that WMDSM personnel understand the facility's environmental compliance goals and objectives in order to conduct the company's business in full compliance of all regulatory requirements and company policies.

2. RESPONSIBILITIES

An environmental compliance program is implemented at Crossroads to provide each employee with the knowledge and mechanisms to complete (and document where necessary) their work in compliance with regulatory requirements and company policies. It is each employee's responsibility to conduct their work in an environmentally and safety conscious manner, and to bring any questions or comments, relative to their work, to their supervisor's attention. It is the responsibility of site management to oversee site operations and ensure they are conducted in accordance with regulatory requirements and company policies.

3. DESCRIPTION

The Environmental Compliance Program is an environmental compliance tracking and monitoring tool referred to as CYCLE, an acronym for *Compliance: Your Complete Link to Excellence*. CYCLE was designed to assist facility personnel to comply with facility permits, registrations, licenses, certifications, plans, and company directives, as well as Federal, State, and Local regulations.

CYCLE is an organized database that incorporates applicable environmental permits and regulations in a user-friendly computer program that allows facility personnel to review the requirements and document completion of scheduled compliance-related tasks, such as annual reports, inspections, and sampling. The database is customized to provide site-specific information. CYCLE functions as a "tickler" system with established due dates for completion of the tasks.

CYCLE is accessible through Waste Management's Intranet. The web-based system offers the following benefits: 1) provides a standard method of tracking environmental compliance across the entire Waste Management organization; 2) allows for the sharing of information among facilities and Market Areas; 3) enables real time viewing of changes in the system/database; and 4) facilitates the viewing of facility information by multiple users at the District, Market Area, and Corporate levels.

SECTION I - PART D

SAFETY AND HEALTH

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Site-specific modules	2004 review; site-specific modules updated	WMDSM
6	Dec. 05	Edits tracked	Accept 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; annual update	WMDSM
8	Mar. 13	Edits tracked	Accepted 2008 and 2010 edits; 2013 annual update	WMDSM
9	Dec. 16	Edits tracked	Accepted 2013 edits; 2016 annual update	WMDSM
	* "TOC" refers to the Table of Contents			

SECTION I – PART D

SAFETY AND HEALTH

TABLE OF CONTENTS

SECTION I - PART D

SAFETY AND HEALTH

1. OVERVIEW

Waste Management (WM) has developed a comprehensive worker safety and health program, consisting of policies, procedures, training, and documentation, to be implemented by all operating districts to ensure compliance with applicable OSHA, WM, and other standards.

The company provides health and safety guidance and support through *WMVisor*, a Waste Management intranet-based system. *WMVisor* allows managers at each operating district to access corporate policies, advisories, and guidance documents on-line. Specific health and safety-related items available to managers via *WMVisor* include:

- Safety Best Practices;
- WM Safety Communications Center Performance Charts;
- Life Critical Rules;
- Key Safety Function and Contact List;
- Waste Management Safety Vision Statement;
- Weekly Safety Updates;
- Safety Alerts;
- Safety Advisories;
- Safety Rules Book;
- Critical Incident Reporting; and
- Managers Safety Program Development Guide.

The company's safety and health program is supplemented by site-specific modules. Site-specific module topics include lockout/tagout, respirator protection, confined space entry, emergency action plan, fire prevention, bloodborne pathogens, and hazard communication program. Worker safety and health training is completed in accordance with applicable regulations and company policies. A training log is maintained at the site.

2. HEALTH AND SAFETY PROGRAM LOCATION

2.1 WM Corporate Safety and Health Program:

- *WMVisor* via WM company intranet

2.2 WMDSM Site-Specific Modules:

- Main Office

SECTION I – PART E

EMERGENCY ACTION PLAN

REVISION BLOCK				
REV. NO.	**DATE**	**PAGES AFFECTED**	**DESCRIPTION**	**BY**
0	April 99	all	1999 annual update	pfb/sam
1	April 00	all	2000 update with response to MDEP comments on Rev. No. 0	IVS(GZA)
2	Dec. 01	all	2001 annual update	WMDSM
3	Dec. 02	revision block and date only	2002 annual update – reviewed; no changes	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; 2008 annual update; no changes	WMDSM
8	Dec 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual review	WMDSM
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SECTION I - PART E

EMERGENCY ACTION PLAN

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SECTION IE
EMERGENCY ACTION PLAN

Waste Management Disposal Services of Maine, Inc. (WMDSM)
Crossroads Landfill
P.O. Box 629
357 Mercer Road
Norridgewock, Maine 04957
(207) 634-2714

1. CERTIFICATION SHEET

This Emergency Action Plan (EAP) was developed to address emergency procedures which shall be followed in response to unusual emergencies involving the personnel and/or property of WMDSM and Waste Management of Maine, Inc., (WMME)-Norridgewock Satellite Hauling Company located in Norridgewock, Maine.

Since the exact nature and magnitude of an emergency cannot be anticipated, this plan has been organized to assign responsibilities, outline procedures, and provide maximum flexibility in handling any emergency situation which may occur at the facility.

Jeffrey A. McGown
District Manager

Note: All supervisory management personnel in addition to any personnel named in this plan shall be familiar with the contents of this Emergency Action Plan. Copies of this plan will be readily accessible for reference at any time.

2. INTRODUCTION

This Emergency Action Plan is required by OSHA's standard 29 CFR 1910.38. This plan details emergency procedures to be followed in order to handle potential emergencies involving the employees and property of WMDSM and WMME-Norridgewock Satellite Hauling Company.

This plan has been written and implemented by the management team of WMDSM to deal with any conceivable type of emergency that could exist at the facility. On an annual basis, this plan will be reevaluated by the management team to determine if the existing plan still represents current conditions at the facility. All WMDSM and WMME employees are required to follow this program.

WMDSM operates a Scalehouse, Secure Landfills, Maintenance Facility, Material Recovery Facility, Residential Transfer Station, Woodwaste Facility, Commercial Transfer Station, and a Leachate Storage Tank Facility. In addition, the facility has administrative offices located in the Main Office.

The WMME-Norridgewock Satellite Hauling Company (Norridgewock Hauling) operates out of administrative offices located at the Maintenance Facility at WMDSM. Waste Management Recovery Energy (WMRE), a subsidiary of Waste Management (WM), operates a Landfill Gas to Energy facility (LFGTE) at the facility. BDS Disposal & Recycling leases space on the premises and operates a Tire Processing business at the facility.

Section I Part A of the Site Operations Manual lists operating hours for the WMDSM facility. The site consists of approximately 817 acres that includes a closed attenuation Asbestos Landfill, and multiple lined landfills, including Phase 1-6, Phase 7, and Phase 10 (Special Waste landfills) and Phases 8, 9, 11, and 12 (Secure municipal solid waste landfills). Detailed descriptions of the numerous on-site facilities are included in other sections in this manual, notably Sections II-A through II-G, III, and VI-A. Locus and site plans are included in Appendix A.

The management team at WMDSM consists of the following personnel:

District Manager (1)	Jeffrey McGown	240-9739
District Engineer (2)	Sherwood McKenney	240-9787
Operations Supervisor (3)	John Chessa	487-1442
Route Manager (4)	Matt Fullerton	712-3968

Numbers in parenthesis denote the order in which personnel should be contacted if an emergency occurs at the facility.

The WMDSM facility has an emergency site phone line for utilization should the computerized phone system fail. The line can be assessed by plugging a phone into the second port (modem port) on any of the phone/computer jack plates in the Main Office or scale house. The phone number would remain (207) 634-2714.

3. EMERGENCY AND PERSONNEL DIRECTORY

The following list is a directory of emergency and WMDSM personnel phone numbers:

3.1 Emergency Directory

SPILL RESPONSE CONTRACTOR

Clean Harbors Environmental Services, Inc.	800-645-8265

POWER & ELECTRICAL CONTRACTORS

Central Maine Power:	800-696-1000 outage
Madison Electric:	207-696-4401 main office
	207-431-4312 after hours
Econo Electric:	207-399-1478 after hours
	207-399-9405 after hours

AGENCY CONTACTS

National Response Center:	800-424-8802
EPA Region 1:	888-372-7341
Maine Department of Environmental Protection:	
Regional Office:	207-287-7800
24-hour Oil Spill Hotline:	800-482-0777
24-hour Hazardous Material Spill Hotline:	800-452-4664

LOCAL & STATE AUTHORITIES

Somerset County Sheriff Department:	207-474-9591
	207-474-6386
Maine State Police:	800-452-4664
Norridgewock Fire Department (NFD):	207-634-2208
Chief Mobile: *call first	*207-474-1035
Chief Work:	207-634-3330

EMERGENCY MEDICAL SERVICES

Redington-Fairvew General Hospital:	207-474-5121

Address: 46 Fairview Ave.
Skowhegan, Maine 04976

3.2 Personnel Directory

Name:	Jeffrey McGown	Office Number:	207-634-2714, ext 210
Title:	District Manager	Cell Number:	207-240-9739

Name:	John Chessa	Office Number:	207-634-2714, ext 213
Title:	Operations Manager	Cell Number:	207-487-1442

Name:	Sherwood McKenney	Office Number:	207-634-2714, ext 223
Title:	District Engineer	Cell Number:	207-240-9787

Name:	Mathew Fullerton	Office Number:	207-634-2714, ext 207
Title:	Site Manager (Norridgewock Hauling)	Cell Number:	207-712-3968

3.3 Personnel Home Directory

WMDSM - Crossroads Landfill:

Jeffrey McGown	634-2594
Sherwood McKenney	240-9787
John Chessa	873-1925
Danny Lanctot	713-4275
Derek Furbush	577-5311
Derek LaChance	612-6300
John Blakely	431-6605
Darren Files	877-4242
Marcel Courtemanche	399-6988
Karin Brown	634-5161
Peggy Chamberlain	431-5304
Matt Charrier	650-3687
Mike Clark	399-6628

WMME – Norridgewock Hauling

Jeffrey McGown	634-2594
Matt Fullerton	712-3968
Chuck Burgess	317-6216
Richard Folsom	417-1611
Edmund Harrison	778-0267
Jeff Stinchfield	310-8764
Jeff Tibbetts	317-6821
Eric Wyman	623-3867
Chris Stanley	310-8739
Tom Maraggio	310-8741
Chad Stevens	317-2587
Mike Drake	317-2003
Don Smith	317-2588
Darren Lee	310-8762

4. MANAGEMENT TEAM AND CONTROL HEADQUARTERS

4.1 Management Team

If an emergency should occur at the facility, the following members of management shall comprise the control committee and assemble at control headquarters as quickly as possible:

Primary	**Alternate**
District Manager - Jeffrey McGown	Sherwood McKenney John Chessa Matt Fullerton

One or more members of the Management Team (or their designees) will initially determine if an emergency exists at the facility.

4.2 Control Headquarters

If an emergency should occur at the facility, control headquarters will be located in the conference room of the Main Office. If the conference room is inaccessible due to an emergency situation, the office at the Maintenance Facility will be utilized. In the event that office space is not available at the facility, portable modular offices can be obtained from the following vendors listed below:

Maine Trailer Sales and Leasing	1-800-244-5718

5. UTILITY SHUT-OFF LOCATIONS

5.1 Main Office

The electrical panel that contains the main breaker is located in the northeast corner of the basement. This electrical panel controls the power supply to the Main Office. In addition, an electrical panel in the northeast corner of the first floor (in the kitchen) also contains breakers for various individual power sources in the building. The electrical panel locations are shown on the Evacuation Route Main Office Floor Plans provided in Appendix B.

5.2 Maintenance Facility

Six electrical panels supply power to the Maintenance Facility. The electrical panel located in the new office contains the main breakers for the second floor offices and parts room. The electrical panel located in the interior northwest corner of the maintenance facility contains the main breakers for the lights, wall receptacles, and fixtures for the westerly bay of the facility. The electrical panel located at the southeast corner controls the remaining lights, ceiling fans, wall receptacles, exterior fixtures, as well as the fuel tanks. The electrical panel located in the northeast corner (old parts room) regulates the power supply to the air compressor, pressure washer, waste oil furnace, old office, and old parts room. There is a dedicated electrical panel for the welding area located on the southern interior wall. Lastly, the electrical panel located on the exterior north wall supplies the electricity for the pump in waste water separator holding tank. The electrical panel locations are shown on the Evacuation Route Maintenance Facility Floor Plan provided in Appendix B. One propane tank is located just northeast of the Maintenance Facility. This tank supplies fuel for the propane heaters in the Maintenance Facility. A shut-off valve is located at the propane tank, as well as at the entrance of the old office located in the northeast corner of the Maintenance Facility.

5.3 Airport Road Transfer Station (ARTS)

The electrical panels that contains the main breakers are located in the attendant's building on the west wall and also on the utility pole east of the building. These electrical panels control the entire power supply for the building. The electrical panel location is shown on the Evacuation Route ARTS Attendants Building Floor Plan provided in Appendix B. The electrical panels for the single stream recycling (SSR) and MSW compactors are located on the backside of each compactor or on the nearest utility pole.

5.4 Commercial Transfer Station Building/Material Recovery Facility(MRF) Operation

The electrical panel that contains the main breaker is located in a separate room that is accessed from the exterior at the northwest corner of the Commercial Transfer Station building. This panel controls the power supply for the entire building. A separate electrical panel is located on the interior face of the west wall of the building, behind and dedicated to the baler. These electrical panel locations are shown on the Evacuation Route Commercial Transfer Station Building/Material Recovery Facility Floor Plan provided in Appendix B.

5.5 Pump Station E Pedestal

The electrical panel that contains the main breaker is located at the southwest corner of Phase 5, adjacent to Pump Station E. This panel controls the power supply for Pump Station E that pumps leachate to the West Central Pump Station (WCPS).

5.6 Asbestos Pump Station Pedestal

The electrical panel that contains the main breaker is located in the vicinity of the southwest corner of the asbestos landfill, adjacent to Leachate Pump Vault Phase 8C'. This panel controls the power supply to the Asbestos Pump Station that pumps leachate to the WCPS.

5.7 Pump Vault Building at the Commercial Transfer Station Building

The electrical panel that contains the main breaker is located on the interior wall on the west side of the building. This panel regulates the power supply to the fire suppression system for the Commercial Transfer Station building / MRF operation.

5.8 Well Pump Panels

<u>Northeast Side of Phase 1:</u> The electrical panel that contains the main breaker for the submersible pumps is located in the misting system building located on the northeast side of Phase 1 at the base of the MSE berm and accessed via MRF. This electrical panel controls the power supply to the misting system, as well as the submersible pumps used for filling mobile water tanks for operations and construction.

<u>Adjacent to South Central Pump Station (SCPS):</u> The electrical panel that contains the main breaker for the submersible well pump is located on a utility pole along the west side of the main access road adjacent to South Central Pump Station. The electrical panel controls the power supply to the pump that is used for filling mobile water tanks for operations and construction.

5.9 West Central Pump Station Pedestal

The electrical panels that contains the main breakers are located adjacent to WCPS, which is located west of the MSE Berm that forms the south perimeter berm of Phase 8A. These electrical panels control the power supply to the WCPS that pumps leachate to the South Central Pump Station (SCPS).

5.10 Phase 7 Leachate Pump Vault

The electrical panel that contains the main breaker is located on the exterior, right side as you face the pump vault doors. This electrical panel controls the power supply to the pumps that pump leachate to the WCPS.

5.11 Phases 8A, 8B, and 8C Leachate Pump Vaults

The electrical panels that contains the main breakers are located on the exterior, right side as you face the pump vault doors The electrical panel controls the power supply to the pumps that pump leachate to the WCPS.

5.12 Phases 9A, 9B, and 9C Leachate Pump Vaults

The electrical panels that contains the main breakers are located on the exterior, right side as you face the pump vault doors. The electrical panels control the power supply to the pumps that pump leachate to WCPS.

5.13 Phases 10A and 10B Leachate Pump Vaults

The electrical panels that contains the main breakers are located on the southwest and southeast exterior wall of the 10A and 10B leachate pump vaults, respectively. The electrical panels control the power supply to the pumps that pump leachate Pump Station E.

5.14 Phases 11A, 11B, and 11C Leachate Pump Vaults

The electrical panels that contains the main breakers are located on the exterior, right side as you face the pump vault doors. The electrical panels control the power supply to the pumps that pump leachate to SCPS.

5.15 Phases 12A and 12B Leachate Pump Vaults

The electrical panels that contains the main breakers are located on the exterior, right side as you face the pump vault door. The electrical panels control the power supply to the pumps that pump leachate to SCPS.

5.16 Consultant Trailer located near West Central Pump Station

The electrical panel that contains the main breaker is located on a utility pole near the base of the Material Stabilized Earthen (MSE) berm, behind the trailer. This electrical panel controls the power supply to the consultant trailer that is used by consultants as necessary. These electrical panel locations are shown on the Evacuation Route Consultant Trailer Floor Plan provided in Appendix B.

5.17 South Central Pump Station Pedestal

The electrical panels that contains the main breakers are located southeast of the Phase 11A landfill. These electrical panels control the power supply to the SCPS that pumps leachate to the main tank at the Leachate Storage Tank Facility.

5.18 Leachate Storage Tank Facility Control Building

The electrical panels that contain the main breakers are located within the Leachate Storage Tank Facility Control Building. These electrical panels control the power supply to the pump on/off switch located near the load-out valve, as well as the facility area lights.

5.19 Truck Wash Building

This building is located within the limits of the Secure Landfill and adjacent to the landfill access road. The buildings exact location varies as required by operational activities. The electrical panel that contains the main breakers is located on the northeast interior wall. This electrical panel powers the lights, fixtures, and the pressure tire washer. This electrical panel location is shown on the Evacuation Route Truck Wash Building Floor Plan provided in Appendix B.

5.20 Flare Stations

Phase 11/12 Flare Station (Flare #1): The electrical panel that contains the main breaker is located on the right side of the flare control panel. The electrical panel controls the power supply to the flare control panel and the blower motor. The power can also be shut off at an electrical panel located on a utility pole about 100 feet west of the flare. That electrical panel controls the power supply to the flare control panel and also allows the flare station to be switched over to a generator power supply.

Phase 8/9 Flare Station (Flare #2): The electrical panel that contains the main breaker is located on the right side of the flare control panel. The electrical panel controls the power supply to the flare control panel and the blower motor. The power can also be shut off at an electrical panel located on a utility pole about 50 feet east of the flare. That electrical panel controls the power supply to the flare control panel and also allows the flare station to be switched over to a generator power supply.

6. MANAGEMENT TEAM RESPONSIBILITIES

6.1 District Manager

1. Determine if an emergency exists.
2. Designate headquarters.
3. Notify members of the Management Team that an emergency exists.
4. Report occurrence to the appropriate local authorities.
5. If the severity of the emergency warrants, notify the following people:

Norridgewock Town Manager	(207) 634-2252
Area Director of Disposal Operations	(603) 929-5413
Sr. Legal Counsel	(603) 929-5450

6. Coordinate emergency operations of the Management Team.

7. Interact with the news media concerning the emergency (if necessary). Reports to the press may include what has occurred, time and location of the incident, existing hazards to the people in the immediate or surrounding areas, and whether the situation is under control. Reports shall not include any statements as to the probable cause or estimate of damage. Statements shall be factual, thus eliminating any guessing or speculation. Ensure that names and extent of injuries are withheld from the press until the next of kin have been notified.

6.2 Operations Supervisor or Designee

1. Report occurrence of the emergency situation to the District Manager and to the rest of the Management Team as soon as possible.
2. Organize repair crews during and immediately thereafter the emergency.
3. Determine if any structures should be evacuated.
4. Assign personnel to prevent unauthorized individuals from entering structures.
5. Advise in switching and utilization of electrical circuits.
6. Establish priority of repair jobs to be done after an emergency.
7. Obtain outside assistance in making repairs.
8. Direct repair crews after emergency has occurred.
9. Assist management with securing the area or building to prevent unauthorized entry.

6.3 District Engineer

1. Oversee any emergency at the facility to determine potential impact on the surrounding environment.
2. Advise and support Operations Supervisor and personnel involved in the emergency situation.
3. Coordinate and act as liaison with Maine Emergency Management Agency (MEMA), Somerset County Emergency Planning Committee, and the NFD as necessary.
4. Coordinate and act as liaison between regulatory agencies (MDEP, EPA, etc.) as necessary.

7. EVACUATION PROCEDURE

If the decision is made to evacuate any building or trailer at WMDSM, the following steps shall be followed:

1. Shut off all equipment, electricity, propane gas, etc. in the buildings or trailers prior to evacuation, if doing so will not endanger any employee's well-being. However, if the Combustible Gas Monitor is in the alarm mode indicating the presence of a potentially explosive atmosphere, do not attempt to turn off any electrical switch in the area.

2. Proceed to the designated evacuation exits in an orderly fashion and assemble in the pre-determined assembly areas. Assembly area #1 is located northeast of the MRF on the asphalt surface. Assembly #2 is located in the paved parking lot north of the Main Office. All personnel present during an emergency will evacuate to the nearest assembly area. If the safety of the assembly area is compromised by the emergency situation, the most senior employee present will designate a nearby location as an alternative assembly area, and will ensure that other evacuating employees are made aware of the new location. Assembly areas and chemical storage locations at WMDSM are provided in Appendix C. WM utilizes the 3M Company and its 3E Online Portal Safety Data Sheet (SDS) Management system (3E Online) for stored chemicals at the facility. WMDSM employees have access to 3E Online at a designated computer located on the second floor (in the break room) in the Maintenance Facility.
3. All employees will be notified via the two-way radio system of the current situation and instructed to proceed to the appropriate assembly area immediately.
4. The Operations Supervisor or designee shall account for all employees at the assembly areas.
5. In most emergency situations, the windows and doors should be closed. However, in the event of a bomb threat, doors and windows should be opened if time permits, thus reducing damage to the structure.
6. Office employees should close and lock fireproof file drawers if time permits.
7. Building and trailer floor plans show exits, escape routes, and fire extinguisher locations, etc. and are provided in Appendix C.

Due to the layout of the facility and surrounding areas at WMDSM, an alert warning system has been instituted utilizing mobile equipment. The intent of this warning system is to communicate to all WMDSM personnel, contractors, and visitors that an emergency does exist at the facility and that immediate movement to designated evacuation assembly areas is required.

The primary component of the warning system is the siren on the water truck. The Operations Supervisor or designee will activate the alarm procedure in the event of an emergency. Personnel assigned to the Maintenance Facility will be assigned to drive the water truck sounding the alarm in the event of an emergency. The procedure will consist of the water truck traveling around the perimeter roads of the facility with the siren activated.

The water truck will be utilized to notify personnel to evacuate to the appropriate evacuation assembly area. An announcement as to the status of the emergency will occur on a company radio and/or the Main Office intercom concurrently with the siren warning. The Operations Supervisor or designee along with contractor supervisors will be responsible for ensuring that all personnel have been accounted.

8. EMERGENCY SITUATIONS

The following procedures and/or actions shall be followed in the event of an emergency situation at the facility. Upon the occurrence of an emergency, the event shall be reported to the appropriate personnel. The District Manager or designee will immediately notify the MDEP, Norridgewock Town Manager, and Norridgewock Welfare Director of any major incidents. Emergency phone numbers and contacts can be found in Subsection 6.1 of this plan.

8.1 Explosion

Upon hearing an explosion in the near vicinity, take the following steps:

1. Determine if a fire is present. If a fire has been detected, perform the appropriate response as stated in Section 8.6.
2. Call the Norridgewock Fire Department at 911 or 634-2208.
3. Call the Maine State Police at 911 or 1-800-452-4664.
4. Evacuate personnel in accordance with the evacuation procedure to the appropriate assembly areas.
5. Assigned personnel will account for employees at assembly areas and report findings to the Operations Supervisor.
6. If an evacuation is necessary, shut off all equipment, electricity, propane gas, etc. in the buildings or trailers prior to evacuation, if doing so will not endanger any employee's well-being. However, if the Combustible Gas Monitor is in the alarm mode indicating the presence of a potentially explosive atmosphere, do not attempt to turn off any electrical switches in the area.
7. If an explosion occurs without the presence of a fire, personnel shall notify either the District Manager or Operations Supervisor.

8.2 Flood

Due to the geographical location of WMDSM and the lack of a possible threat of flooding, any emergency of this type is highly unlikely. However, the possibility does exist that the roads leading to the facility could be closed and the power supply affected. Power surges are potentially a problem, therefore, computers should be disconnected to avoid possible damage and the leachate pump stations should be monitored. Alternate or back-up power supplies will be utilized whenever possible.

8.3 Computer System Emergencies

Whenever a computer system experiences a failure that cannot be corrected at the facility, obtain technical assistance by calling the WM Information Technical Assistance Center at 1-888-449-8257 for resolution.

8.4 Spills or Releases

The Operations Supervisor or designee shall immediately be notified of any release of a hazardous material or hazardous substance. Likewise, the Operations Supervisor or designee shall be notified of a hazardous chemical release posing a significant risk to WMDSM personnel or the environment. Immediate action by operations personnel shall be taken to secure the area of the spill/release to prevent any exposure.

The Operations Supervisor or designee shall immediately notify Clean Harbors, if warranted, of the spill or release. WMDSM has entered into a Standby Emergency Response Agreement (SERA) with Clean Harbors (1-800-OIL-TANK / 1-800-645-8265 of South Portland (Refer to Appendix F). The information communicated to Clean Harbors should include type of material/substance, amount spilled, weather conditions, affected environmental areas, etc. Under no circumstances will any WMDSM employees take part in any clean-up operations of the material/substance.

8.5 Injuries, Multiple Injuries, or Deaths

Several site personnel have been trained in various aspects of medical assistance (refer to Appendix E). Personnel listed in the appendix have had the proper training and re-certifications in CPR and First-Aid. Due to the remote location of the facility, the nearest ambulance dispatching location is 10 - 12 minutes away. Therefore, site personnel will utilize their first-aid capabilities at an accident scene to the best of their abilities. In the event of an injury or a death, the following steps will be followed:

1. Notify the Operations Supervisor or designee immediately and call 911 to report the accident. During your conversation, give specific details of the accident including vehicles involved, location, and personal injuries.
2. A designee will wait for emergency responders at the front gate and escort them to the scene of the accident. Two-way radios will be utilized at WMDSM to communicate with first-aid trained personnel.
3. Secure and barricade the accident scene to avoid interference and disruption by non-participating individuals.
4. Stabilize the accident scene as to avoid any further injuries or damage.
5. Evaluate the accident scene to determine if WMDSM personnel will be potentially exposed to any dangers. If exposure to danger is a possibility, wait for professionally trained personnel.
6. Enter the accident scene cautiously observing any potential problems. Evaluate injuries and stabilize victim(s) while causing as little movement as possible. Do not move the individual(s) unless conditions are life-threatening to the victim(s) or rescue crew.
7. Remain with victim(s) until professional assistance arrives. Relay as much as possible any background information and condition of victim(s) to the professionals.

8.6 Fire

The following steps shall be initiated when a fire occurs or a smoke alarms is activated at the facility:

1. Confirm that a fire or the presence of smoke does indeed exist to ensure that the smoke alarm system has not malfunctioned.
2. Alert the NFD at 911 or 634-2208, as well as the District Manager and/or Operations Supervisor.
3. Utilize appropriate fire extinguishing apparatus to suppress the fire if doing so does not pose a threat to personnel.
4. Evacuate personnel to the assembly areas if a serious threat to personnel exists.
5. If an evacuation is necessary, shut off all equipment, electricity, propane gas, etc. in the buildings or trailers prior to evacuation, if doing so will not endanger an employee's well-being. However, if the Combustible Gas Monitor is in the alarm mode indicating the presence of a potentially explosive atmosphere, do not attempt to turn off any electrical switches in the area.

The objective of this procedure is first and foremost, to protect WMDSM personnel while attempting to prevent damage to the facility. Employees shall have at least one hour of training annually regarding the correct handling procedure of fire extinguishers. Employees have a responsibility to attempt to extinguish incipient-stage fires.

8.7 Earthquakes

The probability of a serious or major earthquake occurring in the State of Maine is relatively low. If an earthquake should occur, employees should shield themselves from falling objects. The actual movement of the earth is rarely the cause of death or injury.

If during this catastrophe you are inside a building or structure, do not relocate while complying with the following steps:

1. Sit or stand against an inside wall or take cover under a desk, strong table, or in a doorway.
2. Stay away from windows, glass, and outside doors.
3. Do not use the telephone.
4. Do not light a cigarette or strike a match until propane gas lines are checked for leaks.
5. Do not attempt to leave any building or structure during a severe earthquake due to potential fallen utility lines, falling debris, etc.

Comply with the following steps if you are outside during an earthquake event:

1. Move away from buildings and utility lines.
2. Watch for falling glass, electrical wires, utility poles, or other debris.
3. Proceed to pre-determined assembly areas.

The following sources should be contacted during an earthquake event:

American Red Cross	(207) 874-1192
MEMA	1-800-452-8735

8.8 Tornado

In the case of a sighted or reported tornado, the safest place to be is in a building away from any outside windows. Tornadoes usually travel in a southwest to northeast direction, although their directional pattern can be somewhat erratic due to their zigzag movement. Heavy rain, high wind gusts, and hail generally accompany a tornado. A tremendous amount of energy exists in the vortex of a tornado core. The core averages 50 feet in width, although it can grow to 100 feet wide. The vortex is the most dangerous part of the tornado. Falling walls, roof sections, and blowing debris would likely be the potential hazards to the employees at the facility. Should a tornado occur at the site, the tornado would remain at WMDSM only a few seconds before departure.

8.9 Leachate Spill or Release

Any spill or release of leachate from the Leachate Storage Tank Facility or a leachate tanker shall be immediately reported to the Operations Supervisor and/or District Manager. The following procedure will be instituted for on-site spills or releases as soon as feasible:

1. Upon notification of a spill or release of leachate, the Operations Supervisor or designee will immediately mobilize spill containment products and equipment to the location of the spill or release. The MDEP will be notified of any significant on-site leachate spill or release. If a spill or release of leachate occurs off-site, the District Manager or designee will notify the State Police and appropriate town officials.
2. If a leak should occur from the tank, the secondary concrete containment area will be drained below the level of the leak. Tank bolts will be torqued and resealed in the vicinity of the problem area.
3. The spill or release area will be secured so that non-participating individuals will be restricted from the area while authorized personnel attempt to control the spill or release.
4. Should a significant leachate spill or release occur during truck loading operations, the spillage will be contained in the sump located beneath the truck at the load-out area. The sump will be pumped immediately after the event and the liquid will be disposed of in the Secure Landfill. Containment booms shall be maintained at the leachate storage facility to contain any spill that may threaten the environment.

5. The secondary containment area has been designated to contain the spilled or released leachate in the event of a pipe or tank rupture. Air monitoring activities will commence as soon as possible as well as arrangements will be made to haul the leachate to an approved treatment facility. Qualified operations personnel will disable the SCADA to prevent any additional leachate from being pumped to the Leachate Storage Tank Facility upon detection of high leachate levels within the containment area. In the event of a prolonged shutdown, leachate will be pumped from the West Central and South Pump Stations to tankers. If repairs to the ruptured tank or pipe cannot be completed within two months, arrangements to install temporary storage of leachate within tanks will be made until the permanent tanks are functioning.
6. Once the leachate has been contained, the Operations Supervisor or designee will decide as to the process of recapturing the remaining spilled or released leachate.
7. If ponded leachate is present, pumps will be utilized to transfer the liquid into another containment vehicle.
8. Should leachate seep into the surrounding terrain, equipment such as backhoes or loaders will be mobilized to the spill or release location to excavate the leachate soaked material. The material will then be loaded into trucks and properly discarded into the Secure Landfill.
9. Should leachate freeze on asphalt or concrete surfaces, the spill or release will first be encircled with water-base absorbent barriers. A calcium chloride and sand mixture will then be spread over the frozen leachate to melt it. The melting leachate will be absorbed by the sand, barriers, and absorbent pads. All contaminated materials will be properly disposed of into the active Secure Landfill.

8.10 Ruptured Diesel Fuel Tank

A 12,000 gallon permanent diesel fuel storage tank is located in the southeast corner of the Maintenance Facility asphalt area.

These tanks shall be inspected in accordance with the WMDSM's Spills Prevention Control and Counter-measure Plan (SPCC). The following steps shall be followed in the event that a spill or release of diesel fuel is discovered at the tank location:

1. In the event of a spill or release of diesel fuel, the Operations Supervisor or designee shall be notified immediately.
2. Upon notification of a spill or release, the Operations Supervisor or designee will immediately mobilize knowledgeable employees and spill containment materials to the scene of the spill or release and shut the discharge valve at ECS-3B. The management team will have the discretion to use Clean Harbors as specified in Subsection 8.4.

3. The spill or release scene will be secured and barricaded so that non-participating individuals will be restricted from the area while clean-up personnel attempt to contain and stop the spill or release from enlarging.
4. Observations will be made to determine if the free-flowing liquid (if any) will threaten any waterway. If the possibility of flowing diesel fuel threatens a waterway, equipment, manpower, and materials shall be mobilized and utilized to stop the progress of the diesel fuel toward the waterway.
5. Once the diesel fuel has been contained, containment booms, absorbent pads, and spill clean-up materials can be used to stop the spread of the diesel fuel.
6. Once the diesel fuel has been contained, the Operations Supervisor or designee will determine the process of recapturing the spilled or released diesel fuel.
7. Should diesel fuel still exist, pumps can be utilized to remove the ponded liquid into appropriate containers or tankers.
8. If the diesel fuel has soaked into the ground, equipment, such as backhoes or loaders will be mobilized to the scene to excavate the contaminated soil into dump trucks. The materials will be properly deposited into the landfill.

8.11 Ruptured Gasoline Fuel Tank

A 2,000 gallon permanent gasoline storage tank is located in the southeast corner of the Maintenance Facility asphalt area adjacent to the 12,000 gallon diesel fuel tank. The permanent fuel tank shall be inspected in accordance with the WMDSM's SPCC. The following steps shall be followed in the event that a spill or release of gasoline is discovered at the tank location:

1. In the event of a spill or release of gasoline, the Operations Supervisor or designee shall be notified immediately.
2. Upon notification of a spill or release, the Operations Supervisor or designee will immediately mobilize knowledgeable employees and spill containment materials to the scene of the spill or release and shut the discharge valve at ECS-3B. The management team will have the discretion to use Clean Harbors as specified in Subsection 8.4.
3. The spill or release scene will be secured and barricaded so that non-participating individuals will be restricted from the area while clean-up personnel attempt to contain and stop the spill or release from enlarging.
4. Observations will be made to determine if the free-flowing liquid (if any) will threaten any waterway. If the possibility of flowing gasoline threatens a waterway, equipment, manpower, and materials shall be mobilized and utilized to stop the progress of the gasoline toward the waterway.
5. Once the gasoline has been contained, containment booms, absorbent pads, and spill clean-up materials can be used to stop the spread of the gasoline. Notification(s) will occur in accordance with Subsection 8.4 of the Plan.

6. Once the gasoline has been contained, the Operations Supervisor or designee will determine the process of recapturing the spilled or released diesel fuel.
7. Should gasoline still exist, pumps can be utilized to remove the ponded liquid into appropriate containers or tankers.
8. If the gasoline has soaked into the ground, equipment, such as backhoes or loaders will be mobilized to the scene to excavate the contaminated soil into dump trucks. The materials will be properly deposited into the landfill.

8.12 Ruptured Leachate Pipes

Several thousand feet of double-walled underground leachate pipes exist at the facility. The likelihood of both of these walls rupturing and causing a leak is very slight. However, in the event of damage to both pipes, signs or traces of problems may be visible seeps, uncommon wet areas, soft soil areas, etc. Observations will be performed regularly for potentially existing problem areas. In the event of such a discovery, the following steps shall be followed:

1. Immediately notify the Operations Supervisor or designee. Shut down all potential leachate sources to the area utilizing WMDSM's hazardous energy procedures.
2. Notify the District Engineer as well as the Norridgewock Town Manager.
3. Mobilize the appropriate equipment such as a backhoe, loader, dump truck, etc. to the potential problem area.
4. Barricade the area so that non-participating individuals cannot enter.
5. District Engineer will assess the extent of the contaminated soil.
6. Excavate the area with the aid of a spotter using extreme caution. Place excavated material in transport vehicles and dispose of properly.
7. Operations Supervisor and District Engineer shall evaluate the proper procedure to correct the deficiency.

8.13 Landslide

The potential occurrence of a landslide is highly unlikely but due to the danger associated with such an event, the potential problem must be analyzed. Prior history at the facility has demonstrated that such an event can be extremely dangerous, devastating, and life-threatening. The following steps shall be immediately instituted in the event of a landslide:

1. Personnel in the vicinity of the event shall immediately evacuate the area utilizing the safest and quickest possible means.
2. Immediately notify the District Manager, Operations Supervisor, and District Engineer.
3. Secure and barricade the area so that unauthorized personnel cannot enter the affected area.

4. Designated personnel will notify the appropriate agencies and contacts including the MDEP, MEMA, NFD, and the Norridgewock Town Manager.
5. All affected energy sources shall be de-energized utilizing WMDSM's hazardous energy procedure.
6. Designated personnel shall inspect the affected area to assess the damage after the location has been determined to be stable. The damage assessment shall include:
   - Continued threat to personnel and equipment;
   - Potential for another immediate slide;
   - Determination of environmental impacts;
   - Necessity for air monitoring; and
   - Development of a Work Plan to address the most critical problems.

9. CIVIL DISTURBANCES

Any type of civil disturbance or demonstration occurring at the facility or directly adjacent to the facility should be reported to the District Manager or Operations Supervisor. If such an event occurs, the following guidelines shall be complied with by all site personnel:

1. If a civil disturbance or demonstration should surround a structure at the facility, the best precaution will be to remain inside the structure and move away from the windows.
2. If a civil disturbance or demonstration is predicted to endanger employees, the District Manager or designee may wish to declare a crisis situation and allow employees to evacuate the premises.
3. If the disturbance or demonstration exists at the Route #2 entrance, employees may use the Airport Road exit to leave the facility.
4. Do not make contact or talk to the participants of the disturbance or demonstration.
5. All questions will be referred to the District Manager.

10. BOMB EVACUATION AND REPORTING TECHNIQUE

The District Manager shall be responsible for the safety of the employees. In the case of a bomb alert or threat, the affected building(s) or suspected location(s) will be cleared of all personnel. All windows and doors shall be opened, if time permits. Should a bomb threat occur, the following steps will be administered:

1. Personnel shall be evacuated and assemble in the pre-determined areas. The Operations Supervisor will be responsible for accounting for all employees. Personnel receiving the actual bomb threat call will be responsible for completing the Bomb Threat Form provided in Appendix D.
2. The State Police Bomb Squad shall be notified immediately by the Operations Supervisor or designee.
3. The phone call shall be made from either a cellular phone or an off-site phone in case of extenuating circumstances.
4. The bomb squad shall be the only personnel allowed to clear (declare safe) the structure or area.

Only after the area is declared safe will employees be allowed to re-enter the structure.

11. TRAINING

All employees of WMDSM and Norridgewock Hauling will be required to attend training sessions on the facility's Emergency Action Plan (EAP) at various times throughout their employment. New employees will receive training on the EAP during their Employee

Orientation Training. All employees will receive annual training on the EAP at a designated monthly safety meeting. Lastly, any update or change to the EAP will be covered in the next regularly scheduled safety meeting so that employees remain current on the requirements of the plan.

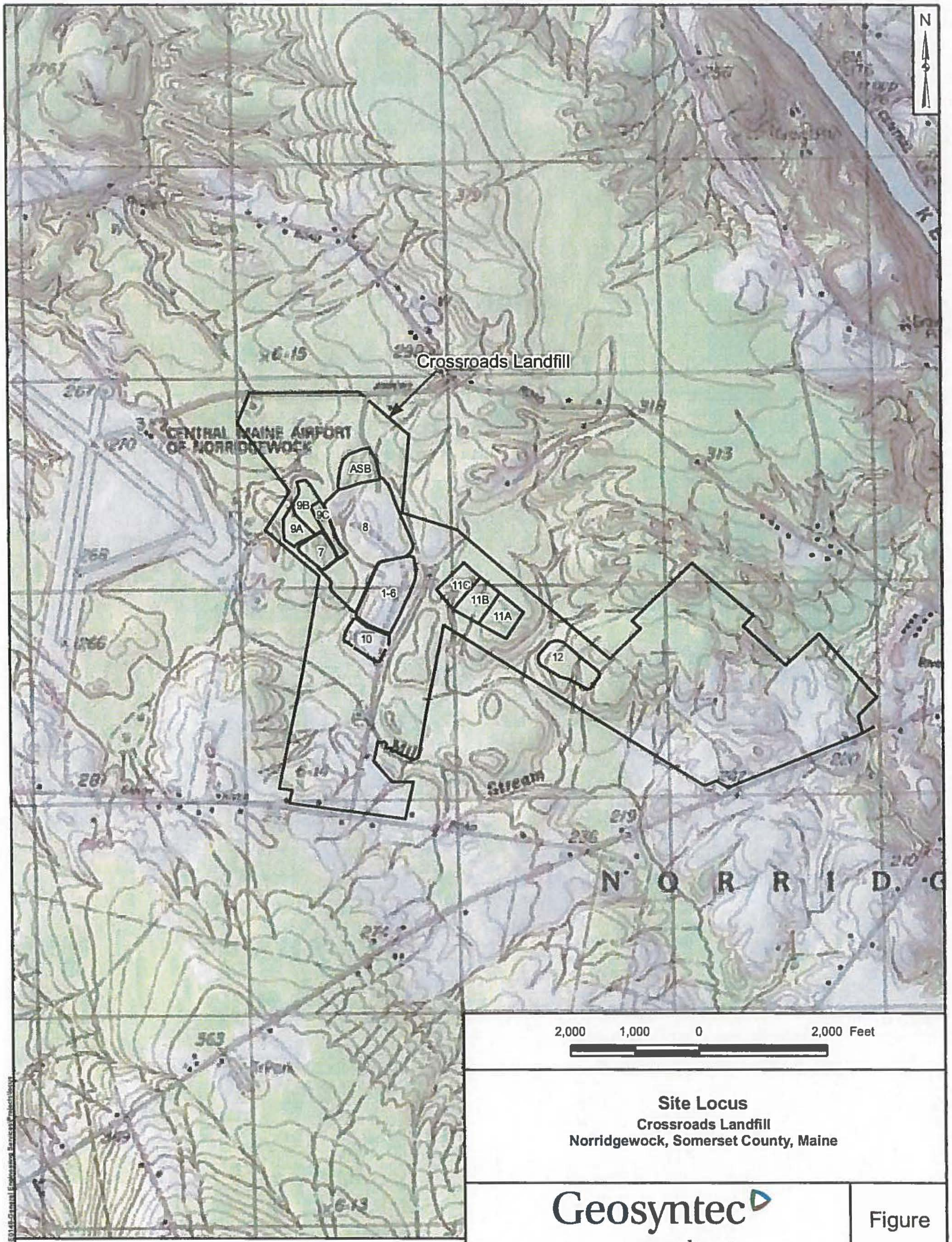
Materials that will be used during the training will include this WMDSM site specific EAP and health and safety guidelines provided by WM.

These materials and written programs will be utilized to present the necessary training to employees so that in the event of an emergency at the facility, all personnel on site will be able to react in a safe, knowledgeable, and well coordinated manner. Topics to be covered in the training will include response to emergencies, evacuation drills and procedures, assignment of duties, emergency contacts, and reporting procedures. Copies of these training records shall be stored in the Main Office. All consultants, contractors and sub-contractors working at WMDSM will be required to participate in WM's safety orientation training online with their staff prior to commencement of work activities. Each individual that works at WMDSM should have a safety orientation certification card provided by their employer upon completion of the required online training courses. As necessary, safety briefings will be given by the management team at WMDSM to inform personnel of any potential emergencies and the desired reactions according to the EAP. Consultants, contractors and sub-contractors will be informed of their responsibility should the facility's warning/alert system is executed.

In addition, all employees, consultants, contractors, and other visitors will be required to take part in an emergency practice drill in accordance with WM corporate guidelines. This drill shall be performed at least annually and should be coordinated with local officials & emergency personnel to avoid miscommunication about the activity. The drill should be evaluated to identify training or procedural deficiencies in the program.

APPENDIX IE-A

Site Locus Plan



Notes:
USGS topo imagery obtained from ESRI

Site Locus

Crossroads Landfill
Norridgewock, Somerset County, Maine

Geosyntec consultants

Acton, Massachusetts

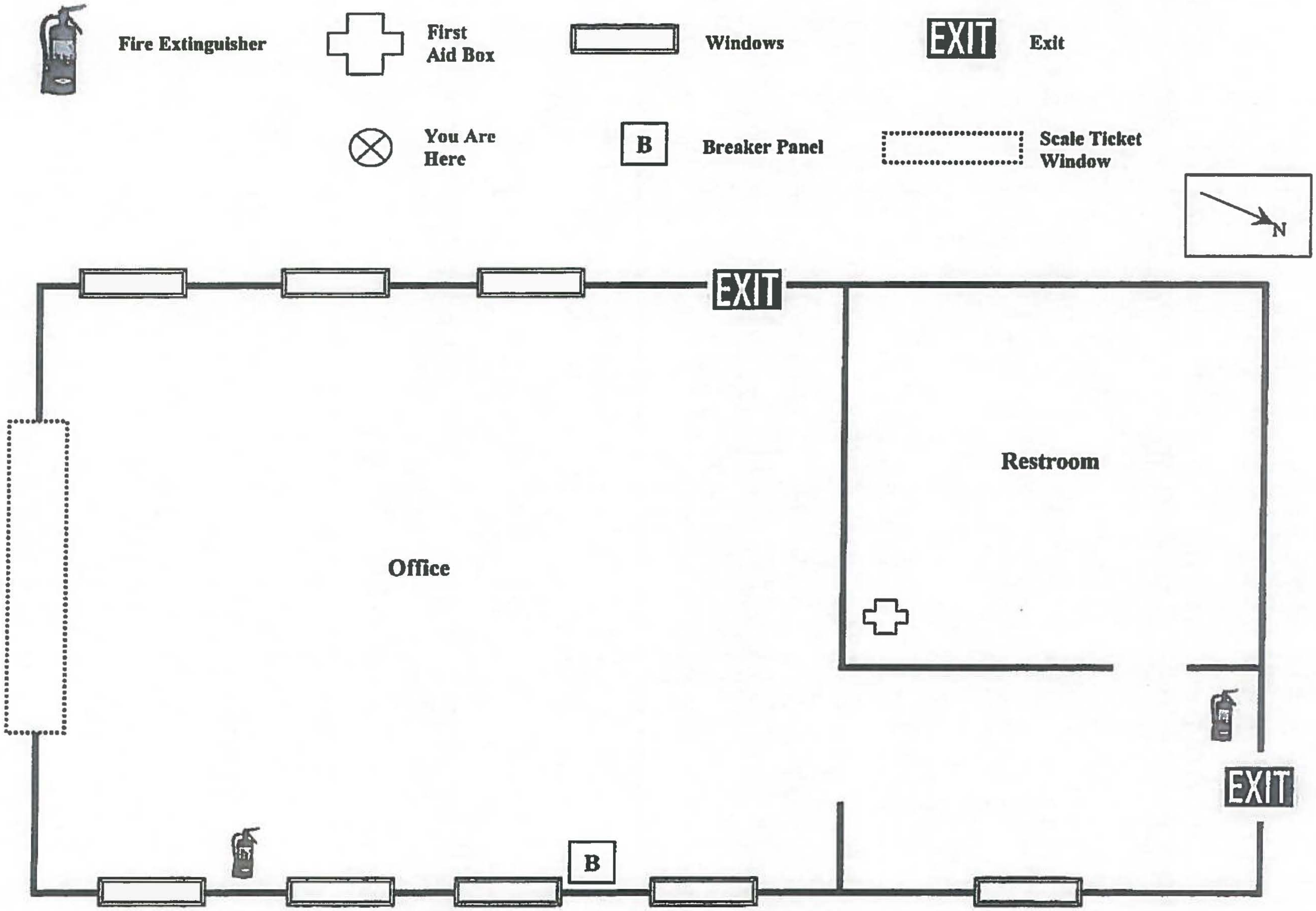
30-Mar-2010

Figure
1

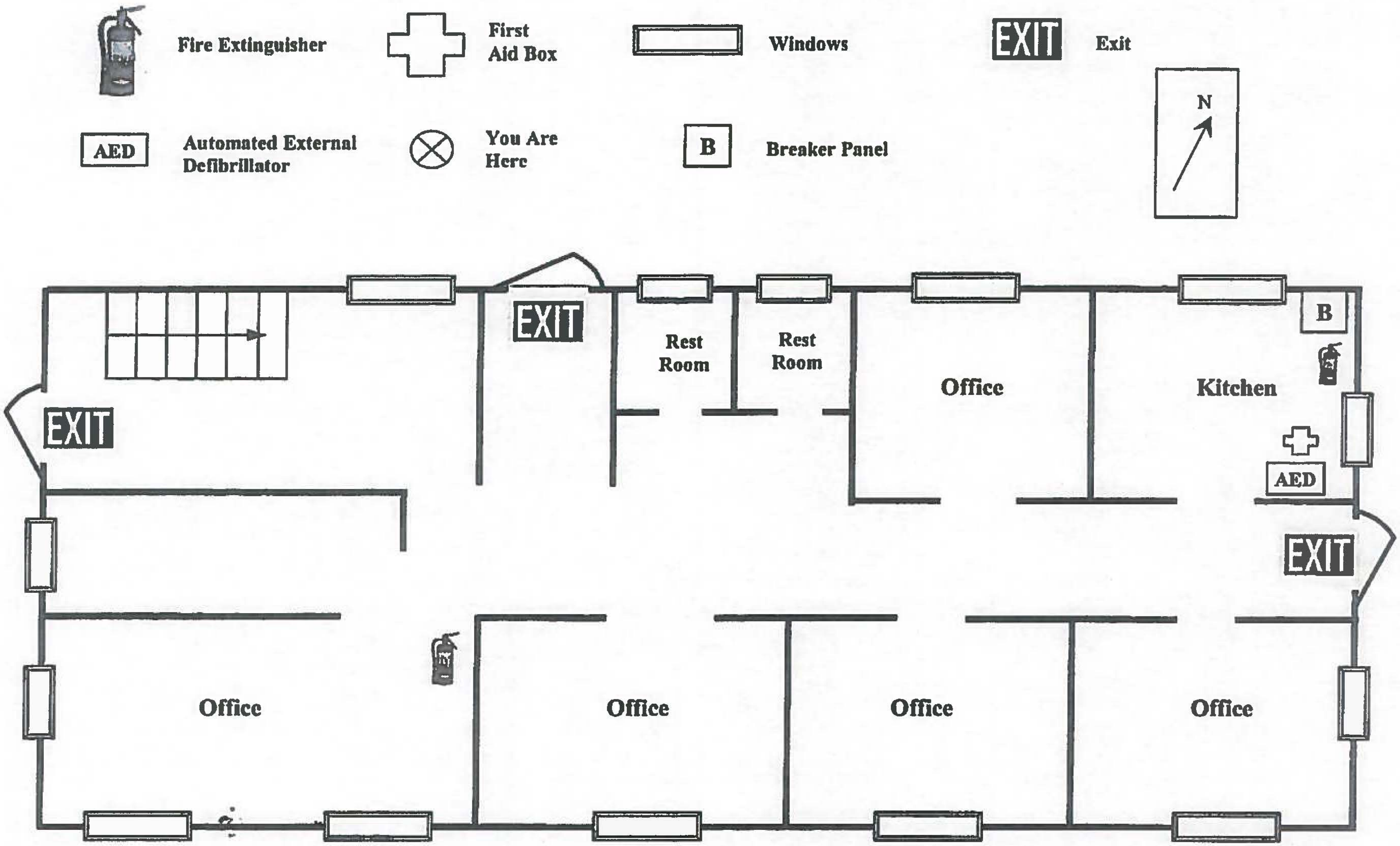
APPENDIX IE-B

Building Floor Plans

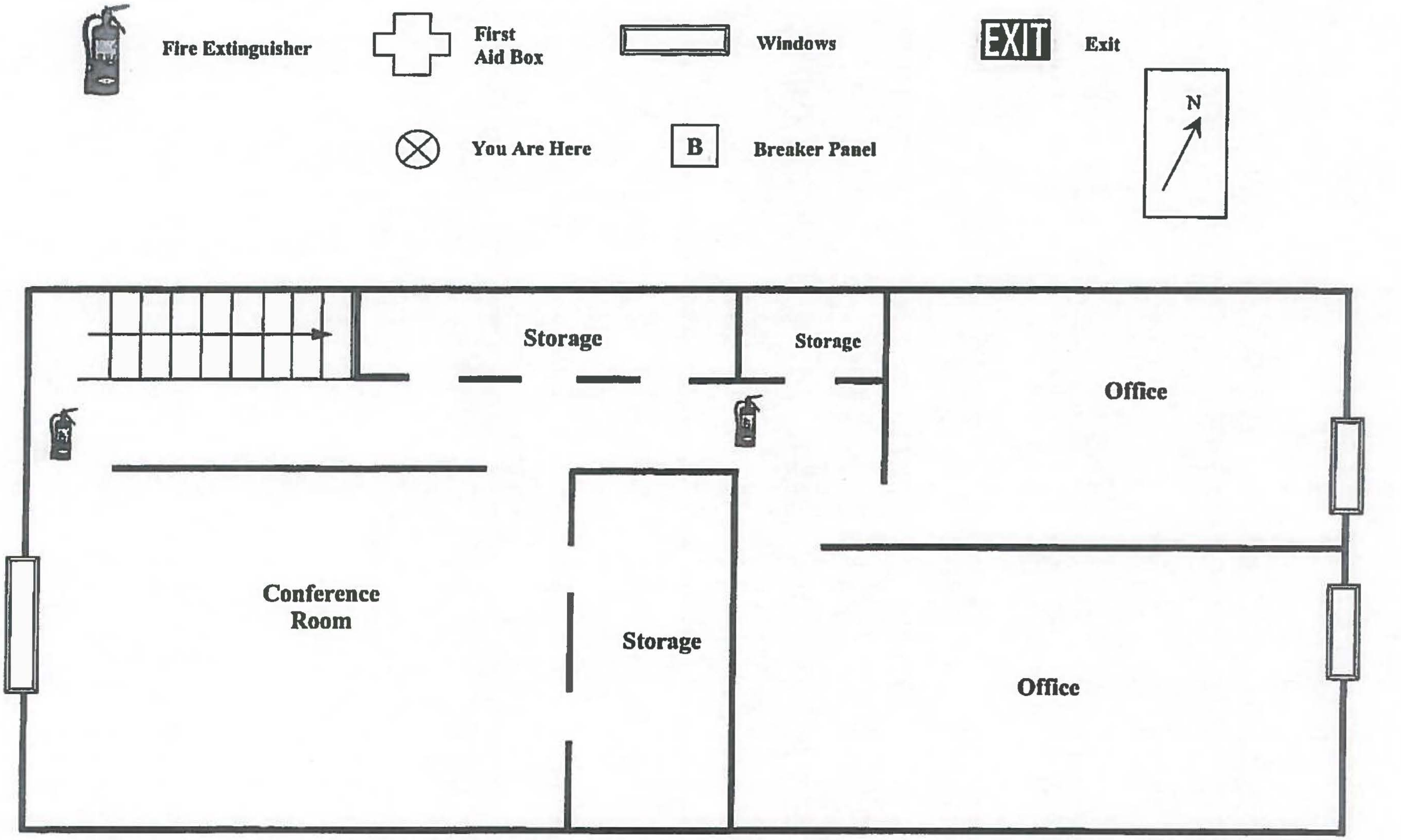
WMDSM - SCALEHOUSE



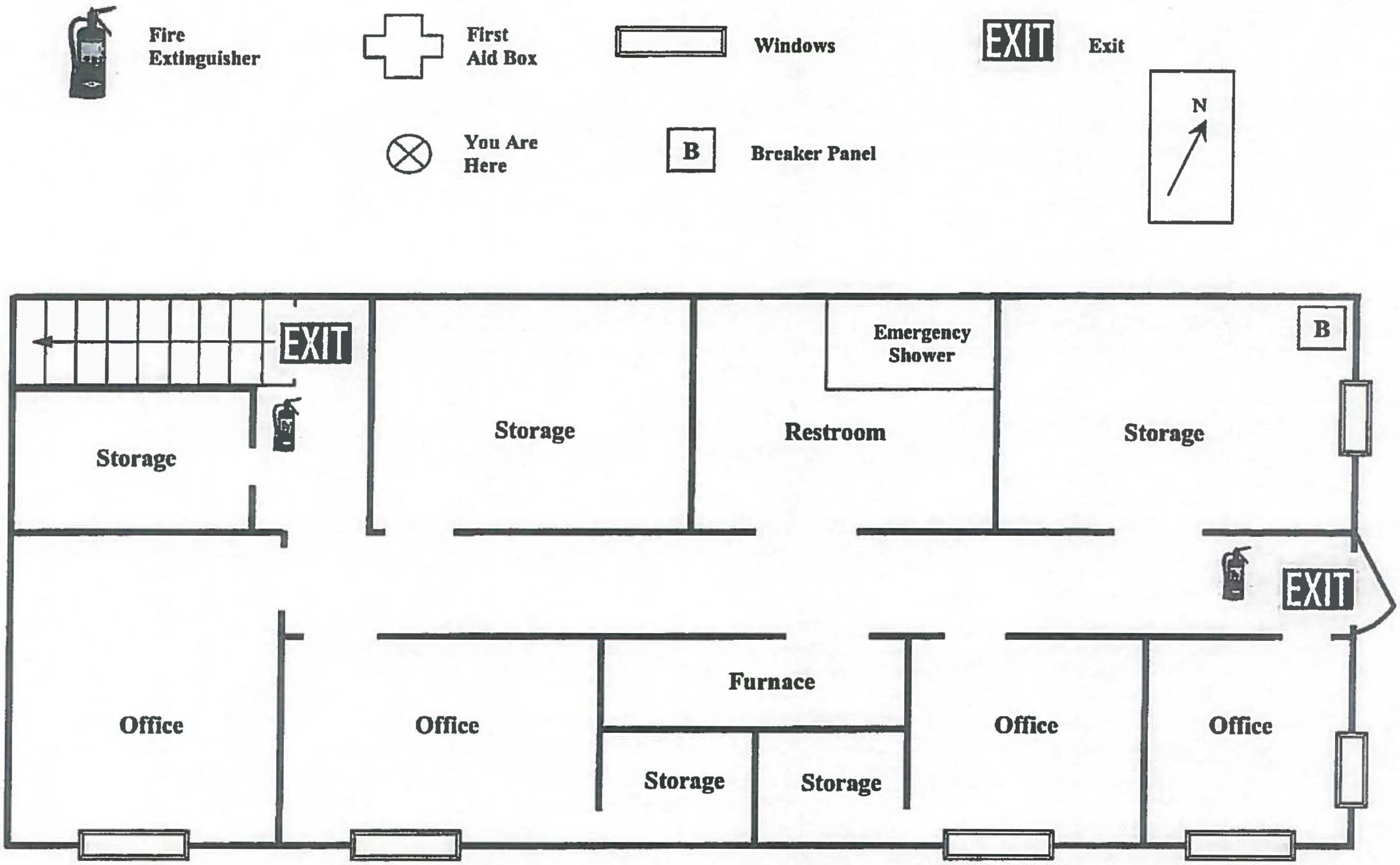
WMDSM - Main Office 1st FLOOR



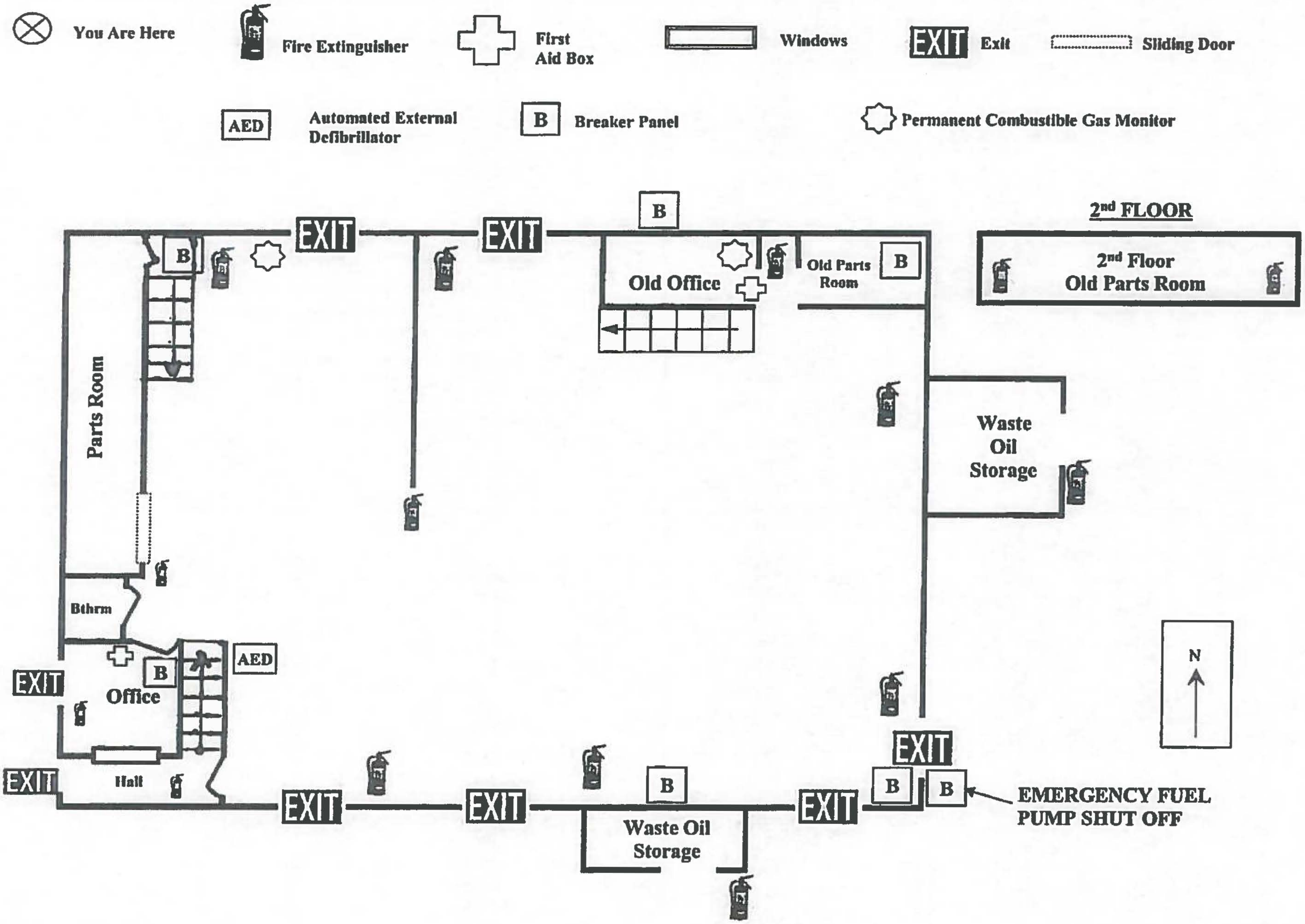
WMDSM - Main Office 2nd FLOOR



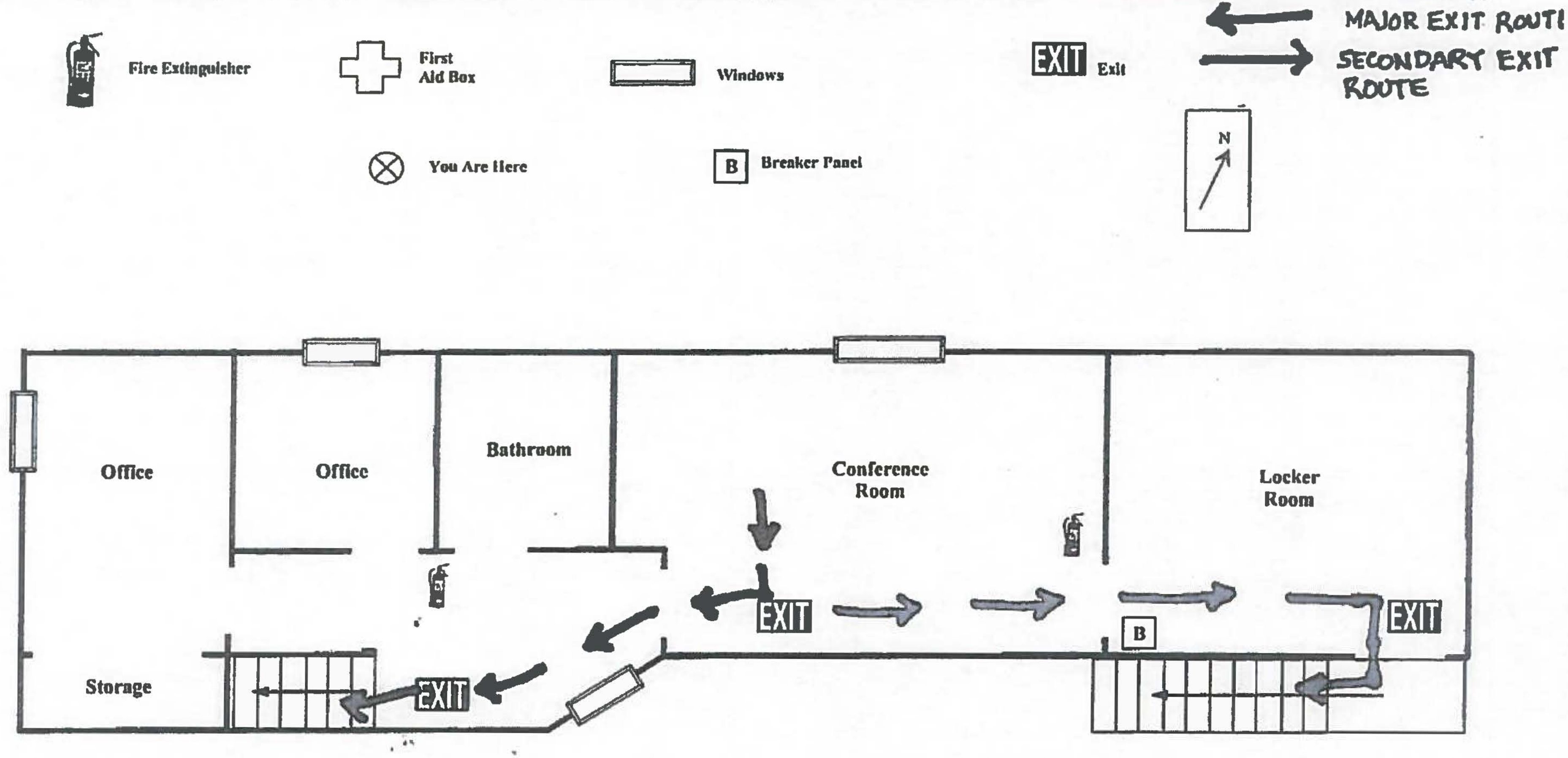
WMDSM - Main Office Basement



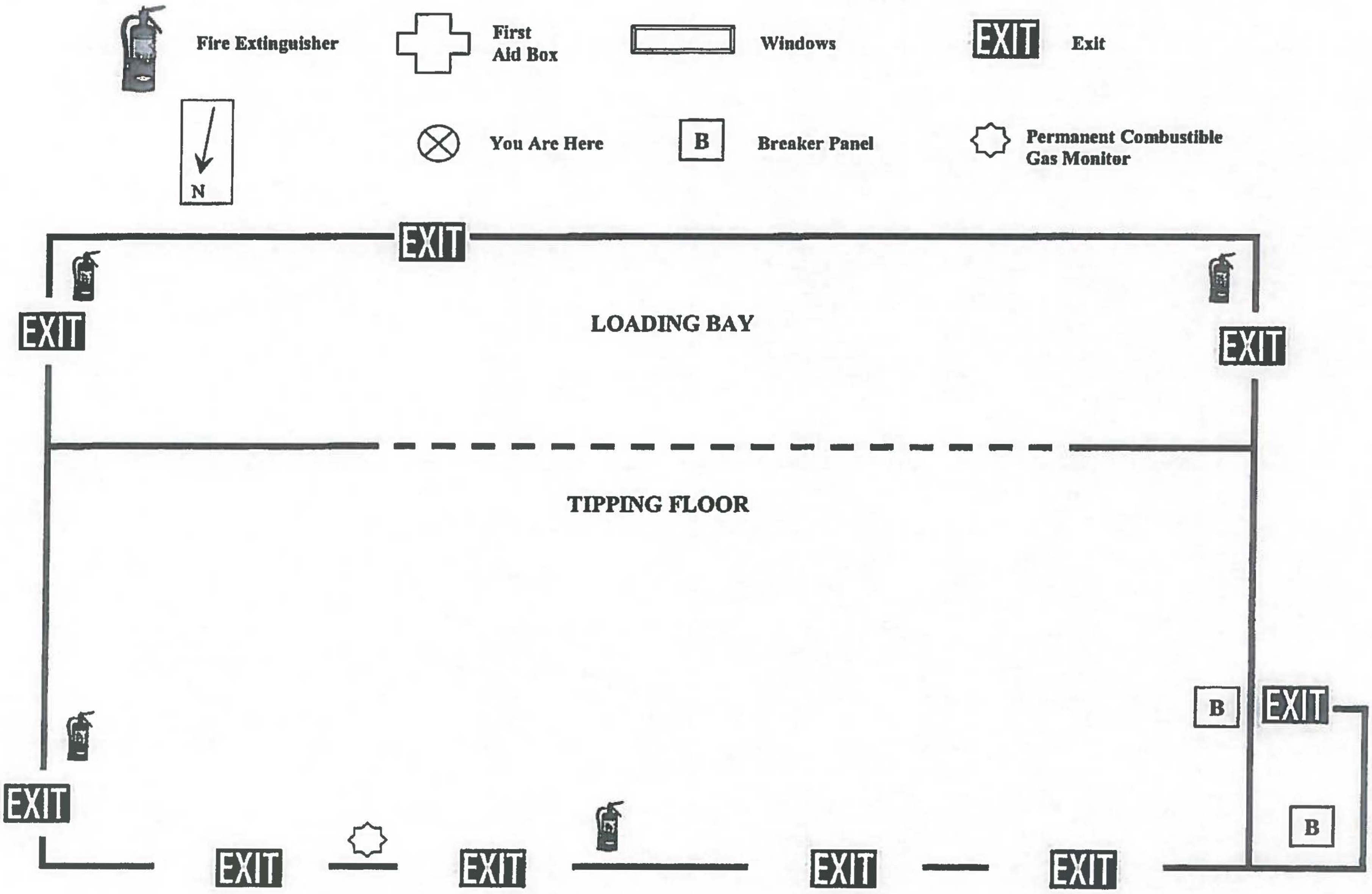
WMDSM - MAINTENANCE FACILITY 1ST FLOOR



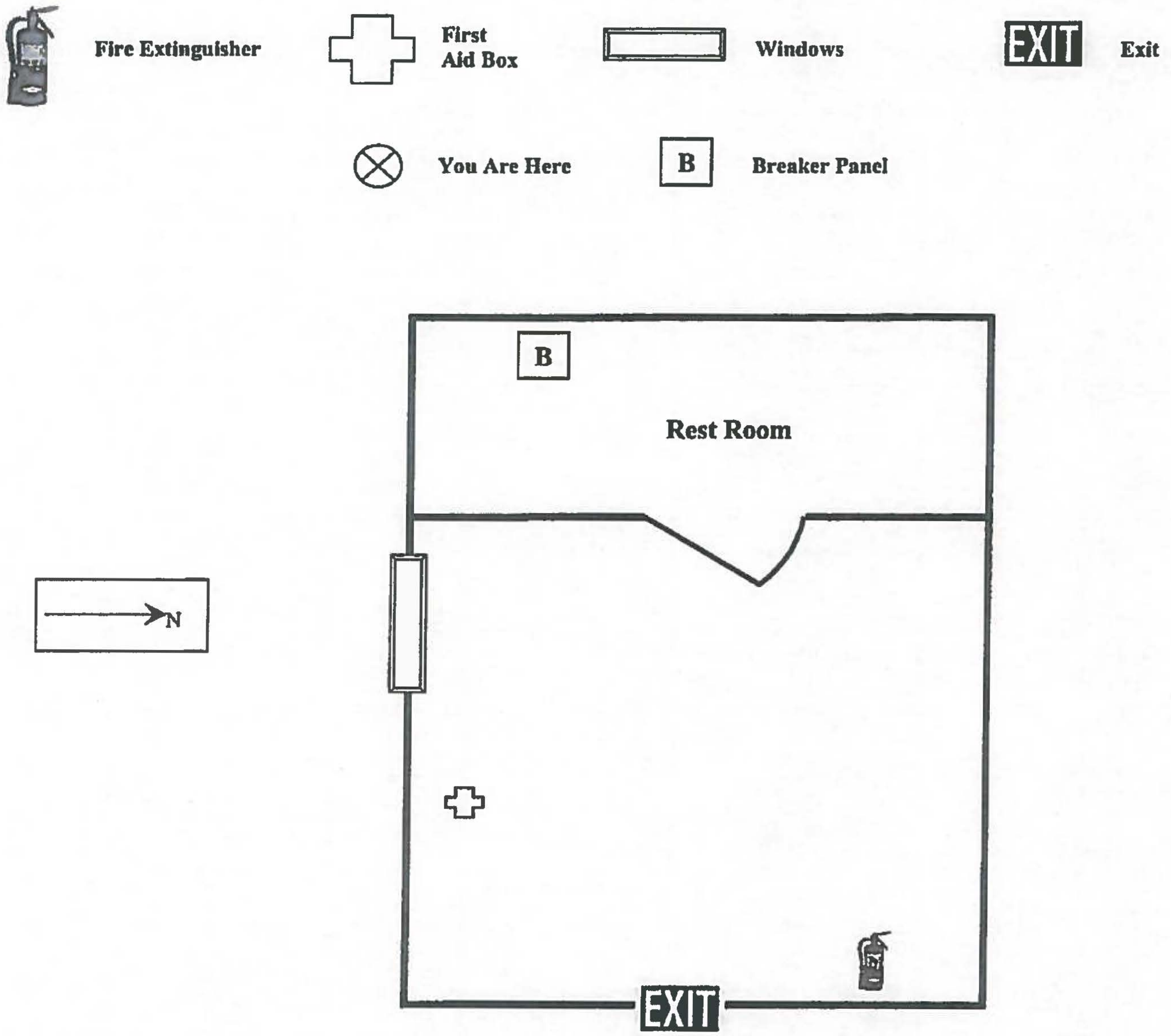
WMDSM - Maintenance Offices 2nd FLOOR



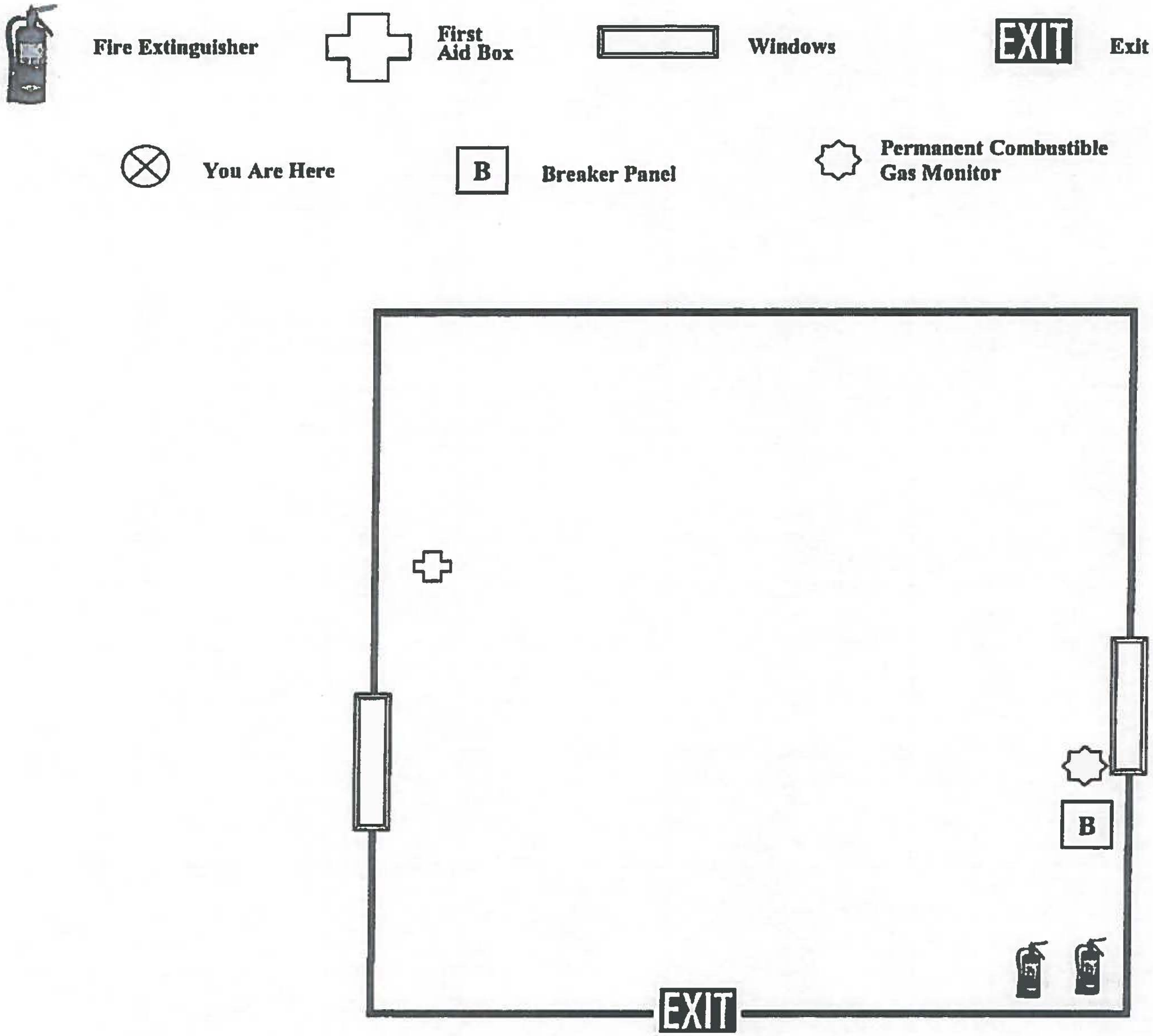
WMDSM - COMMERCIAL TRANSFER STATION BUILDING



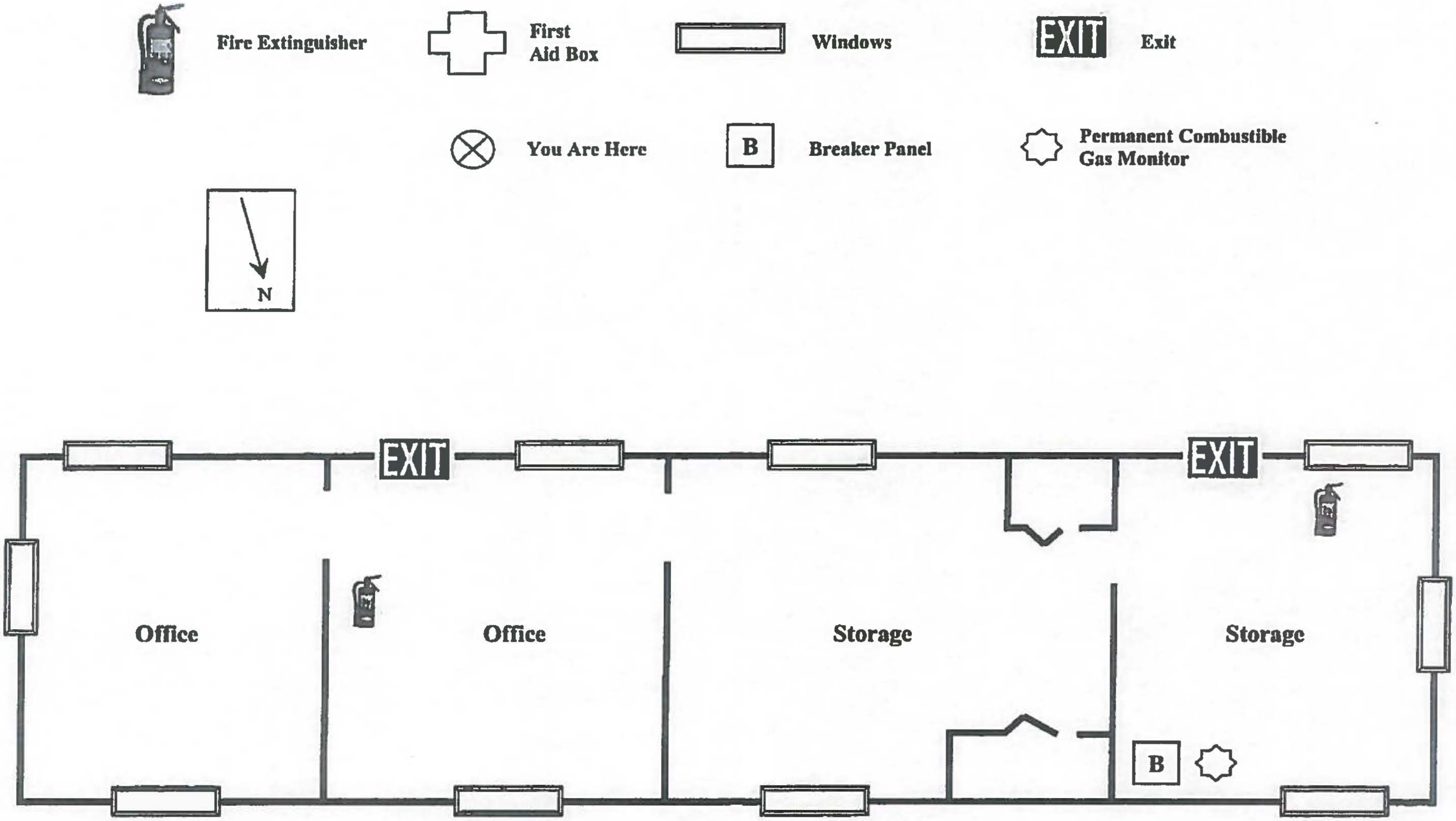
WMDSM - A.R.T.S. ATTENDANTS BUILDING



WMDSM - SECURE LANDFILL ATTENDANT'S BUILDING (MOBILE)

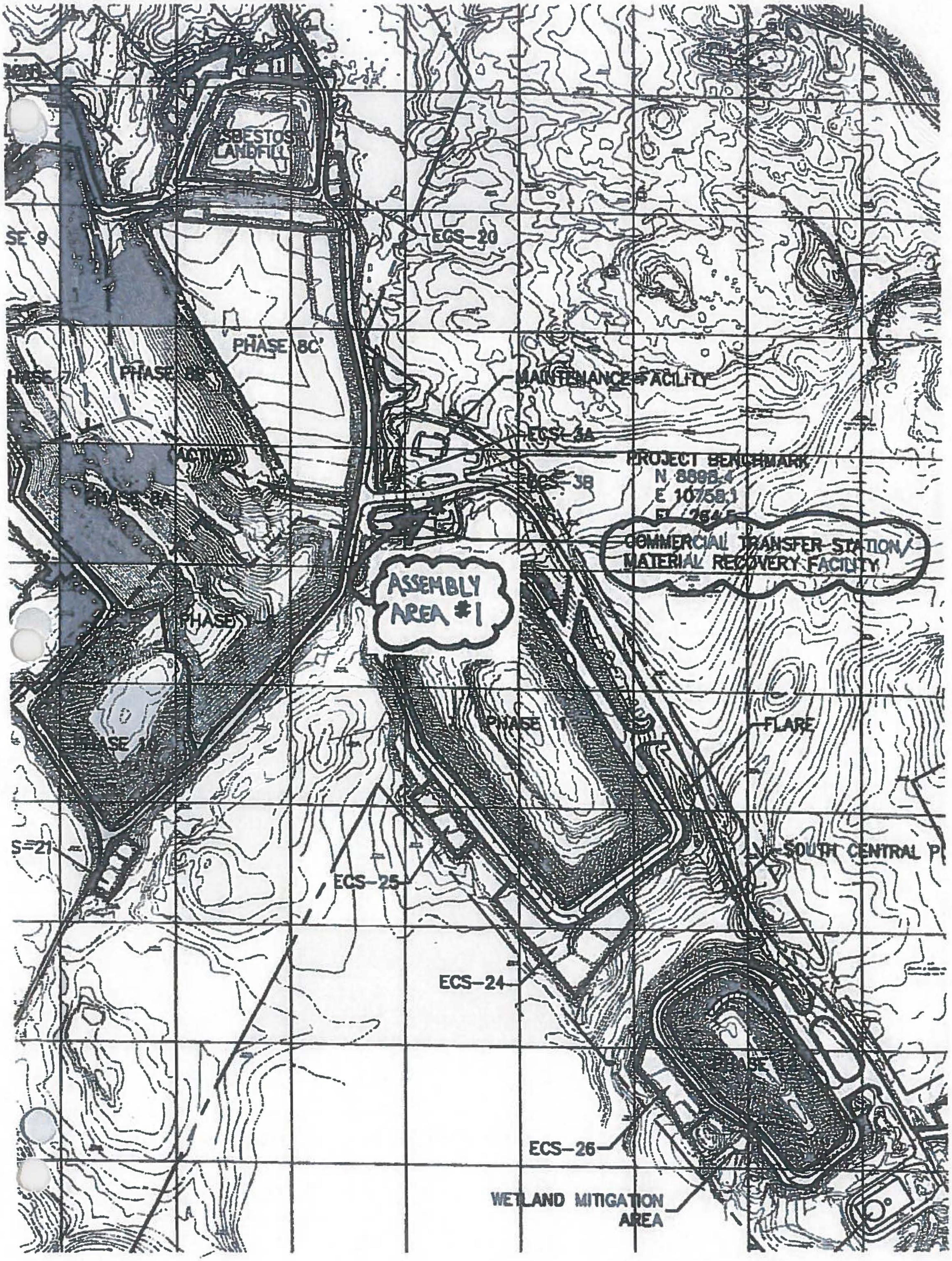


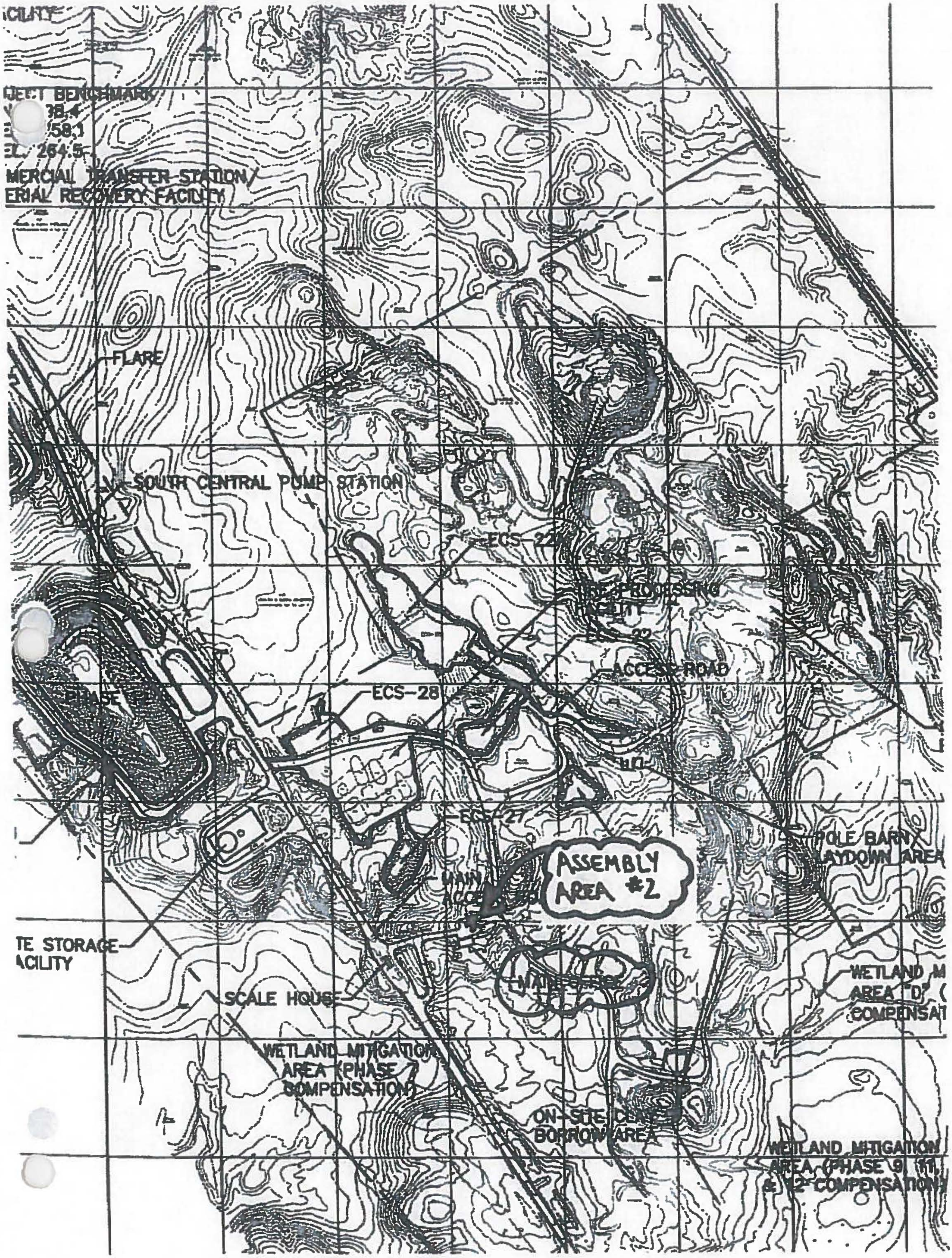
WMDSM - OFFICE TRAILER



APPENDIX IE-C

Evacuation Assembly Areas


ASBESTOS LANDFILL
ECS-20
SE 9
PHASE 8C
HASE 7
PHASE 8B
ACTIVE
PHASE 8A
MAINTENANCE FACILITY
ECS-3A
PROJECT BENCHMARK
N 8898.4
E 10758.1
EL 264.5
ECS-3B
COMMERCIAL TRANSFER STATION/
MATERIAL RECOVERY FACILITY
ASSEMBLY AREA #1
PHASE
PHASE 10
PHASE 11
FLARE
SOUTH CENTRAL P
S-21
ECS-25
ECS-24
PHASE
ECS-26
WETLAND MITIGATION AREA


CILITY
JECT BENCHMARK
38.4
58.1
EL. 264.5
MERCIAL TRANSFER-STATION/
ERIAL RECOVERY FACILITY
FLARE
SOUTH CENTRAL PUMP STATION
ECS-22
PROCESSING FACILITY
ECS-22
ACCESS ROAD
PHASE
ECS-28
ECS-27
POLE BARN/
LAYDOWN AREA
ASSEMBLY AREA #2
MAIN ACCESS ROAD
TE STORAGE
ACILITY
MAIN GATE
SCALE HOUSE
WETLAND M
AREA "D" (
COMPENSAT
WETLAND MITIGATION
AREA (PHASE 7
COMPENSATION)
ON-SITE CLAY
BORROW AREA
WETLAND MITIGATION
AREA (PHASE 9, 11,
& 12 COMPENSATION)

APPENDIX IE-D

Bomb Threat Forms

BOMB THREAT DESCRIPTION FORM #1

1. Male or Female? ______________ Young, Middle Age, Old? ______________

2. Tone of voice (pitch - high, low, or normal) ______________________________
   (Accent: foreign, local)
   (Quality - rasping, thin, nasal, speech defect, or lisp, disguised, muffled)

WRITE DESCRIPTION OF VOICE FROM THE ABOVE SUGGESTIONS

____

____

3. Is voice familiar? Yes _____ No _____ If so, who did it sound like?

   (Sounded like) : ____

4. Background noise (such as machines running, music, people, talking, vehicle traffic, etc.).

DESCRIBE BACKGROUND NOISE:

____

____

5. Who was the first person you notified: __________________________________

6. Did you notify the Police Department? Yes _____ No _____

   If so, exact time: ________________

UNDER NO CIRCUMSTANCES ARE THE PRESS, RADIO, TELEVISION, OR THE OTHER NEWS MEDIA TO BE NOTIFIED OR VISITED WITH ON THIS SUBJECT.

REMARKS: ____

____

____

DATE: _________________________ SIGNED: ______________________________

BOMB THREAT - INFORMATION FORM #2

First, Call 911, Norridgewock Police - then fill in form

TIME CALL RECEIVED ____________ TIME CALLER HUNG UP ____________

EXACT WORDS OF PERSON PLACING CALL: ________________________________

____

____

QUESTIONS YOU SHOULD ASK CALLER:

1. WHEN IS BOMB SET TO EXPLODE? ______________________________
2. WHERE IS BOMB LOCATED? ______________________________
3. WHAT TYPE OF BOMB IS IT? ______________________________
4. WHAT DOES IT LOOK LIKE? ______________________________
5. DO YOU REPRESENT ANY ORGANIZATIONS? YES _____ NO _____

5a. (IF YES, REQUEST NAME OF ORGANIZATION) ____________________

6. WHY WAS IT PLACED IN THE BUILDING? ________________________
7. WHY DID YOU PLACE THE BOMB? ______________________________

   ____

8. TRY TO GET THE CALLER TO TALK TO THE GENERAL MANAGER OR SITE MANAGER.

IF THE CALLER WILL NOT ANSWER THE ABOVE QUESTIONS, INFORM HIM THAT PEOPLE ARE IN THE BUILDING AND THAT THEY COULD BE INJURED OR KILLED (CALLER INFORMED?) YES _____ NO _____

PERSON RECEIVING CALL: ______________________________________

POSITION: __________________________ TELEPHONE NO: __________________

HOME ADDRESS: ____

HOME TELEPHONE NO: ________________________

DATE: ______________________________________

APPENDIX IE-E

Medical Training

WMDSM – CROSSROADS LANDFILL

EMPLOYEE MEDICAL TRAINING

Cardiopulmonary Resuscitation (CPR) & First Aid Responders

John Blakely

Dave Bracket

Matt Charrier

John Chessa

Mike Clark

Marcel Courtemanche

Darren Files

Matt Fullerton

Derek Furbush

Danny Lanctot

Peter Mahar

Jeff McGown

APPENDIX IE-F

Clean Harbor Standby Emergency Response Agreement

CleanHarbors

Clean Harbors
42 Longwater Drive
P.O. Box 9149
Norwell, MA 02061-9149

781.792.5000
800.282.0058
www.cleanharbors.com

March 26, 2013

Mr. John Chessa
Operations Manager
WMDM Crossroads Landfill
Norridgewock, ME

Dear Mr. Chessa:

Please let this letter serve as evidence that the STANDBY EMERGENCY RESPONSE AGREEMENT (SERA), executed on February 13, 2012 by Clean Harbors Environmental Services (CHES), with corporate offices in Norwell, Massachusetts and the Waste Management Crossroads Landfill, MA is an "evergreen" agreement and, as such, remains in force on this date.

The purpose and intent of the SERA was, and continues to be, to provide the Waste Management Crossroads Landfill with emergency oil spill response resources and response capabilities, as required under the Oil Pollution Act of 1990, according to the terms and conditions of the February 13, 2012 agreement and in accordance with the USCG OSRO Ratings on file with the USCG for Clean Harbors.

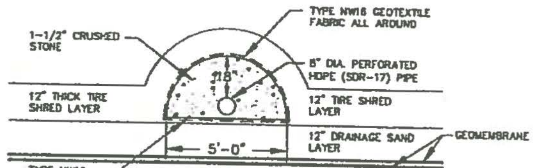
In the event that an Emergency Response is identified, contact 1-800-645-8265 (1-800-OIL-TANK) immediately to reach the Clean Harbors Emergency Operations Center. A Clean Harbors EOC Duty Operator will then be able to provide sound management throughout the course of the event and rapid response time of response equipment and personnel.

Clean Harbors holds all necessary permits to perform this type of emergency response, and has regular training programs in place for all of its responders, including, but not limited to, 40 hour OSHA "Hazwoper" training and annual 8 hour refresher.

Any questions on this matter should be directed to this writer at (781) 792-5000.

Sincerely,
John Rodier

"People and Technology Creating a Better Environment"



SECTION A-A

NOT TO SCALE

NOTE: 1) CARRY 18" CRUSHED STONE BLANKET ACROSS BASE AREA, INCLUDING WHERE 8" DIA. HDPE (SDR-17) PIPE IS SOLID (NOT PERFORATED), AND UP SIDE SLOPE 4' (VERTICAL). ~~AS SHOWN ON SECTION 9.~~

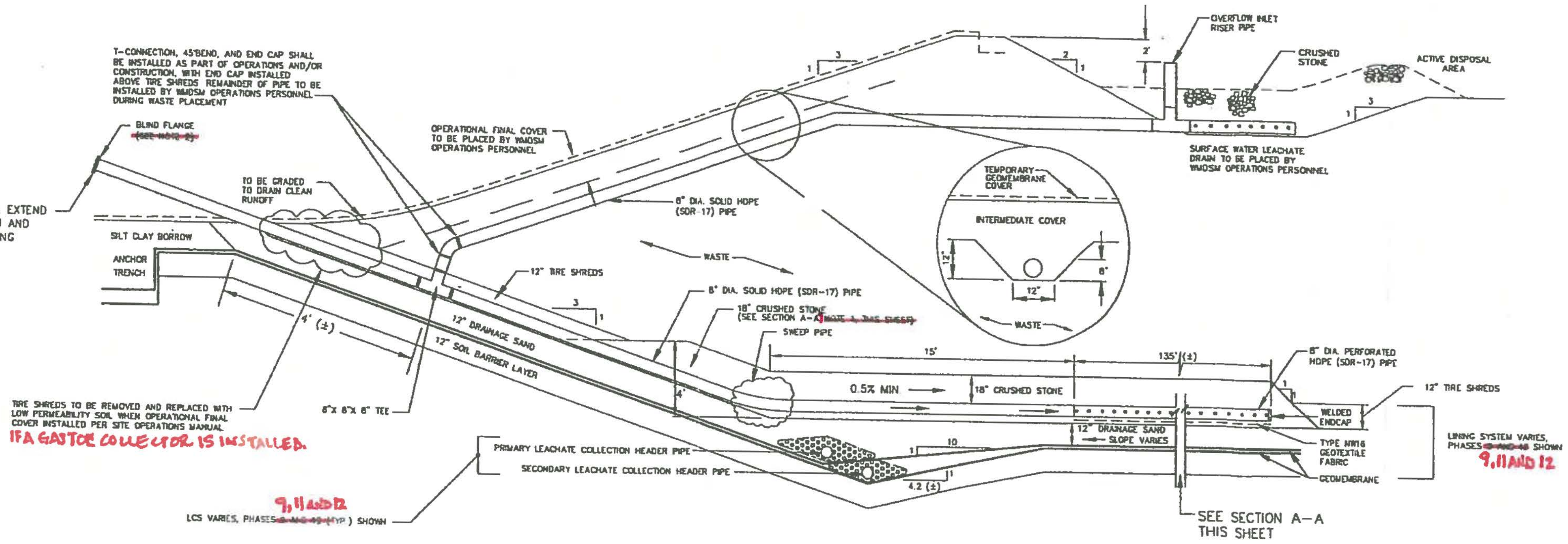


FIGURE 1

TYPICAL SURFACE WATER LEACHATE COLLECTION SYSTEM SECTION

NOT TO SCALE

NOTES: 1. APPLIES TO ALL CELLS IN PHASES 8, 9, 11 AND 12

2. UPDATES COMPLETED BY WMDSM DECEMBER 2016.

WMDSM - CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE
TYPICAL SURFACE WATER
LEACHATE COLLECTION SYSTEM SECTION

DESIGNED BY :	
CHECKED BY	: MS
APPROVED BY:	
DRAWN BY	: AJG
SCALE	: NTS
DATE	: DEC. 05

NOT TO SCALE

GZA GeoEnvironmental, Inc.
Engineers and Scientists

PREPARED FOR
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
A DIVISION OF WASTE MANAGEMENT, INC.
Norridgewock, Maine 04957

REV#	DESCRIPTION	BY	DATE

PROJECT No.: 25478-T6
SHEET No.: FIG-1

FILE INFO: [illegible]

FILE INFO: Drawing: O:\WMDSM\2005-254785\TASK 6 - PHS 8C GT\CAD\WMDSM SITE PLANS\DETAILS\FIG-2.DWG December 07, 2005 4:18:44 p.m

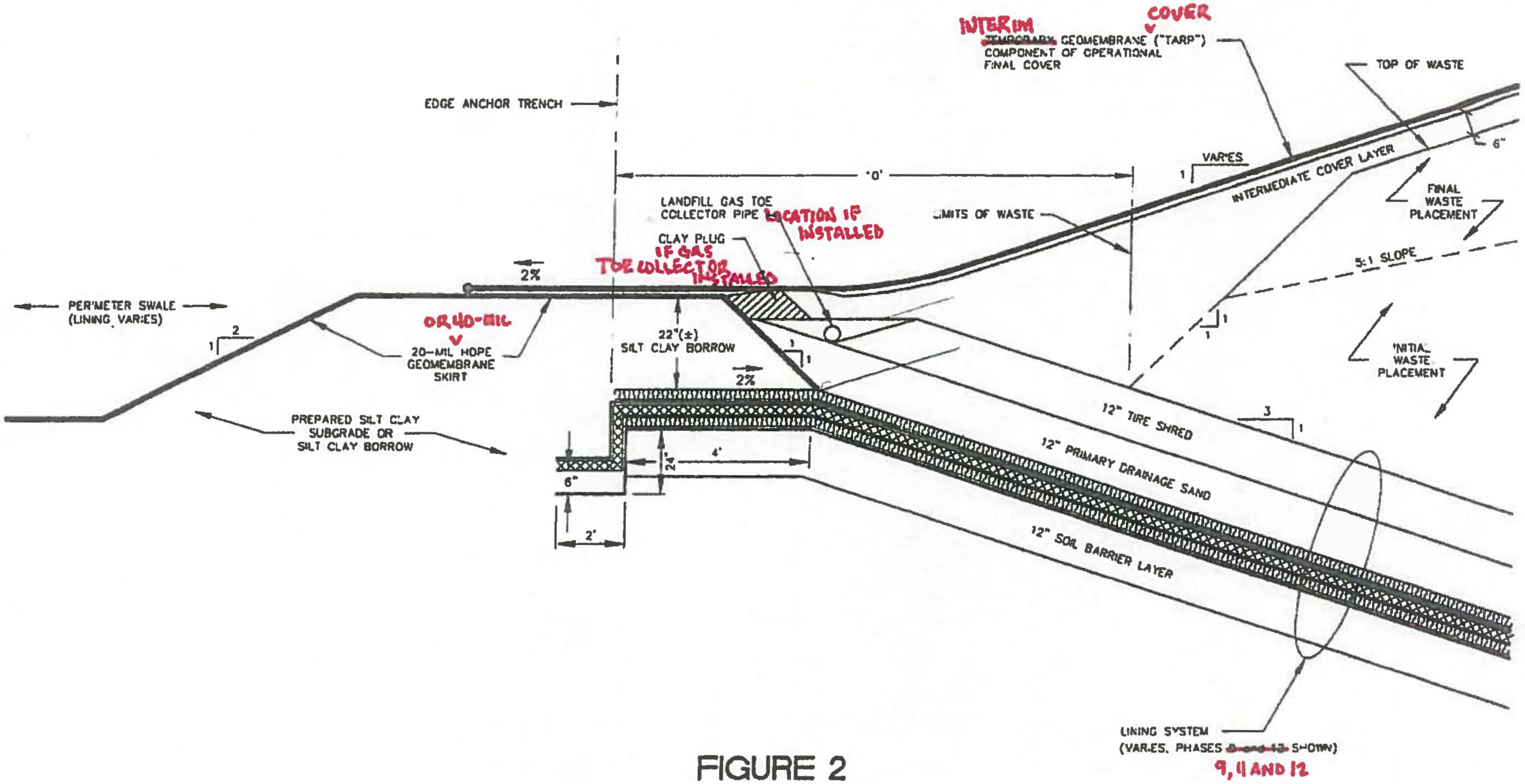


FIGURE 2

TYPICAL TERMINATION OF WASTE AT LANDFILL PERIMETER BERM

NOT TO SCALE

LANDFILL	TOE COLLECTOR	CLAY PLUG	HDPE SKIRT
PHASE 8A	YES	YES	YES
PHASE 8B	NO	NO	YES
PHASE 8C'	~~NO~~ YES	NO	YES
PHASE 9	YES	YES	YES
PHASE 11	NO	YES	~~localized only~~ YES
PHASE 12	NO	YES	YES

NOTES:

1) WASTE AT THE TOE OF SLOPE SHALL BE GRADED AT A 1H:1V SLOPE TO ENSURE AN ADEQUATE FREEBOARD BETWEEN WASTE AND THE TOP OF THE LANDFILL PERIMETER BERM. PERMANENT EXTERIOR WASTE SLOPES ABOVE THE TOE AREA SHALL BE GRADED PER PHASE-SPECIFIC FINAL WASTE GRADING PLAN

2) UPDATES COMPLETED BY WMDSM DECEMBER 2016

3	REVISED	IVS	12/05
2	REVISED	IVS	12/04
1	REVISED	IVS	12/03
REV#	DESCRIPTION	BY	DATE

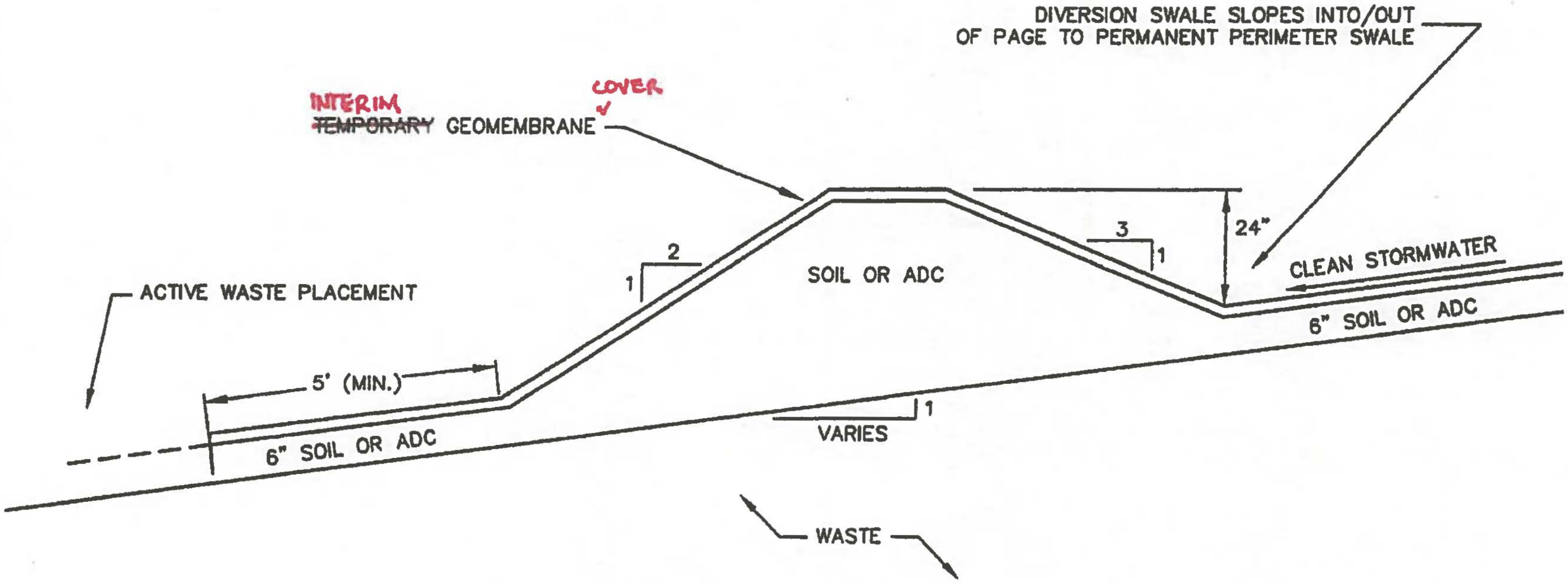


FIGURE 3

TYPICAL TEMPORARY CLEAN WATER DIVERSION BERM

NOT TO SCALE

3	REVISED	IVS	12/05
2	CHECKED FOR RELEVANCE	IVS	12/04
1	CHECKED FOR RELEVANCE	IVS	12/03
REV#	DESCRIPTION	BY	DATE

FILE INFO: Drawing: O:\WMDSM\2005-254785\TASK 6 - PHS 8C GT\CAD\WMDSM SITE PLANS\DETAILS\FIG-4.DWG December 07, 2005 5:00:11 p.m.

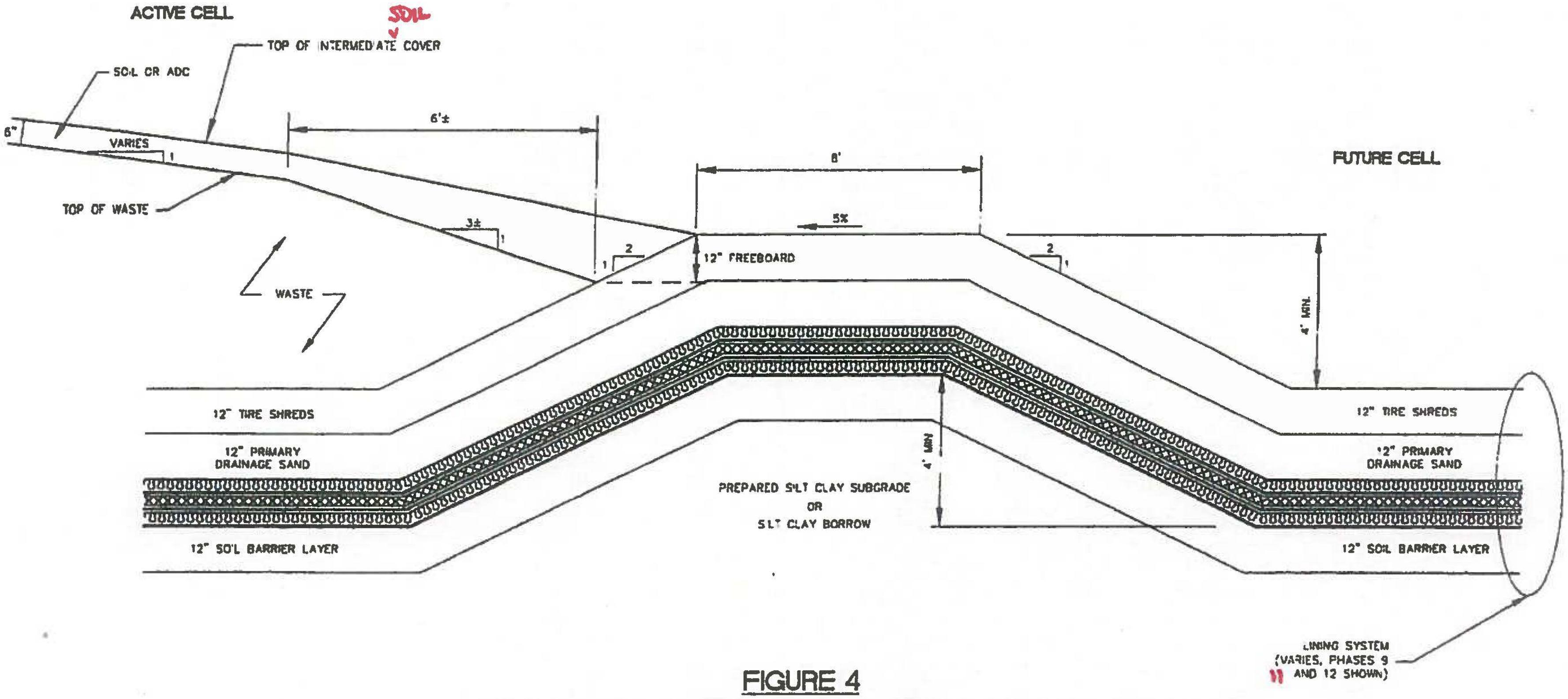


FIGURE 4

TYPICAL TERMINATION OF WASTE AT CELL DIVISION BERM

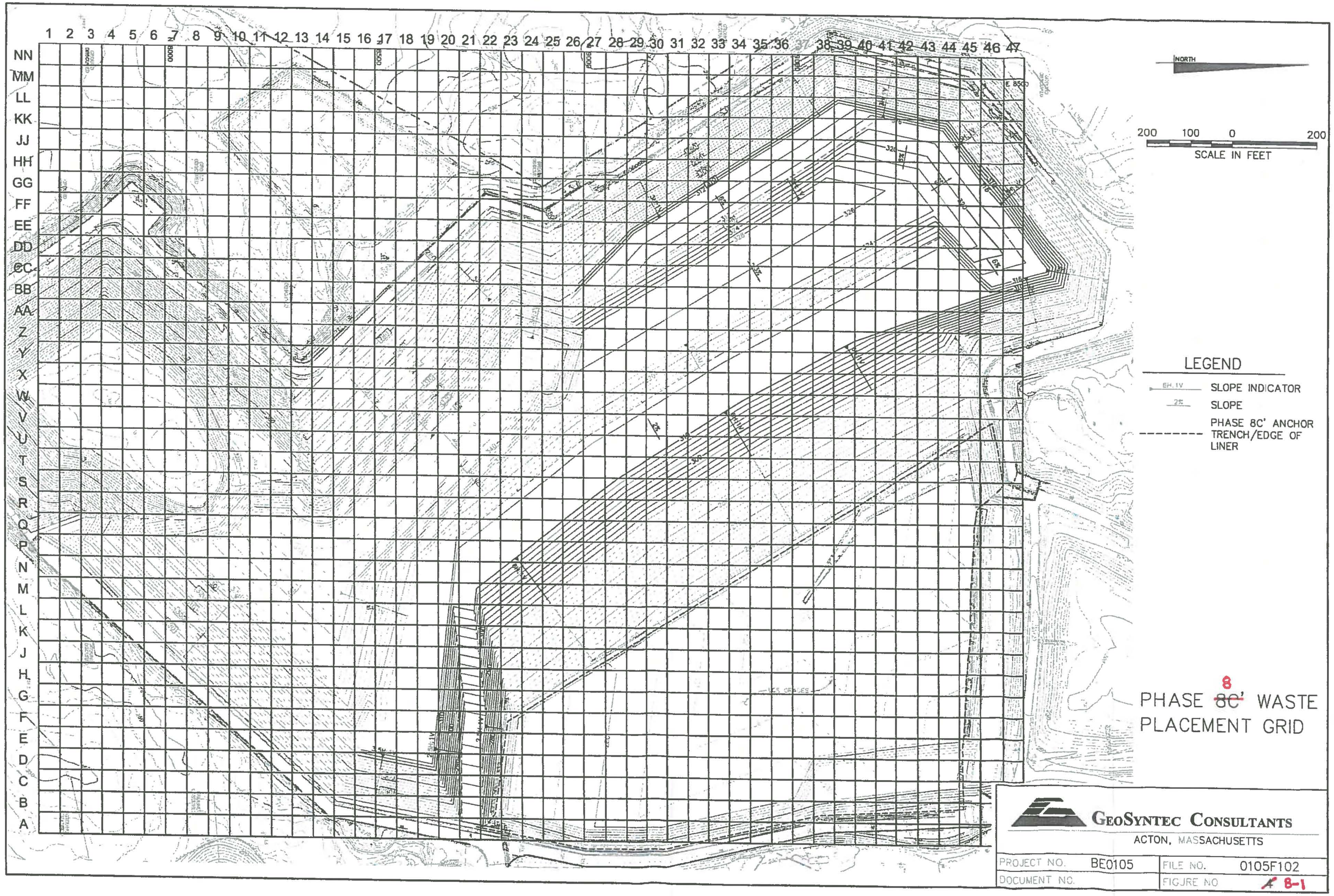
NOT TO SCALE

NOTES:

1) WASTE AT THE TOE OF SLOPE SHALL BE GRADED AT A 3H:1V (±) SLOPE TO ENSURE A MINIMUM FREEBOARD OF 12 INCHES BETWEEN WASTE AND THE TOP OF THE CELL DIVISION BERM

2) UPDATES COMPLETED BY WMDSM DECEMBER 2016

3	REVISED	IVS	12/05
2	CHECKED FOR RELEVANCE	IVS	12/04
1	CHECKED FOR RELEVANCE	IVS	12/03
REV#	DESCRIPTION	BY	DATE

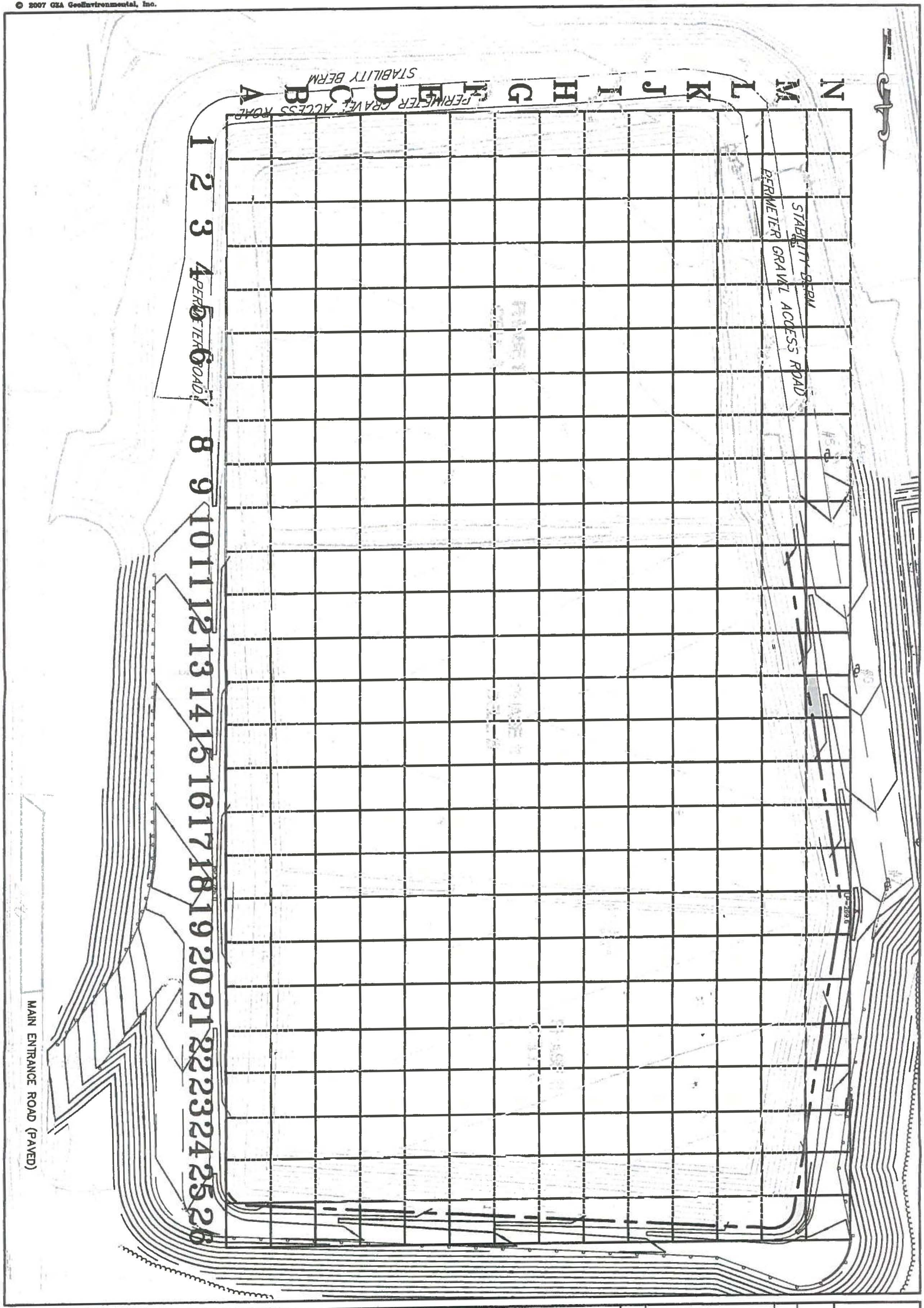


PHASE ~~8C'~~ 8 WASTE
PLACEMENT GRID

GeoSyntec Consultants
ACTON, MASSACHUSETTS

PROJECT NO.	BE0105	FILE NO.	0105F102
DOCUMENT NO.		FIGURE NO.	8-1

FILE INFO



PROJECT No.: 25528.30
~~SHEET No.~~ FIGURE 11-2.1

WMDSM - CROSSROADS
PHASE 11 SECURE LANDFILL

NORRIDGEWOCK, MAINE

WASTE TRACKING GRID

DESIGNED BY : TRG
CHECKED BY : IVS
APPROVED BY : RJM
DRAWN BY : RAW/AJG
SCALE : AS NOTED
DATE : JULY 2007

GRAPHIC SCALE
0' 50' 100' 150' 200'

GZA GeoEnvironmental, Inc.
Engineers and Scientists

PREPARED FOR:
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
A DIVISION OF WASTE MANAGEMENT, INC.
Norridgewock, Maine 04957

REV#	DESCRIPTION	BY	DATE

SECTION II - PART A

SECURE LANDFILL

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
A	Oct. 99	Refer to TOC*	Response to DEP comments on Phs 11-specific ops plan	IVS(GZA)
1	April 00	Refer to TOC*	Response to DEP comments on Rev. No. 0; annual update	IVS(GZA)
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accept 2003 and 2004 edits; 2005 annual update	WMDSM
6A	April 07	Edits tracked	Additional edit – pg 10 only: “3.1 Hot Loads”	WMDSM
7	Jan. 08	Edits tracked	Accept Rev. 6 and 6A edits; annual update	WMDSM
8	Mar. 11	Edits tracked	Accept 2008 edits; 2011 annual update	WMDSM
9	Dec. 16	Edits tracked	Accept 2011 edits; 2016 annual update	WMDSM
	* “TOC” refers to the Table of Contents			

SECTION II - PART A
SECURE LANDFILL

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SECURE LANDFILL

1. INTRODUCTION

This section of the Operations Manual describes general procedures, requirements, and methodologies utilized by site personnel in the daily operation of the secure landfill(s) at WMDSM. This section was developed based on site licenses, applicable regulations, and company policies and directives, and incorporates proven operational techniques. This section must be utilized in conjunction with the associated phase-specific operating plans, in Subsection 5, as well as other applicable Sections of the Site Operations Manual, to ensure that landfill operations are conducted in the best possible manner. The phase-specific operating plans supplement the general landfill operating procedures outlined in Subsections 2 through 4 of this Site Operations Manual section and include information pertinent to individual phases.

The secure landfills at Crossroads are composite-lined facilities, with leachate collection and removal systems. These landfills were constructed in accordance with MDEP approved construction documents. Record documents that include as-built surveys, results of construction material testing, geosynthetic panel layout plans and other pertinent construction documentation are maintained at the main office for reference by WMDSM personnel.

2. LANDFILL OPERATIONS

2.1 Access

The secure landfill(s) are accessible from Route 2 (Mercer Road) via the main access road and scale house. The main access road gate at Route 2 is locked during non-operations hours. Deliveries of waste to the secure landfill(s) will be checked in at the scale house by the Scale Attendant. From the scale house, landfill traffic should proceed to the operating landfill phase point of access and stop. Landfill operators will then control traffic to the working face by CB radio communications or WMDSM handheld 2-way radios. The points of access for each landfill phase are described in the phase-specific operating plans.

In order to maintain continual truck traffic, access roads to the working face must be kept accessible, even during inclement weather conditions. The roads should be graded to promote runoff, which should be directed towards stormwater management features outside the landfill limits, or to leachate collection systems within the landfill limits. Other general guidelines for gravel access road construction/ maintenance are as follows:

- Maximum road centerline grade should not exceed approximately 8% or be less than 0.5%.

- Road surface cross slopes should be approximately 2 to 3%.

Road construction materials and placement methods for non-project related work should be similar to those specified in the Technical Specification, Section 02200 - Earthwork. A copy of this specification section is available at the main office.

2.2 Safety and Health

Section I-Part D of this Site Operations Manual covers safety and health policies. WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. Specific operational safety, and health procedures related to approved/accepted waste streams are included in Subsection 3.0, Special Landfill Procedures.

2.3 Acceptable and Unacceptable Waste

Section I – Part B of this Site Operations Manual provides a description of acceptable and unacceptable waste. The criteria specifically excludes acceptance of hazardous and PCB wastes from the WMDSM facility. Specific testing and generator certification of Special Waste are completed in accordance with that Section.

Operations personnel are trained to recognize unacceptable waste. Should operations personnel observe unacceptable waste at the secure landfill, a manager will be notified. The load will be rejected and if possible sent back with the waste truck. Should the unacceptable waste be discovered after the departure of the waste truck, operations personnel will secure the load away from the active face, if possible. The Operations Supervisor or Site Manager will then observe the unacceptable waste to determine the nature of the material. If it consists of e-waste, tires, Freon containing components, etc., then the product will be relocated and recycled at the Airport Road Transfer Station. Should the Operations Supervisor or Site Manager encounter an unacceptable waste such as, medical waste, liquid waste, contained gases, radioactive waste, etc., Clean Harbors will be contacted to evaluate, handle, and remove the suspect waste for proper disposal. Clean Harbors is under contract to WMDSM to provide hazardous materials response.

Operations personnel will document observed unacceptable waste on the Random Inspection and Unacceptable Waste Log. This log is included in the Hazardous and Special Waste Handling and Exclusion Plan (HSWHEP), provided in Appendix IB-B of Section I – Part B Waste Characterization / Acceptance.

All such incidents will be noted by the Operations Supervisor in the "annual report file." The annual report, prepared and submitted in April of the subsequent calendar year pursuant to the Maine Solid Waste Management Regulations, will be utilized to notify the Maine Department of Environmental Protection (MDEP), Bureau of Remediation and Waste Management of any incidents. The pertinent section of the annual report will be forwarded to the United States Environmental Protection Agency (EPA) Regional Administrator, as required.

2.4 Waste Placement

Waste placement within secure landfills at Crossroads must conform to standard procedures in order to provide maximum protection of the synthetic liners, as well as to ensure the best performance of the leachate collection system. Waste placement must also conform with the Stability Monitoring Plan, included within Section VII of this Site Operations Manual, to ensure adequate stability of the base and waste mass. Waste placement procedures are as follows:

2.4.1 Initial Select Lift

The initial lift within each cell should consist of "select" waste, not to include large, sharp, or possibly damaging objects such as pipe, re-bar, long wood, etc. "Select" waste should be chosen based upon previous experience with a waste stream. Care should be taken by the operator when placing the initial lift to ensure that no liner damage is caused by the equipment. For this reason, no equipment other than tracked, low ground pressure equipment, is allowed on the surface of the primary drainage layer. A spotter might be used during select lift placement. If damage is suspected, the operator must notify the Operations Supervisor and/or District Engineer immediately.

The "select" waste should be placed in a single lift, approximately three to four feet thick prior to compaction, with approximately a 5H:1V slope on the leading edge of the working face for better workability and compaction purposes. This lift, in addition to the 24-inch thick primary drainage layer, will provide adequate protection to the synthetic liner. Initial waste placement typically extends to within several feet inside of the interior toe of the landfill perimeter berm to allow the exposed tire shred layer to collect and manage surface water leachate.

The select waste lift will consist of a mixture of incinerator ash, sludge, MSW, Front-End Process Residues (FEPR), and/or other waste streams having lower pH in accordance with Subsection 3.6. Depending on the availability of waste streams, WMDSM's objective is to blend 1 incinerator ash load to at least 1 sludge and/or other lower pH waste load. To maintain workability and stability of the select lift, the operator will be cognizant of the quantity of sludge and/or lower pH waste utilized. The operator will track Special Waste placed in the select lift as described in Subsection 4.

In any landfill cells not utilizing tire shreds as the top portion of the primary drainage layer, any surface areas on the drainage sand that have become silted, should be scarified prior to placement of the initial waste lift to ensure optimum performance of the drainage material. Scarifying can be done using hand tools, or low ground pressure (LGP) equipment with prior approval from the Operations Supervisor and District Engineer. If LGP equipment is used, a spotter must be present to assure only surficial material is disturbed.

2.4.2 Fill Progression

A number of alternatives exist for the fill progression within a new cell depending upon the season of initial lift placement. If the phase is opened in the late summer/early fall, the initial placement of waste should begin in the area over the sump and progress over the area of the leachate collection pipes in order to adequately protect the system from freezing during the upcoming winter. In the event the cell is opened in late fall/early winter when there is the potential for ice to form in the leachate lines, the fill commencement should not cover the areas above the leachate lines. This will allow the lines to thaw as early as possible in the spring. Fill progression in cells that are opened in the late spring/early summer, should begin where access is most available. Preference is given to waste placement at upper ends of cells with fill progressing down slope.

2.4.3 General Waste Placement

General lift construction will consist of placing approximately 8-foot-thicknesses of waste in 1- to 2-foot-thick compacted layers, proceeding above the initial select lift. Waste will be compacted as it is placed by tracking with multiple passes of landfill equipment. Lift construction will progress in such a manner that contaminated runoff (surface water leachate) will be collected and managed as leachate, as discussed below and in Subsection 2.6.

Regardless of the direction of fill progression, the lateral limit of the waste should be such that several feet (approximately 2 to 6 feet) of the tire shred layer is left exposed around the perimeter of the landfill. The temporary configuration of waste around the perimeter of the landfill is depicted on Figure 2. This figure is intended to represent a typical condition and is not representative of each landfill unit at WMDSM. This width of tire shreds should be maintained until the final veneer of waste is landfilled as part of the placement of the operational final cover. This cover, in part, consists of 20 or 40-mil textured High Density Polyethylene (HDPE). The clay plug at the toe of slope will be constructed as necessary before installation of the operational final cover, typically prior to final cap construction.

The configuration of waste at the perimeter berm and cell division berm subsequent to the installation of operational final cover is depicted on Figures 2 and 4, respectively. As indicated above and in Subsection 2.4.1, Initial Select Lift, initial waste placement will typically stay several feet inside of the interior toe of the landfill perimeter berm to allow the tire shred layer to collect and manage surface water leachate. As waste placement/lift construction continues, subsequent to the installation of operational final cover on the lower portion of a sideslope, each lift will generally be around the perimeter of the active landfill area to create a containment berm. During this operation, the waste surface will be graded to shed runoff towards the interior of the landfill and active surface water leachate inlets. Concurrently with initial waste placement in each lift, operations personnel will extend surface water leachate inlets as needed. The operations-stage containment berm and surface water leachate collection system are depicted on Figure 1.

Runoff must be controlled for two reasons: 1) to promote conditions at the working face that are suitable for truck traffic and waste placement equipment, and 2) to prevent surface water leachate from leaving the landfill. Stormwater management is discussed further in Subsection 2.6.

2.4.4 Landfill Sideslopes

Landfilling at the perimeter of the landfill will be done so that exterior sideslopes are brought to final waste grades to allow the deployment of intermediate or final cover. Wastes placed in the outer 6 feet of the slopes will consist of well-mixed and well-worked waste streams, such that the resulting waste mass does not contain large voids and the resulting final waste surface does not contain exposed bulky debris, thereby limiting the potential for damaging future final cover materials.

Further, sludges and other potentially unstable wastes will be limited in the wastes placed within 6 feet below final sideslope waste grades, unless suitably blended with other waste to produce a stable material.

2.5 Cover Material Requirements

2.5.1 General

Throughout the life of the landfill, various types of cover for a variety of purposes, such as to minimize odors, reduce the generation of leachate, and/or divert clean stormwater to erosion control structures will be required. This section discusses the various types of approved cover that are utilized at Crossroads.

2.5.2 Daily Cover

Daily cover, consisting of a minimum of 6 inches of soil or an approved alternate daily cover (ADC), will be placed over all exposed waste at the end of each workday. Crossroads has approval to use various ADC materials. Approved ADC includes, but is not limited to reinforced synthetic tarps, unsaleable woodwaste fines (tailings) from the Woodwaste Facility, ground utility poles, ground Construction/Demolition Debris (C&D), Pioneer Plastics by-product, approved fly-ash and bottom-ash, approved auto shredder residues, mill felt, and urban fill soils.

2.5.3 Intermediate (Operational Final) Cover

Intermediate Cover will generally be placed over areas of the landfill that have reached interim final waste grades or final waste grades in areas that have been inactive for more than 6 months, provided access for operational activities is not needed in these areas. Operational final cover consists of 6 inches of soil or ADC overlain by an interim cover.

Based on the documented settlement of the waste mass subsequent to the installation of operational final cover, the waste surface may require regrading prior to installation of a final cover system. The soil component of the operational final cover system is not required to meet the requirements for a gas venting layer that would be incorporated into a final cover system. However, if there will be no subsequent waste regrading/placement over an area receiving operational final cover, it is intended that the soil component of the installed operational final cover meet the requirements of the gas venting layer of the final cover system. Therefore, the requirements for the soil component of the operational final cover system will be as directed by the District Engineer.

As specified, operational final cover will consist of a common borrow material that is generally free of large, angular stones that could potentially damage the overlying interim geomembrane cover (i.e., temporary tarp). If intended to serve as the gas venting layer of the final cover system, the soil component of operational final cover will consist of Granular Intermediate Cover (sand containing no more than 15% material passing the #200 U.S. Standard Sieve and a maximum particle size of 1 inch). Granular Intermediate Cover should meet the requirements set forth in the Technical Specification, Section 02200 – Earthwork, Paragraph 2.02.F. The approved types of ADC that can be used as operational final cover will be as directed by the District Engineer.

During initial placement of operational final cover on sideslopes, a portion of the tire shred and drainage sand may be removed from the interior hinge of the perimeter berm and replaced with a low-permeability soil if a landfill gas toe collector exists. The low-permeability soil plug is depicted on Figure 2. Note that the subgrade for the interim geomembrane cover should be graded so that clean stormwater running off the geomembrane will flow into the perimeter drainage swale.

The current regulations require the use of 20-milthick geomembrane for the synthetic portion of operational final cover. Unless a variance is granted, a minimum thickness 20-mil HDPE will be used on any areas receiving interim geomembrane cover. As necessary, the synthetic component of operational final cover will be ballasted with a network of sandbags/ropes, or equivalent system, and anchored at the toe of slope to prevent uplift and reduce erosion due to stormwater flow off the temporary tarp. The clean stormwater runoff will be directed to the perimeter drainage swale.

The Operations Supervisor and District Engineer are responsible for ensuring the proper installation of operational final cover. Final acceptance of the soil component of the operational final cover as the gas vent layer of the final cover system will be addressed during final closure construction, in accordance with the closure construction documents, as applicable. In such a situation, it is anticipated that, subsequent to the removal of the interim geomembrane cover, the Construction Quality Assurance (CQA) consultant for final closure construction will sample and test the in-place material to verify conformance with the specifications set forth in the closure construction documents. The seams of the interim geomembrane cover during installation will be fusion welded or as approved by the District Engineer.

In-place operational final cover will be inspected quarterly, with that inspection documented in accordance with CYCLE discussed in the Environmental Compliance Program section of this Site Operations Manual. If the inspection reveals deterioration of the operational final cover to an unacceptable condition (e.g., excessive punctures, rips, tears), the material will be repaired or replaced. The ballast system and toe anchor area will be included in the regular inspections.

2.5.4 Final Cover

Final cover systems are intended to limit infiltration of stormwater into the waste mass, thereby reducing leachate generation. Final cover will be installed over portions of the landfill that have achieved final waste grades in accordance with approved final closure construction documents. Final cover systems will be installed by a qualified earthwork and geosynthetics contractor.

2.6 Stormwater Management

Management of stormwater at the Crossroads facility can be divided into two areas: 1) within the limits of the landfill, which is described in this Subsection, and 2) outside the limits of the landfill, which is described in Section IX - Erosion Control Plan of this Site Operations Manual.

Stormwater management within the limits of the landfill focuses primarily on control of run-on and runoff, as well as limiting erosion of cover material installed operationally. Stormwater run-on is an operational consideration in landfill areas that are adjacent to previously filled phases or cells. Run-on must be controlled to limit leachate generation caused by clean stormwater flow into the active area.

Management of clean stormwater run-on is accomplished mainly through the use of diversion berms. These berms will be installed in locations that allow diversion of the maximum amount of clean stormwater to the perimeter drainage swale. In locations requiring diversion berms that have been covered with operational final cover including interim geomembrane cover, diversion berms should be installed underneath to prevent erosion, as depicted on Figure 3. The diversion berms should be sized and located to safely carry water from the covered area to an erosion control structure without damage to the landfill or receiving structures. The berm configuration should take into account factors such as drainage area, slopes, receiving swale material, etc. The diversion berm configuration must be approved by the District Engineer prior to installation.

Diversion berms constructed under interim geomembrane covers can be relocated as necessary during operations to continue diversion of clean stormwater from active landfill areas. As the fill height in the active phase rises, the diversion berms should be relocated up slope, and the interim geomembrane cover removed from the portion of the slope below the diversion berm.

Stormwater runoff from active landfill areas must be controlled to prevent possible migration of surface water leachate from landfill areas. As indicated in Subsection 2.4 Waste Placement, prior to installation of operational final cover, the lateral limit of waste will typically stay several feet inside of the landfill perimeter berm to allow the tire shred layer to collect and manage surface water leachate. Subsequent to the installation of operational final cover on the lower portion of a sideslope, stormwater runoff is managed by maintaining adequate containment around the perimeter of the active portion of the landfill. Proper grading of the surface of the active area will direct surface water leachate to surface water leachate inlets located within the active area, as needed. The recommended typical configuration of the perimeter containment berm and surface water leachate inlet system is depicted on Figure 1. The surface water inlets will convey the runoff to the cell floor of the landfill where it will be directed to the leachate collection system. Runoff will generally be controlled by constructing an elevated berm and/or sloping the road to prevent runoff from traveling along the road surface and leaving the landfill. Runoff may also be managed by burying a vertical geomembrane panel within the gravel section of the road located just inside the landfill.

Use of diversion berms and surface grading/surface water inlets must be implemented properly to ensure that diversion of stormwater does not cause erosion of waste or cover materials (daily, intermediate, or final). Stormwater must be controlled as close to its source as possible to manage it with the least impact on operations.

2.7 Tire Wash

WMDSM has installed a tire wash facility at the landfill. Tires of vehicles that have entered the secure landfill and have waste adhering to them will be washed prior to leaving the landfill. Cleaning tires will prevent tracking of mud, waste or other material out of the landfill onto site roads. During freezing or dry periods, as well as those times when sludge or wet waste disposal is minimal, the tire wash facility may not be required. It is the responsibility of the Operations Supervisor to assure the tire wash facility is used when necessary.

2.8 Fire Protection

The Norridgewock Fire Department is available by dialing the local phone number or 911. The site water truck is accessible as necessary. Fire extinguishers are available in all WMDSM hauling vehicles and landfill equipment.

2.9 Vector Control

As necessary, WMDSM utilizes over-the-counter products, a third-party exterminator, and a local licensed trapper to manage potential vectors at WMDSM.

3. SPECIAL LANDFILL PROCEDURES

3.1 Hot Loads

A Hot Load area has been established in the paved area at the toe of the Phase 12 east stability/perimeter berm. If the landfill operator identifies a hot load, the hauler will be directed to the hot load area where the condition of the load will be further assessed and allowed to cool sufficiently to be landfilled. The hauler will be required to remain with the load until the material is managed. No water will be applied to a hot load unless specifically authorized by the Operations Supervisor or District Engineer and only then as a last resort and in a secure area.

3.2 Wind Susceptible Loads

Wind susceptible loads consist of waste streams such as: asbestos, wood ash, coal ash, biomass ash, oil ash, and municipal solid waste incinerator ash which may be affected by wind during placement into the landfill. This section will present procedures to help manage potentially affected loads.

The landfill operator must observe all loads to be placed in the landfill and be cognizant of weather conditions. The operator will direct the dumping of acceptable loads at the working face. He shall instruct the truck driver where to dump. Under normal conditions when the wind is blowing at a low velocity and the waste stream is somewhat moist, the majority of waste streams are acceptable to dump.

If, in the opinion of the landfill operator, the weather conditions are not acceptable for disposal of wind susceptible loads, the operator will inform the Operations Supervisor. At that time the Operations Supervisor will determine what additional steps will be implemented, in order to minimize the potential for the waste to become airborne. Some additional steps which may be utilized include the following:

- Face the trucks into the wind when dumping to shield the load utilizing the body as a windbreak. Cover the load as soon as possible with a wetter waste stream or daily cover.
- Configure the working face to act as a windbreak and dispose of wind susceptible load(s) in this area. Cover the load(s) as soon as possible with a wetter waste stream or daily cover.
- Spray the wind susceptible load(s) with sufficient amounts of water to eliminate blowing potential. Cover the load as soon as possible with a wetter waste stream or daily cover.

Should the landfill operator or the Operations Supervisor decide none of these methods will permit the load to be dumped safely, the driver and/or generator will be notified and other arrangements made, such as rescheduling, disposal elsewhere, or temporary storage in the Container Storage Area.

WMDSM is approved to accept ash waste streams that have a total concentration of vanadium greater than 15,000 mg/kg. Once these loads have been scheduled for disposal, the landfill operator(s) will (as an additional safety precaution) be instructed to wear a respirator equipped with an organic and particulate cartridge during unloading and covering of the waste stream. To the extent possible, operators will remain upwind of the ash during offloading and covering. Truck drivers of vanadium ash loads will be required to remain in the cab of their vehicle with windows and doors shut. In addition, a water source will be present to lightly wet the waste, as necessary, during disposal. The load will be covered as soon as possible with sufficient wet waste or daily cover to prevent exposure. Personnel not required at the active face during disposal will be requested to leave the landfill area.

3.3 Sludge Disposal

Sludge to be disposed of in the landfill must have no free liquids. WMDSM reserves the right to reject any sludge load that may negatively impact operations with respect to stability or workability. Some sludges meeting this criteria may be very soft and as a result have minimal strength. Therefore, sludge will be bulked with drier waste streams, such as FEPR, MSW, or ash in order for the working face to maintain a solid surface and continue to support equipment. FEPR, MSW, or ash are the most desirable bulking waste streams, however, virgin soil can be used for bulking purposes, but this is the least desirable option in that it uses landfill volume for something other than waste. The Operations Supervisor and/or District Manager should be notified of overly wet/unworkable condition of the sludge, so they can contact the generator to improve the condition of the waste.

3.4 Construction/Demolition Debris Disposal

Unlike other acceptable wastes, C&D is commonly comprised of a variety of light and/or bulky materials. The following special operational procedures shall be utilized when landfilling C&D to ensure it is managed in a safe and effective manner:

- C&D shall not be disposed of within the select lift of waste as described in Subsection 2.4 Waste Placement. The select lift provides a barrier to protect the landfill liner components from damage.
- C&D shall be crushed and compacted as necessary to obtain a firm, stable mass.
- C&D shall be spread and mixed with other waste to maximize density and minimize voids, thereby reducing the potential for future differential settlement.
- At least 2 feet of separation shall be provided between asbestos waste and overlying C&D, as described in Subsection 3.5 Asbestos Waste Handling and Disposal. This will reduce the potential of puncturing asbestos packaging.

3.5 Asbestos Waste Handling and Disposal

3.5.1 General

Asbestos waste has the potential to release fibers when handled in a manner that causes the material to crumble or otherwise deteriorate through mechanical, physical, or chemical activity. WMDSM has developed the following procedures for the safe handling and disposal of asbestos waste material based on WM policies; specific site licenses and permits; Federal OSHA regulations, including applicable sections of 29 CFR 1910 and 40 CFR 61; State of Maine Solid Waste Management Regulations, including 06-096 CMR 401.4.C(22); and proven asbestos waste disposal procedures.

3.5.2 Scheduling and Acceptance

It is WMDSM's preference to have 24 hours advanced notice in order to schedule the delivery of asbestos waste loads to the facility. WMDSM will group asbestos waste from various sources into a single disposal event when possible to expedite handling and disposal activities. WMDSM may accept asbestos waste during business hours, Monday through Friday. If high wind conditions exist at the time an asbestos waste shipment arrives on the site, the landfill operator should notify the Operations Supervisor and execute the additional steps as necessary, as described in Subsection 3.2 Wind Susceptible Loads.

Acceptance of each asbestos waste load by the Scalehouse Attendant will be contingent upon receipt of a waste shipment record for that load and an approved waste profile executed by WMDSM's Technical Service Center. The Scalehouse Attendant will direct drivers to the secure landfill's point of access and instruct drivers to communicate with landfill operators by CB radio or a WMDSM handheld 2-way radio.

3.5.3 Packaging/Labeling

It is the responsibility of the generator/contractor and/or hauler to properly package and label asbestos waste. WMDSM operations personnel should be familiar with the requirements, but are not expected to approve packaging and labeling completed by others. WMDSM operations personnel, with approval from the Operations Supervisor or District Manager, have the right to reject asbestos waste loads that are unacceptably packaged and labeled at the time of delivery, and/or appear to pose a worker safety and health risk. Loads with damaged packaging discovered during the offload procedure will be handled as described herein.

Asbestos waste should be packaged in accordance with NESHAP requirements. In summary, this requires asbestos waste to be adequately wetted, and packaged and sealed in double impermeable plastic bags or liners of at least 6-mil thickness. Large components or structural members may be wrapped airtight to a minimum thickness of 12 mils using polyethylene sheeting and secured with tape for proper disposal. Void space within the packages should be minimized to reduce the potential for puncturing the plastic and causing airborne particles. Bags, packaging, and wrapped items should be labeled (i.e., Asbestos) in accordance with OSHA requirements with respect to the size, legibility, and visibility. The labels should indicate the generator name and location from which the material originated.

3.5.4 Personnel Protective Measures

The potential exposure route associated with handling asbestos waste is the inhalation of airborne asbestos particles. The asbestos particles may be present in the air directly as a result of source emissions during handling operations, or may collect on protective clothing/equipment that has contacted asbestos waste and may subsequently become a secondary source of emissions.

The driver of the hauling vehicle will be required to wear the PPE described below whenever outside their vehicle during unloading activities. Passengers and individuals without PPE will remain in the vehicle with closed doors and windows. PPE for haulers includes NIOSH-approved half-face air purifying respirators with dual High Efficiency Particulate Air (HEPA) filter cartridges designed to remove asbestos-containing dust and mist.

In the event that asbestos waste must be unloaded manually by the hauler, additional PPE is required and shall include protective head, body and foot covers, (e.g., disposable gloves, coveralls, etc.). Operational personnel will not assist the hauler with unloading activities or unload asbestos waste manually. Only WMDSM operational personnel who are present to oversee unloading and to perform disposal activities shall be within the exclusion zone; a non-physically marked 100-foot radius around the asbestos waste off-load within the Asbestos Disposal Area (ADA). Personnel will wear a respirator and other PPE, in accordance with WMDSM and WM safety and health policies and procedures and applicable 29 CFR 1910 regulations. After exiting the ADA, the use of PPE can be discontinued. The exclusion zone designation remains in effect during disposal of asbestos material and until the ADA is covered.

3.5.5 Disposal

In preparation for asbestos waste loads, the site water truck or alternative water source will be located reasonably close to the active ADA. Active ADA's are marked using four (4) semi-permanent warning signs at the limits/corners. Using a CB or WMDSM company radio, landfill operators will warn employees, customers, consultants and contractors, of the hazard and advise them of restricted access within the exclusion zone related to the active ADA. In addition, a sign is posted at the entrance to the active landfill that states that radios are used to warn all personnel present on the active landfill of asbestos waste disposal activities and associated restricted access areas.

Friable and non-friable asbestos waste is disposed in the secure landfill in designated ADA's and areas within the active face, respectively. The District Engineer and Operations Supervisor will confer with the geotechnical and landfill gas designers before deciding on an ADA location. As a Special Waste, the location of asbestos waste within the secure landfill is tracked and documented as described in Subsection 4 Waste Load Tracking. Furthermore, operational personnel enters the location of asbestos waste loads into a computer database, and generates a report. Lastly, the location of all asbestos waste disposed in the secure landfill is presented on an Asbestos Waste Tracking Map that is maintained by the site surveyor and coordinated through the Operations Supervisor. A hard copy of the report and map is located in the Main Office.

Construction of an ADA involves the following but is not limited to, excavating a depression in existing waste, delineating an area by constructing berms out of waste on interior landfill waste slopes, or a combination of waste excavation and waste berm construction. Asbestos waste will not be placed within the initial 4-foot select lift or within about 6 to 7 feet of the final cover grade.

ADA's will have a stockpile of approved Alternate Daily Cover (ADC) material available for use during the hours of asbestos disposal. The transporter will be directed via radio by the landfill operator to the designated ADA where the load is to be placed. The asbestos waste will be unloaded in a manner to minimize the impact of the fall (i.e., limit drop height and drop velocity) and to reduce the potential for breaking packaging and allowing escape of asbestos into the ambient surroundings.

All asbestos waste will be covered with approved ADC material, such as auto shredder, wood chips, contaminated soil, sludges, grits, screenings, etc., but not including C&D. A minimum of two feet of suitable cover will be placed over the asbestos waste prior to tracking by equipment or placement of C&D, by the end of each operating day. Any asbestos waste loads that may have had packaging damaged during off-loading will be covered immediately.

WMDSM's rigid acceptance/inspection criteria are designed to limit the potential for asbestos to become exposed. Waste that is identified to be improperly packaged prior to dumping will not be allowed to dump and will be returned to the generator/contractor. If packaging becomes significantly damaged/punctured during the disposal operations, landfill operators will immediately place cover over the exposed asbestos waste. Any exposed asbestos will be wetted with a fine water mist (site water truck or alternative water source), if necessary, to suppress any potential airborne release of dust. Once the exposed asbestos has been thoroughly wetted it should be immediately covered with soil or suitable waste materials.

3.6 High pH Waste Disposal

Waste with a pH greater than 12.5 will be placed in maximum 1-foot thick compacted lifts. High pH waste will not be landfilled in the initial select lift of waste placed over the lining system. The special waste approvals program acceptance criteria will be used to identify wastes with a pH greater than 12.5. The Operations Supervisor and landfill operator will be notified of all incoming loads of high pH waste prior to waste load delivery to the landfill.

3.7 Front-End Process Residues Disposal

Whenever necessary, FEPR will be used as a bulking agent for sludges that require bulking per Subsection 3.3 Sludge Disposal. At times, FEPR may arrive at the site co-mingled with MSW ash. There are no additional requirements for personal protective equipment when handling FEPR. Standard requirements for PPE when handling MSW ash apply for co-mingled FEPR/MSW ash.

3.8 Municipal Solid Waste Disposal

MSW will be landfilled with approved Special Waste streams and C&D. The MSW will be mixed with other waste at the active face, placed, compacted, and covered per Subsection 2.4

Waste Placement. Special considerations when landfilling MSW include minimizing litter and bird control. The Operations Supervisor and District Engineer rely on current and historical average bird counts obtained during monthly site inspections performed by USDA. Minimizing litter control is accomplished through the use of litter fences installed adjacent to the active face. Litter that has collected along the fence, as well as litter that has blown past the litter fence, is picked up and bagged on a regular basis and disposed of in an on-site waste container or back into the active landfill face and covered with waste.

Bird control requires a multi-faceted approach. Control methods can be categorized into one of two groups: 1) direct or active methods which disperse birds from an area, or 2) indirect or passive methods which alter habitat to make it less attractive to the birds. Direct methods include human presence, human effigies, balloons, pyrotechnics, propane cannons, birdlines with reflective ribbons or recorded distress calls. Crossroads primarily utilizes human presence, birdlines, pyrotechnics, and recorded distress calls for direct methods.

Indirect methods eliminate or make unavailable one or more of the five basic gull survival requirements: nesting areas, secure night-time roosting areas, feeding areas, loafing areas, and drinking water sources. Nesting and roosting areas are typically not located at landfill sites. Landfilling methods used at Crossroads (such as operating in a small active area with sufficient cover) reduce the amount of food available, as well as loafing areas for the birds, thereby eliminating two requirements. In addition, adequate blending and placement of MSW with Special Waste (such as ash or sludge) will also reduce the food supply.

Landfill operators must keep the numbers of birds on the landfill to a minimum using the direct and indirect methods described above. In the event these methods are not effective as evidenced by a significant number of birds on the landfill, the Operations Supervisor shall notify the District Manager and/or District Engineer.

4. WASTE LOAD TRACKING

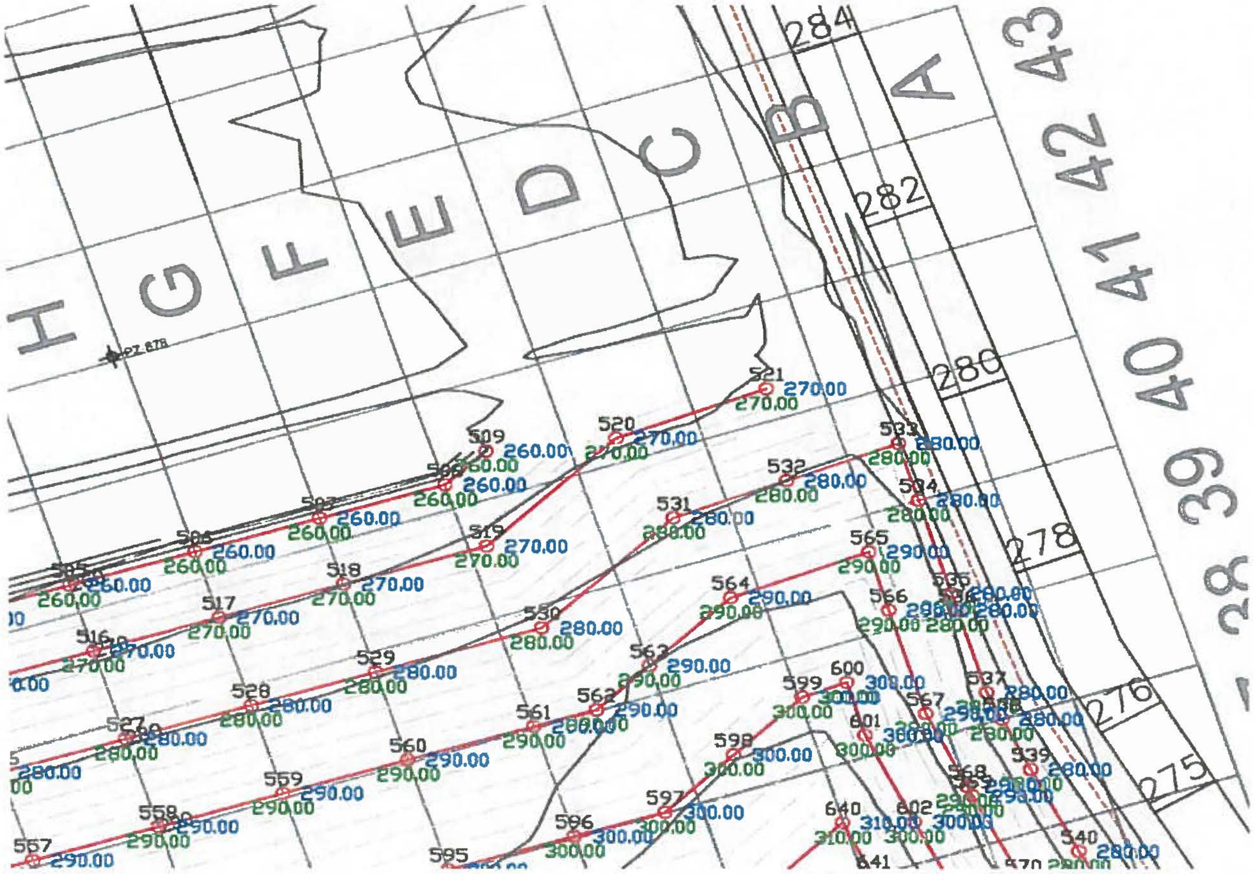
4.1 Purpose

4.2 WMDSM records the approximate location of each Special Waste load within the landfill so that the Special Waste may be found as/if necessary. Procedure

Once waste placement sequencing is finalized by the District Engineer and Operations Supervisor, interim waste grade contours are developed by WMDSM's geotechnical engineer and an interim waste grading plan drawing is finalized by the site surveyor. The drawing includes the site waste placement grid (see Figure 8-1 for example) and numbered survey points (datum-based) identified on the interim waste grade contours (i.e., topography). A hard copy of this drawing will be utilized by the landfill operator to construct interim waste grades and accurately identify placement of Special Waste in the secure landfill.

As necessary, the operator or Operations Supervisor notifies the site surveyor to provide grade control in the landfill by transferring the numbered survey points identified on the interim waste grade contours to the grade stakes installed along waste contours (i.e., 310, 320, 330) in the landfill. Each numbered survey point has an easting, northing, and proposed elevation (i.e., coordinate) pre-programed into the survey equipment. Furthermore, the site surveyor writes the cut/fill value on each grade stake. This allows the operator to identify the appropriate grid block and elevation of each Special Waste load disposed.

Below, is a realistic representation of an interim waste grading plan that illustrates how the landfill operator approximately identifies Special Waste in the secure landfill.



As required, the landfill operator notifies the Scalehouse Attendant by company radio of the appropriate grid block and elevation where Special Waste is disposed. The Scalehouse Attendant shall document all necessary information on the Daily Secure Site Operation Log. A sample form is included in Appendix IIA-A.

5. PHASE-SPECIFIC OPERATING PLANS

5.1 Phase 1-6

Landfilling in Phase 1-6 ceased in May 1996 as the landfill reached final permitted waste grades. The landfill was reopened from mid- to late-1999 during which time additional waste was accepted and the sideslopes and the top grades were modified. As part of Phase 8A construction in 2003, the Phase 8A overfill liner system was constructed over all but a small portion of the Phase 1-6 footprint (exclusive of the Phase 10 overfill area). The approximately 14,000-square-foot area not covered by the Phase 8A overfill liner is located in the southwest corner of the Phase 1-6 footprint and is bordered by the Phases 1-6, 8A, and 10 anchor trenches. This area was final capped in 1995/1996. The Phase 8A overfill liner system is tied-into the Phase 8A base liner to form one continuous lined area. The westerly portion of the Phase 1-6 Secure Landfill was final capped in 2010 in conjunction with the southerly portion of Phase 8A. A final cover system was placed over the remaining top deck and easterly portion in 2012. As a result, waste placement in complete within Phase 1-6. Future waste placement over the Phase 1-6 footprint will be tracked using the Phase 8 waste tracking grid (refer to Figure 8-1).

5.2 Phase 7

Landfilling in Phase 7 ceased in June 1995 as the landfill reached final permitted waste grades; operational final cover was subsequently installed over the entire Phase 7 area. In 2001, the Phase 9 secure landfill was constructed adjacent to and contiguous with the east and north sides of the Phase 7 landfill. Subsequently, portions of the operational final cover were sequentially removed from the north and east sideslopes and top area of Phase 7 as Phase 9 waste disposal activities overfilled much of the Phase 7 footprint. The Phase 9 waste tracking grid was utilized for that work. Subsequent to achieving permitted waste grades within the Phases 7 and 9 footprints, operational final cover was installed in November 2003. In 2003, the Phase 8A secure landfill was constructed contiguous to the south end of the Phase 7 landfill, with the Phases 7 and 8A liner systems tied together at the phase division berm. In late 2004, operational final cover was again removed from Phase 7 as excavated MSW waste disposal activities associated with Phase 8C' construction overfilled much of the Phase 7 footprint. The Phase 8 waste tracking grid was utilized for that work. Future waste placement over the Phase 7 footprint will be tracked using the Phase 8 waste tracking grid.

5.3 Phase 8 (Cells A, B and C')

Phase 8A, 8B, and 8C' were constructed in 2002/2003, 2003/2004, and 2004/2005, respectively. As part of Phases 8B and 8C' construction, waste was excavated from the former MSW Landfill and relocated to the Phase 8A/8B secure landfill. The footprint of the former MSW Landfill was subsequently lined to form the Phase 8B/C' landfill. Waste relocation, as well as the placement of gate receipt waste, within Phase 8 was and continues to be tracked using the Phase 8 waste tracking grid that is included herein as Figure 8-1.

Phase 8, including areas where it overfills Phases 1-6, 7 and 9, was the only active landfill on site until the end of November 2007. With the exception of limited asbestos waste and treated utility pole disposal, the Phase 8 landfill was essentially inactive until October 2008. Active landfilling resumed in Phase 11 from November 2007 to October 2008. Since that time, active landfilling has occurred within the Phase 8 landfill.

In 2016 waste was placed primarily in Phase 8C' and the southern portion of Phase 8B in accordance with grades presented in the 2012 *Phases 1 and 8C' East Sideslope Modification* and the 2014 *Phase 8C'' Permit Modification*. Landfilling will continue in this area in 2017 and 2018. Filling over the existing internal access road will begin in 2018. Landfilling will continue in Phases 8A, 8B, and 8C' through 2019. In 2020, landfilling will continue in this area and extend over Phases 7 and 9 as represented in the 2010 *Phase 7 and 9 Sideslope Modification*. In 2021, filling will transition to the northern portion of Phase 8C' and into Phase 8C'' as presented within the 2014 *Phase 8C'' Permit Modification*. Filling will then transition between Phase 8C' and 8C'' and the central topdeck area which overlies Phases 8A, 8B, and 8C', as presented in the 2016 *Phase 8 Upper Sideslope and Topdeck Modification* until filling of Phase 8 is complete in approximately 2025.

5.4 Phase 9

The Phase 7 landfill abuts the south side of Phase 9, Cell A (9A) and the west side of Phase 9, Cell C (9C). Phase 9 waste disposal activities overfilled much of the Phase 7 footprint. The Phase 9 waste tracking grid was utilized for that work. Subsequent to achieving permitted waste grades within the Phases 7 and 9 footprints, operational final cover was installed in November 2003. In 2003, the Phase 8A secure landfill was constructed contiguous to the south end of the Phase 9C landfill, with the Phases 8A and 9C liner systems tied together along the phase division berm. In 2004, the Phase 8B secure landfill was constructed contiguous to the east side of the Phase 9 landfill, with the Phases 8B and 9B/C liner systems tied together along the phase division berm. Waste placement over the Phase 9 footprint will be tracked using the Phase 8 waste tracking grid.

5.5 Phase 10

Landfilling in Phase 10 ceased in December 1998 as the landfill reached final permitted waste grades. The landfill was then covered with operational final cover. In 2003, the Phase 8A secure landfill was constructed contiguous to the north end of the Phase 10 landfill, with the Phases 8A and 10 liner systems tied together at the phase division berm. The operational final cover was removed in 2016 to place additional waste within the Phase 10 landfill. Subsequent to waste placement the Phase 10 landfill was final capped in 2016.

5.6 **Phase 11**

Phase 11, Cell A was constructed in 1998 and Phase 11, Cells B and C were constructed in 1999. In 2001, WMDSM received approval for a sideslope modifications project for the Phase 11 landfill. That project included steepening the sideslopes from the originally permitted slope of 3H:1V to 2.5H:1V, raising the permitted hinge elevations, and modifying the grades on the top, flatter portion of the landfill. Phase 11 achieved the associated final waste grades and operational final cover was installed in early 2002. A gas collection and control system was installed as part of operational final cover installation. In late 2007, WMDSM received approval of additional modifications to the Phase 11 waste grades that result in a substantial capacity increase. MDEP approved the regrading and waste placement activities commenced in Phase 11 on November 19, 2007. Operations moved to the Phase 11 landfill exclusively on November 26, 2007 and concluded on October 24, 2008. The established waste load tracking grid for the Phase 11 Secure Landfill is depicted on Figure 11-1.

As part of the 2001/2002 filling operation, a ramp was constructed up the east sideslope of the landfill. The access ramp fill was placed against/over the operational final cover, which under the access ramp consisted of double-sided textured geomembrane overlain by a non-woven geotextile. The surface of the access ramp is pitched toward a swale that was constructed along the inside edge of the ramp. The swale discharges into the perimeter drainage swale.

5.7 **Phase 12**

Final waste placement and the installation of operational final cover was completed in late 2004. The interim geomembrane cover/operational final cover was removed in 2016 in order to place the final cover system.

APPENDIX IIA – A

DAILY SECURE SITE OPERATION LOG

DAILY SECURE SITE OPERATION LOG

DATE: ____________________

TYPE OF WASTE	SCALE RECEIPT #	JOB #	GRID #	APPROX. ELEV.	EST. VOLUME

Rev. 12/16

SECTION II – PART A

FIGURES

SECTION II - PART B

COMMERCIAL TRANSFER STATION

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	No changes	Accept 2005 edits; annual review; no changes to text	WMDSM
8	Dec. 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
	* “TOC” refers to the Table of Contents			

SECTION II - PART B
COMMERCIAL TRANSFER STATION

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SECTION II - PART B

COMMERCIAL TRANSFER STATION

1. INTRODUCTION

This section of the Site Operations Manual describes general procedures, requirements, and methodologies to be utilized by site personnel in the daily operation of the Commercial Transfer Station (CTS) at WMDSM. This section was developed based on site licenses, applicable regulations, company policies and directives, and proven operations techniques. Copies of the applicable license(s) are maintained at the WMDSM Main Office. This section reflects current operating procedures, and will be reviewed at least annually to include any operational changes.

The CTS consists of an 8,000-square-foot pre-fabricated metal building and is located immediately east of Erosion Control Structure (ECS) 3B and south of the Maintenance Facility. It consists of a tipping floor with 12-foot high push-walls, recyclable material recovery area, and transfer trailer drive-through. Temporary storage of recyclable material is provided, if necessary, by a maximum of five roll-off containers located on a concrete pad immediately in front of the facility. In addition, wood products may be temporarily stored on the tipping floor. The CTS is permitted to handle municipal solid waste, approved special waste, demolition debris, and oversized bulky waste from Maine towns and businesses in the central Maine area.

The Operations Supervisor oversees the operation of the CTS. Facility operators shall read this section and become familiar with all operating procedures. If any employee has questions concerning the contents of this section, they should contact their supervisor.

The CTS has been inactive since early 1999. The CTS building is being used as a Material Recovery Facility (MRF). The operation of the MRF is described in Section II – Part D of this Site Operations Manual.

2. OPERATING HOURS

Should the CTS become active in the future, it will primarily accept waste Monday - Friday during site operating hours (refer to Section I – Part A). Operations will consist of loading transfer trailers and possibly handling waste/recyclables to accommodate customers on an as-needed basis. Qualified operations personnel will be available to operate the CTS during all operating hours.

3. SAFETY AND HEALTH

WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. Operations personnel entering the CTS are required to wear hard hats, high-visibility clothing, steel-toed boots, eye protection, and other Personal

Protective Equipment (PPE). Hard hats can be obtained from the Main Office for operations personnel. Requirements for PPE are the responsibility of the individual hauling companies that utilize the CTS. Section I - Part D of this Site Operations Manual discusses WMDSM's health and safety policies.

A CB and a two-way radio are used for communicating between the operator at the CTS to customers, the main office, scales, and other operations personnel. The Main Office and/or Scale House are equipped with phones that can be utilized to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. In the event of an accident the Operations Supervisor, or his/her designee, shall be contacted immediately and be provided a description of the accident and the extent of any injuries. A first aid kit is available in the CTS. Refer to Section I - Part E of this Site Operations Manual for detailed site emergency action procedures.

4. COMMERCIAL TRANSFER STATION OPERATIONS

4.1 Facility Layout

An as-built drawing of the CTS is provided in Appendix IIB-A of this section. Operators should utilize the toilet facility located on the second floor of the Maintenance Facility. The CTS does not have a septic system.

4.2 Acceptable and Unacceptable Waste

Refer to Section I – Part B, Paragraph 3.2 of this Site Operations Manual for a description of acceptable and unacceptable waste. Specific attention should be made to the segregation, storage, and disposition of treated wood. Should the facility operator have concerns regarding the acceptability of a particular waste, he/she will contact the Operations Supervisor and/or Site Manager for guidance.

4.3 Standard Operating Procedure

4.3.1 Instruction

The driver of the waste hauling vehicle is directed where to unload by the facility operator. Drivers must remain with their vehicle while loading/unloading. Unless absolutely necessary, helpers must remain in the cab of the vehicle while at the CTS for safety purposes. The driver will communicate with the facility operator before the helper is allowed to exit the vehicle.

4.3.2 Recyclable Material

Depending upon market conditions, the facility operator may be instructed by the Operations Supervisor to separate material out of the waste stream for recycling. Workers will perform this task either manually or mechanically, separating recyclables such as plastics, paper, wood, demolition debris, cardboard, and metals. Recyclable materials will be placed in roll-off containers located on the concrete slab immediately in front of the CTS. Wood products may be temporarily stored on the tipping floor within the transfer station. With the exception of containers containing wood, these containers will be tarped during non-operating hours. Up to five containers are permitted and, once they are full, are typically temporarily stored outside the CTS or are hauled to the Container Storage Area (CSA) until enough containers have accumulated to transport to market. Wood that has been separated or temporarily stored is sent to the on-site Woodwaste Facility, the active secure landfill, or transported to market. Demolition debris is transported to the active secure landfill for disposal.

4.3.3 Non-Recyclable Material

A front-end loader is utilized to fill transfer trailers and/or containers with the non-recyclable waste. The material is compacted as needed to achieve maximum hauling capacity. The material is transported to either a waste-to-energy incinerator facility or a landfill disposal facility. Appendix IIB-B provides a listing of end disposal facilities that could have been utilized when the CTS was active. Should the CTS become active in the future, a more current list of end disposal facilities will be included in Appendix IIB-B.

4.3.4 Random Inspection

Random loads are periodically inspected to assure the in-coming waste material is acceptable. Should the facility operator become suspicious as to whether the waste is acceptable, he/she will contact the Operations Supervisor for resolution. Non-permitted waste will be rejected. The inspections are documented on a Random Inspection and Unacceptable Waste Log, a copy of which is provided in Appendix IIB-C.

4.4 Equipment

The equipment utilized at the CTS includes front-end loaders, pulp loaders, and skid-steer loaders. Additional front-end, pulp, and skid-steer loaders are available either on-site or from a rental company within close proximity of WMDSM, should the CTS equipment become inoperable. Daily mechanical inspections and routine scheduled preventative maintenance are performed on this equipment to ensure proper operation of the facility.

4.5 Leachate Management

The tipping floor has two floor drains (approximately 1 foot square) and the drive-through section has one floor drain (about 4 feet by 1 foot). These drains are covered with solid grates allowing only leachate to enter. The leachate flows from the drains via a 6-inch-diameter PVC pipe to an approximately 1,000-gallon holding tank located southwest of building. The tank is checked manually for high leachate level, as well as mechanically through an incorporated high-level sensor alarm. The leachate will be evacuated by a WMDSM or third-party vacuum truck and disposed into the active area of the secure landfill. All leachate is managed at a licensed wastewater treatment facility.

5. GENERAL SITE MAINTENANCE

5.1 Control of Litter

All containers must be tarped, excluding those containing wood, and the six overhead doors and two mandoors must be closed during non-operating hours. The number of open doors during operating hours will be kept to a minimum. Operations personnel provides daily litter control and maintains the cleanliness of the asphalt surface in front of the CTS mechanically or manually, as necessary. The paved area will be sealed as necessary to facilitate sweeping. A vacuum sweeper will be used to sweep the paved area regularly.

5.2 Dust and Odor Control

WMDSM shall undertake suitable measures to control dust and odors as necessary. Water is supplied to the CTS and can be used to wet dry or dusty waste loads to control nuisance dust conditions. The frequent removal of putrescible refuse helps to control odors. Putrescible waste will be loaded into covered containers/trailers after the separation of recyclables. The loader will be kept inside the CTS as much as possible to reduce tracking onto asphalt surface.

5.3 Fire Protection

The CTS is equipped with a sprinkler system capable of releasing 30,000 gallons of water should a fire occur. Once the system has been activated, a security company will be contacted through an automated dialer system. The security company will be responsible for calling the necessary authorities to help prevent further damage. The Norridgewock Fire Department (NFD) will be available upon request. The WMDSM water truck is also available as needed. Fire extinguishers are available at the CTS. Equipment utilized at the facility is also furnished with fire extinguishers.

5.4 Erosion Control

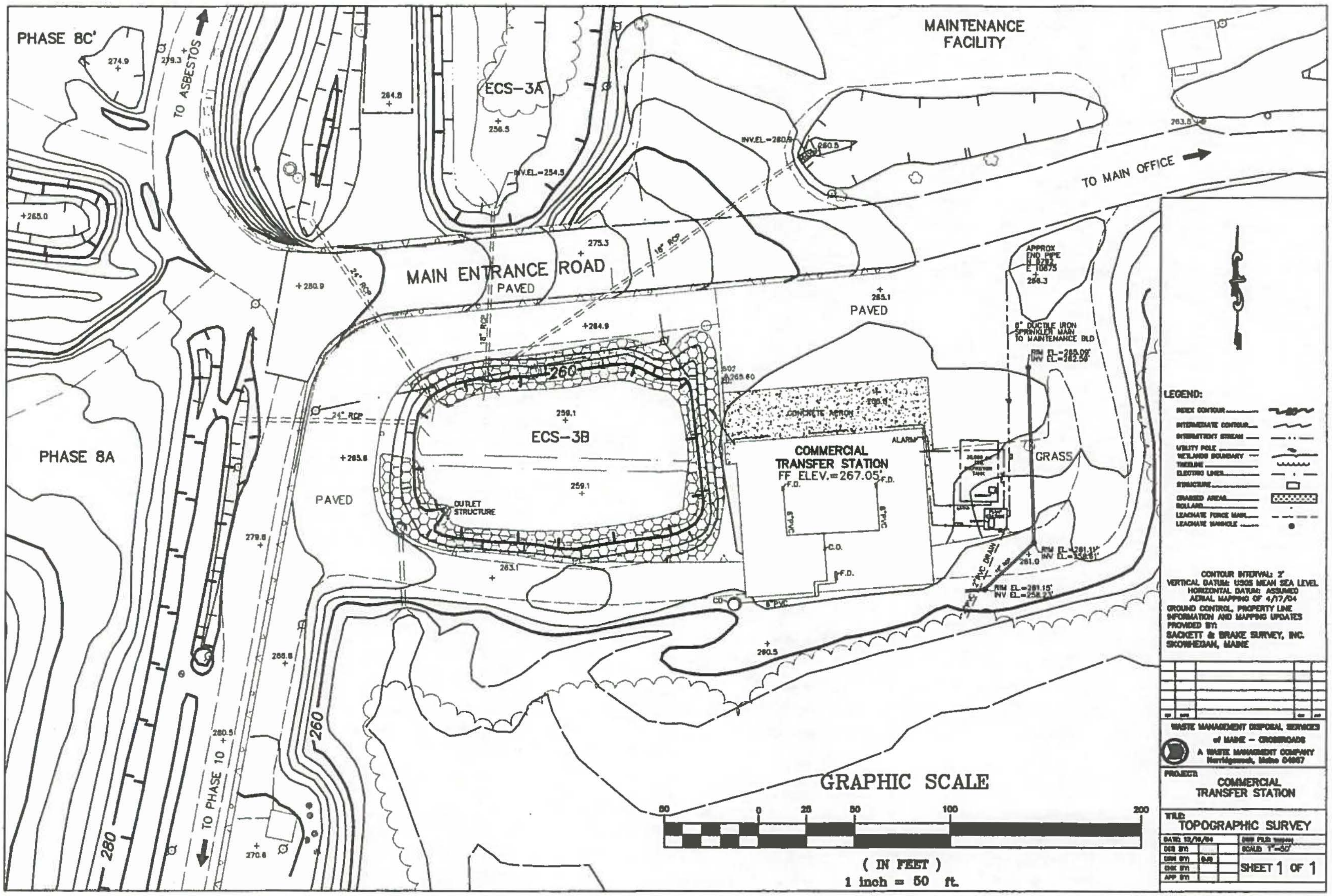
Operations personnel will periodically inspect the drainage swale and catch basins surrounding the facility to ensure they are functioning properly. The catch basins and piping associated with the stormwater conveyance system will be cleaned, as necessary. Landscaping is designed to help prevent any erosion problems and enhance aesthetics.

5.5 Vector Control

As necessary, WMDSM utilizes over-the-counter products, a third-party exterminator, and a local licensed trapper to manage a potential vector population at Crossroads.

APPENDIX IIB-A

SITE PLAN



LEGEND:

INDEX CONTOUR	
INTERMEDIATE CONTOUR	
INTERMITTENT STREAM	
UTILITY POLE	
WETLANDS BOUNDARY	
TREELINE	
ELECTRIC LINES	
STRUCTURE	▭
GRASSED AREAS	
BOLLARD	·
LEACHATE FORCE MAIN	
LEACHATE MANHOLE	●

CONTOUR INTERVAL: 2'
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED
AERIAL MAPPING OF 4/17/04
GROUND CONTROL, PROPERTY LINE INFORMATION AND MAPPING UPDATES PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
SKOWHEGAN, MAINE

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE – CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
COMMERCIAL TRANSFER STATION

TITLE:
TOPOGRAPHIC SURVEY

DATE: 12/16/04
SCALE: 1"=50'
DES BY:
DRN BY:
CHK BY:
APP BY:
SHEET 1 OF 1

APPENDIX IIB-B

OFF-SITE DISPOSAL FACILITIES

OFF-SITE DISPOSAL FACILITIES

FACILITY	WASTE TYPE	CONTRACT EXPIRES
Eco Maine	MSW	Spot Market
64 Blueberry Road		
Portland, ME 04102		
Mid-Maine Waste Action Corp.	MSW	Spot Market
1 Goldthwaite Road		
Auburn, ME 04211		
Penobscot Energy Recycling Corp.	MSW	Spot Market
River Road		
Orrington, ME 04474		
Waste Mgmt. of NH – TREE	MSW/Demo/OBW	Open-Ended
90 Rochester Neck Road		
Rochester, NH 03867		
(reviewed and updated Dec. 2016)		

APPENDIX IIB-C

RANDOM INSPECTION AND UNACCEPTABLE WASTE LOG

Random Inspection and Unacceptable Waste Log

Waste Management Disposal Services of Maine, Inc.

FACILITY: ☐Secure LF ☐Airport Road TS ☐MRF ☐Commercial TS ☐Wood Waste

TYPE[1] (RI, O)	DATE TIME	TRUCK NO. or PLATE	COMPANY or RESIDENT NAME	UNACCEPTABLE WASTE(S)	RESPONSE	MGR NOTIFIED	INITIALS
O	12/31/16 12:35 PM	406252	Waste Hauler, Inc.	Two 5 gallon buckets of pool chemicals.	Checked buckets for leaks and damage (none) and placed in interim storage container.	John Doe	BDD

[1] RI = Random Inspection (may result in no unacceptable materials identified), O = Other Observation that detected unacceptable waste.

REVISED 3/30/2016

SECTION II - PART C
AIRPORT ROAD TRANSFER STATION

REVISION BLOCK

REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
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6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	No changes	Accept 2005 edits; annual review, no changes to text	WMDSM
8	Dec. 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
	* “TOC” refers to the Table of Contents			

SECTION II - PART C
(RESIDENTIAL) AIRPORT ROAD TRANSFER STATION

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SECTION II - PART C

AIRPORT ROAD TRANSFER STATION

1. INTRODUCTION

This section of the Site Operations Manual describes general procedures, requirements, and methodologies that are used by site personnel in the operation of the Airport Road Transfer Station (ARTS) at WMDSM. This section was developed based on site licenses, applicable regulations, company policies and directives, a proven customer service track record and compliant operating procedures. Copies of the applicable license(s) are maintained at the WMDSM Main Office. This manual reflects current operating procedures, and will be reviewed and updated at least annually to include any operational changes.

The primary operations performed at the facility are:

- Handling municipal solid waste for transfer to an appropriate disposal site.
- Handling Single Stream Recycling (SSR) which includes tin, aluminum, glass, plastic, and newsprint.
- Temporary storage of white goods, scrap metal, wood, tin, glass, plastic, oversized bulky waste (OBW), cardboard, tires, wood ash, magazines, and spent lead acid (automotive type) batteries.
- Providing a local universal waste disposal facility for area residents. Universal waste is transferred to an approved off site disposal facility.

The Operations Supervisor oversees the operation of the ARTS. Facility attendants shall read this section and become familiar with all operating procedures. A copy of this section of the Site Operations Manual will be located at the ARTS office building and at WMDSM's Main Office.

2. OPERATING HOURS

The ARTS accepts wastes/recyclables Wednesday through Friday, from 9:30am to 6:00pm, and Saturday from 7:30am to 4:00pm. Operating hours are posted at the ARTS entrance. A qualified attendant is present during operating hours.

3. SAFETY AND HEALTH

WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. WMDSM personnel entering the ARTS are required to wear high-visibility clothing, steel-toed boots, eye protection, and other proper protective clothing. A first aid kit is located in the ARTS office building. Section I - Part D of this Site Operations Manual discusses WMDSM's safety and health policies.

A two-way radio is used for communicating between the ARTS, the main office, scales, active landfill and other site operations personnel. The Main Office and/or Scale House are equipped with phones that can be used to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. In the event of an incident/accident at the ARTS, the Operations Supervisor, or his/her designee, shall be contacted immediately and be provided a description of the incident/accident and the extent of any injuries. Refer to Section I - Part E of this Site Operations Manual for detailed site emergency action procedures.

4. AIRPORT ROAD TRANSFER STATION OPERATIONS

4.1 Facility Layout and Utilities

An as-built drawing, titled Site Plan, of the ARTS is provided in Appendix IIC-A. Positions and sizes of containers and compactors may vary as conditions warrant. Signs are in place to help direct customers to appropriate disposal areas at the facility.

Three-phase electricity provides power to operate the compactors, lights, outlets at the ARTS office building and facility, and heat within the building. A restroom is located in the ARTS office building. Drinking water is supplied by a water cooler located in the ARTS office building.

4.2 Acceptable and Unacceptable Waste

Refer to Section I – Part B, Paragraph 3.1 of this Site Operations Manual for a description of acceptable and unacceptable waste. Should the attendant have concerns regarding the acceptability of a particular waste, he/she will contact the Operations Supervisor and/or Site Manager for guidance. The attendant will document unacceptable waste on the Random Inspection and Unacceptable Waste Log, provided in Appendix IB-B of Section I – Part B.

The ARTS serves as a central universal waste accumulation facility for transfer to an approved off-site Recycling Facility. Acceptable wastes and storage/handling procedures are in accordance with a Universal Waste & Electronic Waste Recycling Plan prepared for the site.

4.3 Access and Permit Requirement

All vehicles will enter the transfer station from Airport Road. Access is controlled by an upper entrance gate and a lower exit gate. Vehicles will proceed to the ARTS office building at the upper gate where the attendant will check the permit sticker to assure that the town in which the individual resides has contracted with WMDSM to dispose of waste and/or recyclables at the facility. Residents obtain a permit at the customer's hometown clerk's office upon presentation of vehicle registration. If the permit sticker is not available or invalid when entering the ARTS, the individual can be turned away.

The attendant will direct all permitted customers to disposal locations for each type of waste and/or recyclable material. Daily records will be kept to track the number of vehicles that use the facility and the associated town from which the individual(s) reside. A copy of the Facility Usage Report is provided as Appendix IIC-B. If individuals are found to abuse their disposal privilege (disposing of unacceptable wastes, not abiding by rules, etc.) their stickers may be revoked. The attendant may periodically open garbage bags of suspect loads to determine the origin and ensure that waste is not being accepted from towns that have not contracted with WMDSM. Upon completion of waste and/or recyclable disposal the customer will depart the facility.

Disposal/transport/storage of waste and recyclable materials accepted at the ARTS are managed as follows:

- Cardboard and SSR are hauled to the MRF. Cardboard is baled or hauled loose and SSR is hauled loose.
- Clean wood is hauled to the Woodwaste Facility and/or active landfill.
- Clean wood ash (residential) is hauled to the active landfill.
- Uniwaste is placed on pallets, shrink wrapped and stored in a metal container.
- White goods are temporarily stored in a designated area at the ARTS.
- Propane tanks are temporarily stored in a designated area at the ARTS.

Non-recyclable materials are disposed of in the active landfill.

A list of approved Off-Site Disposal Facilities used by WMDSM and their associated contractual expiration dates is provided in Appendix IIC-C.

4.4 Salvaging

Salvaging is not permitted at the ARTS.

4.5 Battery Handling Procedures

The only automotive-type batteries accepted at this facility are those that do not leak, as verified by the attendant. The batteries will be stored in a plastic tote, inside a steel secured waste container. Once a sufficient quantity of batteries has been accumulated, a shipment will be arranged to the appropriate approved disposal/recycling facility.

Protective goggles/glasses and gloves should be worn by all employees handling spent lead acid (automotive type) batteries.

5. GENERAL SITE MAINTENANCE

5.1 Control of Litter

Containers will be tarped as necessary and refuse properly secured (bagged) by users to prevent littering of the ARTS. WMDSM provides litter maintenance regularly.

5.2 Dust and Odor Control

WMDSM will continue to undertake suitable measures to control dust and odors whenever necessary. A water truck is available to suppress potential dust problems and a sweeper is available to remove dust from asphalt surfaces as necessary. The frequent removal of putrescible waste limits odors.

5.3 Fire Protection

The Norridgewock Fire Department (NFD) is available upon request. A fire extinguisher is located in the ARTS office building and the WMDSM's water truck is accessible as needed.

5.4 Erosion Control

WMDSM periodically inspects stormwater management features (i.e. grass-lined swales, etc.) to assure they are functioning properly. The ARTS facility consists of asphalt, concrete, or vegetation that limits erosion and has no single-point discharge, just sheet flow.

5.5 Vector Control

As necessary, WMDSM utilizes over-the-counter products, a third-party exterminator, and a local licensed trapper to manage potential vectors at WMDSM.

APPENDIX IIC-A

SITE PLAN

APPENDIX IIC-B

FACILITY USAGE REPORT

Waste Management Disposal Services of Maine, Inc.
Airport Road Transfer Station - Facility Usage Report
Report for the Period of ______________________ to ______________________

REV. DEC 2016

DATE	ANSON	EMBDEN	MADISON	NEW SHARON	NORRIDGEWOCK	ROME	SMITHFIELD	VIENNA	TOTAL	INITIALS
WED										
THURS										
FRI										
SAT										
TOTAL										

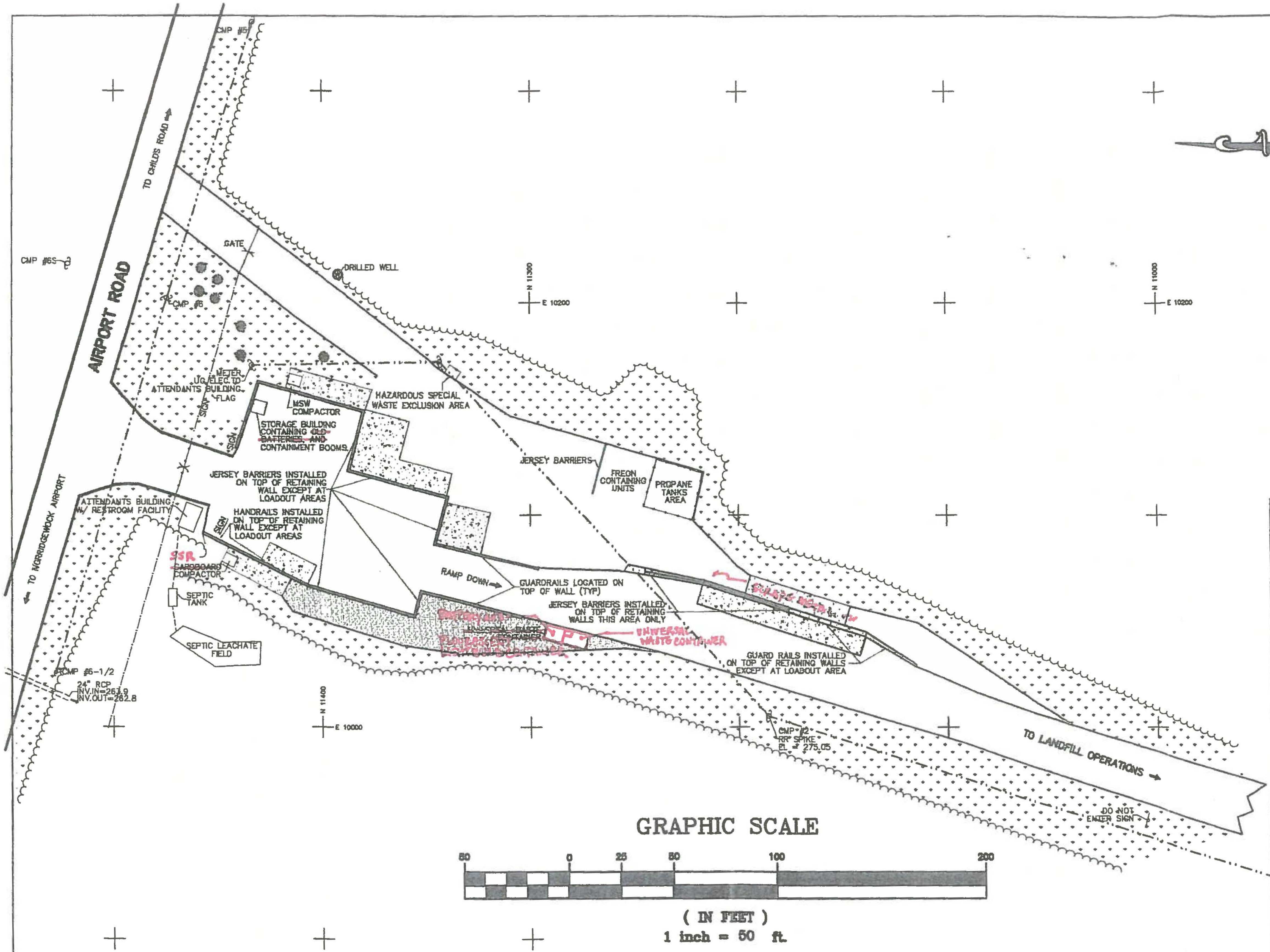
APPENDIX IIC-C

OFF-SITE DISPOSAL FACILIES

AIRPORT ROAD TRANSFER STATION
OFF-SITE DISPOSAL FACILITIES

FACILITY	WASTE TYPE	CONTRACT EXPIRES
BDS Waste Disposal Services P.O. Box M Corinna, ME 04928	Tires	Annual
Electronics End, LLC 173 Robertson Blvd Brewer, ME 04412	Computers, TVs, Electronics Spent lead-acid batteries, Batteries, Fluorescent bulbs	Annual
Eco Maine 64 Blueberry Road Portland, ME 04102	Cardboard/SSR	Evergreen Contract
Grimmel Industries 80 Pejepscot Village Main St. Topsham, ME 04086	White goods, Metal, Tin cans	Spot market
Interstate Battery of Bangor P.O. Box 100 Detroit, ME 04929	Spent lead-acid batteries	Spot market
Interstate Refrigerant Recovery, Inc. P.O. Box 517 Foxboro, MA 02035	Freon FC-containing appliances	Annual
Maine Resource Recovery Assoc. 142 Farm Rd #2 Bangor, ME 04401	Propane tanks	Spot market
WM Recycle America 6255 Sheridan Drive Suite 412 Williamsville, NY 14221 716-626-7805	Cardboard	Open Ended

(reviewed and updated Dec. 2016)



LEGEND:

INDEX CONTOUR	〰
INTERMEDIATE CONTOUR	〰
UTILITY POLE	●
ELECTRIC LINE	— · · —
PAVED AREA	▭
CONCRETE PADS	▨
GRAVEL SURFACE	▨
GRASS SURFACE	▭
CHAIN LINK FENCE	—•—
TREE LINE	〰
GATE	✕

GROUND CONTROL, PROPERTY LINE INFORMATION AND MAPPING UPDATES PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
P.O. BOX 207, RTE 201N
SKOWHEGAN, MAINE 04976
207-474-8223

CONTOUR INTERVAL: 2'
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE – CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
AIRPORT ROAD
TRANSFER STATION

TITLE: SITE PLAN
~~TOPOGRAPHIC SURVEY~~

DATE: 12/14/04		DWG FILE: T100401.DWG	
DES BY:		SCALE: 1" = 50'	
DRN BY:	DJB	SHEET 1 OF 1	
CHK BY:			
APP BY:			

SECTION II - PART D

MATERIAL RECOVERY FACILITY

<table>
<tr><th colspan="5">REVISION BLOCK</th></tr>
<tr><th>REV. NO.</th><th>DATE</th><th>PAGES AFFECTED</th><th>DESCRIPTION</th><th>BY</th></tr>
<tr><td>0</td><td>April 99</td><td>All</td><td>1999 annual update</td><td>pfb/sam</td></tr>
<tr><td>1</td><td>April 00</td><td>Rev. block only</td><td>Annual review; no changes</td><td>WMDSM/GZA</td></tr>
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<tr><td>4</td><td>Dec. 03</td><td>Rev. block and end users only</td><td>2003 review and annual update</td><td>WMDSM</td></tr>
<tr><td>5</td><td>Dec. 04</td><td>Edits tracked</td><td>2004 annual update</td><td>WMDSM</td></tr>
<tr><td>6</td><td>Dec. 05</td><td>Edits tracked</td><td>Accepted 2003 and 2004 edits; 2005 annual update</td><td>WMDSM</td></tr>
<tr><td>7</td><td>Feb. 08</td><td>No changes</td><td>Accept 2005 edits; annual review, no changes to text</td><td>WMDSM</td></tr>
<tr><td>8</td><td>Dec. 16</td><td>Edits tracked</td><td>Accepted 2008 and 2010 edits; 2016 annual update</td><td>WMDSM</td></tr>
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SECTION II - PART A

SECURE LANDFILL

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SECTION II - PART D

MATERIAL RECOVERY FACILITY

1. INTRODUCTION

This section of the Site Operations Manual describes general procedures, requirements, and methodologies to be utilized by site personnel in the operation of the Material Recovery Facility (MRF) at WMDSM. This section was developed based on site licenses, applicable regulations, and company policies and directives, and incorporates proven operations techniques. Copies of the applicable license(s) are maintained at the WMDSM Main Office. This manual reflects current operating procedures, and will be reviewed and updated to include any operational changes.

This facility processes Single Stream Recycling (SSR) recyclable materials such as, but not limited to, all grades of paper, plastic, tin cans, newsprint, magazines, and cardboard. These materials are generated by numerous towns, businesses, and industries in the State of Maine.

The Operations Supervisor oversees the operation of the MRF. Facility operators shall read this section and become familiar with all operating procedures. If any employee has questions concerning the contents of this section of the Site Operations Manual, they should contact their supervisor.

2. OPERATING HOURS

The MRF will primarily accept waste 5 days per week during site operating hours (refer to Section I – Part A). Any operations on Saturdays and Sundays would consist of sorting and bailing material already on the tipping floor. Qualified operations personnel may operate the MRF during operating hours, as needed.

3. SAFETY AND HEALTH

WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. Operations personnel are required to wear hard hats, high-visibility clothing, steel-toed boots, hearing protection, eye protection, and other proper protective equipment in accordance with the Personal Protective Equipment Plan when equipment (e.g., baler, skid steers, fork lifts) are operating. A first aid kit is available in the MRF. Section I - Part D of this Site Operations Manual discusses WMDSM's safety and health policies.

A CB and a two-way radio is used for communicating between the operator at the MRF and customers, the main office, scales, and other operations personnel. The Main Office and/or Scale House are equipped with phones that can be utilized to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. In the event of an accident the Operations Supervisor, or his/her designee, shall be contacted immediately and be provided a description of the accident and the extent of any injuries. A first aid kit is available in the MRF. Refer to Section I - Part E of this Site Operations Manual for detailed site emergency action procedures.

4. MRF OPERATIONS

4.1 Facility Layout and Utilities

With the Commercial Transfer Station (CTS) inactive since early 1999, the MRF operation has been relocated to the CTS building. The 8,000-square-foot transfer station building has a tipping floor and associated transfer trailer drive-through. Refer to Section II – Part B for more information pertaining to the CTS facility layout. The MRF tipping floor is located in the middle of the main portion of the CTS building, with the baler located on the west wall. Loose cardboard dumped on the tipping floor is handled and separated by equipment to the Southwest corner of the west wall as much as possible. The east wall of the tipping floor is used to handle and separate SSR material and cardboard bale storage. Operators utilize the toilet facility located on the second floor of the Maintenance Facility.

4.2 Acceptable and Unacceptable Waste

Should the facility operator have concerns regarding the acceptability of a particular waste, he/she will contact the Operations Supervisor and/or Site Manager for guidance. Refer to Section I – Part B of this manual for a description of acceptable and unacceptable waste. The facility operator will document unacceptable waste on the Random Inspection and Unacceptable Waste Log, provided in Appendix IB-B of Section I – Part B to this Site Operations Manual.

4.3 Standard Operating Procedures

4.3.1 Tipping Floor

The driver of the waste hauling vehicle is directed via radio by the scale attendant to unload at the tipping floor in the MRF. If the MRF operator is present, drivers must remain with their vehicle while loading/unloading. Unless absolutely necessary, helpers must remain in the cab of the vehicle while at the MRF for safety purposes. The driver will communicate with the facility operator before the helper is allowed to exit the vehicle. Operations personnel and/or the MRF operator will be notified by radio by the scale house attendant upon arrival of a truck to remove a shipment of loose or baled cardboard or SSR. The driver will be directed to the appropriate area for off-loading.

4.3.2 Sorting, Processing, and Baling

SSR materials and cardboard is dumped on the tipping floor and separated using equipment such as the loader and skid steer. SSR is temporarily stored at the Southeast corner of the east wall. Loose cardboard is loaded into the baler using the skid steer.

At times, plastic can be baled with other recyclables depending upon market demands.

Once the baler has reached maximum capacity, a buzzer will sound alerting the operator to cease filling operations. At this time, the bale is secured using five equally spaced wire bands on the bale and stored along the east wall for later shipment to market.

4.3.3 Storage

Bales of recyclable materials require proper storage. The CTS building is the designated storage area for outgoing processed recyclables. Materials can also be stored outside the CTS building, provided they are stored in a neat/orderly fashion, and covered with a secured tarp or within a box trailer to shed rain.

4.4 Equipment

The equipment used at the MRF consists of, but is not limited to, a front-end loader, a skid steer loader, forklift, and a single-ram horizontal baler. Daily mechanical inspections and routine scheduled preventative maintenance are performed on this equipment to ensure proper operation of the facility.

Operations personnel will load loose cardboard or SSR using a loader. Qualified operators will operate a fork-lift to load cardboard bales into the truck.

4.5 Wash Water Maintenance

The tipping floor has two floor drains (approximately 1 foot square) and the drive-through section has one floor drain (about 4 feet by 1 foot). These drains are covered with grates that allow only wash water to enter. The wash water flows from the drains via a 6-inch-diameter PVC pipe to an approximately 1,000-gallon holding tank located southwest of building. The tank is checked manually for high liquid level, as well as mechanically through an incorporated high-level sensor alarm. The liquid is pumped into the landfill leachate collection system as necessary and is managed at a licensed wastewater treatment facility.

4.6 End-Use

Several markets accept the processed recyclables. Appendix IID-A includes a listing of end-user facilities that recycle the material and the associated contractual expiration dates.

The quantity of processed recyclables is tracked based upon scale records. Shipments are scheduled to ensure recyclables do not accumulate beyond shelf life and/or storage capacity.

5. GENERAL SITE MAINTENANCE

5.1 Control of Litter

Partially full containers stationed on the pavement outside of the CTS building must be tarped during non-operating hours. These cans are used for recyclables or waste residuals that will be disposed of in the Secure Landfill. Bales of cardboard temporarily stored outside must also be tarped.

The overhead doors and the mandoor shall be closed after operating hours. Operations shall provide routine litter control as well as maintaining the cleanliness of the asphalt surface surrounding the facility.

5.2 Dust and Odor Control

WMDSM will continue to undertake suitable measures to control dust and odors whenever necessary. Operations sweeper is available to remove dust from asphalt surfaces as necessary. The frequent removal of putrescible waste limits odors.

5.3 Fire Protection

Fire extinguishers are located in the CTS building. Individual equipment utilized at the facility are also furnished with fire extinguishers. The Norridgewock Fire Department (NFD) is available upon request. The WMDSM water truck is also available as needed.

5.4 Vector Control

As necessary, WMDSM utilizes over-the-counter products, a third-party exterminator, and a local licensed trapper to manage potential vectors at WMDSM.

APPENDIX IID-A

END-USER FACILITIES

MATERIAL RECOVERY FACILITY

END-USER FACILITIES

FACILITY	WASTE TYPE	CONTRACT EXPIRES
Eco Maine 64 Blueberry Road Portland, ME 04102	Cardboard/SSR	Evergreen Contract
WM Recycle America 6255 Sheridan Drive Suite 412 Williamsville, NY 14221 716-626-7805	Cardboard	Open-ended

SECTION II - PART E

CONTAINER STORAGE AREA

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; 2008 annual review and update	WMDSM
8	Dec. 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
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SECTION II - PART E
CONTAINER STORAGE AREA

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SECTION II - PART E

CONTAINER STORAGE AREA

1. INTRODUCTION

WMDSM operates a licensed Container Storage Area (CSA) to facilitate the temporary storage of cans or trailers containing materials such as special waste, recyclables, demolition debris, and municipal solid waste while awaiting disposal or processing. Typical storage will include materials/wastes being accumulated for shipment off site, special waste streams awaiting disposal approval from the MDEP, and containers or trailers awaiting transportation to disposal facilities or markets.

This section of the Site Operations Manual describes general requirements for the operation of the CSA. This section was developed based on site licenses, applicable regulations, and company policies and directives. Copies of the applicable license(s) are maintained at the WMDSM Main Office. This section reflects current operations, and will be reviewed and updated at least annually to include any operational changes.

2. SAFETY AND HEALTH

WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. Operations personnel are required to wear high-visibility clothing, steel-toed boots, and other Personal Protective Equipment (PPE) while in the CSA. Requirements for PPE are the responsibility of the individual hauling companies that utilize the CSA. A first aid kit is furnished in all WMDSM hauling vehicles. Section I - Part D of this Site Operations Manual discusses WMDSM health and safety policies.

A CB and a two-way radio are used by drivers and personnel working in the CSA to communicate with other drivers, the Scale House, and other operations personnel. The Main Office and/or Scale House are equipped with phones that can be utilized to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. In the event of an accident, the Operations Supervisor, or his/her designee, shall be contacted immediately and provided a description of the accident and the extent of any injuries. Refer to Section I - Part E of this Site Operations Manual for detailed site emergency action procedures.

3. CONTAINER STORAGE AREA OPERATIONS

3.1 Facility Location

The CSA is currently located on the Phases 11 and 12 perimeter stability berms. A gravel pad was constructed on the stability berm in the southeast corner of Phase 11, adjacent to the perimeter access road, to allow temporary placement of containers or trailers containing waste and/or recyclables. Empty containers are placed along the Phase 11 and Phase 12 perimeter stability berms. Relocation of some of the empty containers from the perimeter berm of Phase 11 to the perimeter berm of Phase 12 was approved by MDEP in late 2007 and is intended to be a permanent change.

3.2 Acceptable and Unacceptable Waste

The CSA is designed to temporarily store containers and trailers that are either empty or that contain special waste, municipal solid waste, demolition debris, or recyclables that are awaiting disposal, transportation, or processing. Presently, asbestos waste cannot be stored in the CSA. Should WMDSM personnel have concerns regarding the acceptability of a particular waste, he/she will contact the Operations Supervisor and/or Site Manager for guidance. Refer to Section I – Part B of this Site Operations Manual for a description of acceptable and unacceptable waste. The Site Manager or Operations Supervisor will document unacceptable waste on the Random Inspection and Unacceptable Waste Log, provided in Appendix IB-B of Section I – Part B of this Site Operations Manual.

3.3 Approvals

Recyclables or wastes will only be stored in the CSA within the designated gravel pad limits and on a case-by-case basis. The Site Manager must approve any container or trailer to be placed in storage and notify the Operations Supervisor.

3.4 Storage Time Limits

Limits have been established for the maximum holding times for various types of materials. Special waste will be stored no longer than 90 days. Recyclables awaiting processing can be stored up to 45 days. Municipal solid waste and demolition debris will be stored no longer than 5 days.

3.5 Tracking Procedures

A system has been established to track the length of time a container or trailer of waste or recyclables has been in storage. It is the responsibility of operations staff to track storage times of recyclables, MSW, demolition debris, and special waste. In addition, MSW and demolition debris container or trailer storage times are tracked by Scale House records.

Norridgewock Hauling personnel will notify WMDSM upon receipt of waste or recyclables for storage in the CSA, and will oversee placement of each container in the CSA. A copy of the shipment record for special wastes will be maintained by WMDSM for documentation purposes. All MSW and demolition debris containers or trailers will be scaled prior to storage in the CSA, which provides a date on the scale record for storage time tracking purposes.

A magnetic placard is attached to each container or trailer containing MSW, special wastes, demolition debris, or recyclables stored in the CSA. The information displayed on this label will include the date storage began, the type of material (ash, oil spill debris, sludge, plastic, paper, metal, tin, cardboard, etc.), generator name (special waste only), and profile number (special waste only).

3.6 Inspections

The CSA will be inspected regularly. Any leaks or spills will be cleaned-up immediately and disposed of properly in accordance with the SWPPP, included as Section V of this Site Operations Manual.

4. GENERAL SITE MAINTENANCE

4.1 Control of Litter

Containers and/or trailers filled with waste that are temporarily stored in the CSA must be securely tarped to prevent wind-blown litter. WMDSM will conduct regular litter control inspections and maintain the cleanliness of the asphalt surface around the containers.

4.2 Dust and Odor Control

WMDSM shall undertake suitable measures to control dust and odors as necessary. Container and trailers filled with waste must be securely tarped to limit odors. WMDSM's water truck and sweeper are available to remove dust from asphalt surfaces, as necessary.

4.3 Fire Protection

The Norridgewock Fire Department (NFD) will be available upon request. The site water truck will also be accessible as necessary. Fire extinguishers are available in all WMDSM hauling vehicles.

4.4 Erosion Control

Operations personnel will periodically inspect the drainage swales adjacent to the container storage areas for erosion. The storage area is graded to limit the potential for concentrated stormwater runoff flows.

4.5 Vector Control

As necessary, WMDSM utilizes over-the-counter products, a third-party exterminator, and a local licensed trapper to manage potential vectors at WMDSM.

SECTION II - PART F

WOODWASTE FACILITY

REVISION BLOCK

REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 1999	All	1999 annual update	pfb/sam
1	April 2000	all	2000 update	IVS(GZA)
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; annual review and update	WMDSM
8	Dec. 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
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WOODWASTE FACILITY

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SECTION II - PART F

WOODWASTE FACILITY

1. INTRODUCTION

This section of the Site Operations Manual describes general procedures, requirements, and methodologies to be utilized by site personnel in the daily operation of the Woodwaste Facility (WWF) at WMDSM. This section was developed based on site licenses, applicable regulations, and company policies and directives, and incorporates proven operations techniques. Copies of the applicable license(s) are maintained at the WMDSM Main Office. This section reflects current operating procedures, and will be reviewed and updated at least annually to include any operational changes.

The Operations Supervisor oversees the operation of the WWF. Facility operators shall read this section and become familiar with all operating procedures. If any employee has questions concerning the contents of this section, they should contact their supervisor. A copy of the Site Operations Manual is located at the Main Office.

2. OPERATING HOURS

The WWF will primarily accept waste 5 days per week during site operating hours (refer to Section I – Part A). Operations on Saturdays and Sundays may be considered to accommodate customers on an as-needed basis. Qualified personnel will be available to operate the WWF during operating hours, as necessary.

3. SAFETY AND HEALTH

WMDSM operations personnel will complete their work in accordance with WMDSM and WM safety and health policies and procedures. Operations personnel entering the WWF are required to wear high-visibility clothing, steel-toed boots, hard hats, and other Personal Protective Equipment (PPE). Requirements for PPE are the responsibility of the individual hauling companies that utilize the WWF. First aid kits are furnished in all WMDSM vehicles. Section I - Part D of this Site Operations Manual discusses WMDSM's health and safety policies.

A CB and a two-way radio are used for communicating between the operator at the WWF and the customer, the main office, scales, and other operations personnel. The Main Office and/or Scale House are equipped with phones that can be utilized to contact the police, fire department, emergency medical services, MDEP, and/or the Town Office should an emergency occur. In the event of an accident, the Operations Supervisor or his/her designee, shall be contacted immediately and be provided a description of the accident and the extent of any injuries. Refer to Section I - Part E of this Site Operations Manual for detailed site emergency action procedures.

4. WOODWASTE FACILITY OPERATIONS

4.1 Facility Access

Access to the WWF is controlled to ensure the public is not exposed to potential safety hazards. Transfer vehicles carrying the woodwaste product utilize the Route 2 entrance. From the Scale House, haulers will be directed to the WWF, located immediately north of the Phase 9 Secure Landfill on the paved Phase 9 truck-turnaround area. Once the vehicles unload, they will return to the scales to be weighed out.

4.2 Acceptable and Unacceptable Waste

Refer to Section I – Part B of this Site Operations Manual for a description of acceptable and unacceptable waste. Note that treated wood (such as pressure treated or creosote treated) is an unacceptable waste at the WWF. Treated wood is landfilled at active landfill. Should the facility operator have concerns regarding the acceptability of a particular waste, he/she will contact the Operations Supervisor and/or Site Manager for guidance. The facility operator will document unacceptable waste on the Random Inspection and Unacceptable Waste Log, provided in Appendix IB-B of Section I – Part B.

4.3 Standard Operating Procedure

The woodwaste product entering the site will be inspected by operations personnel to assure the material is acceptable. The material will be unloaded into stockpiles with a minimum 30-foot fire lane between piles. Stockpiles should be no larger than approximately 80 feet by 200 feet. See below for the requirements for a fire buffer strip to be maintained between the woodpiles and any perimeter treeline.

The woodwaste is intended to be used as a storage area until a sufficient quantity of wood is available for chipping. Typically, a contractor with a mobile chipper is retained to process (chip) the woodwaste. Wood chip product is typically shipped to an off-site end user as the processing progresses.

4.4 Equipment

The equipment utilized at the WWF includes, but is not limited to, front-end loaders and pulp loaders. A contractor with a mobile chipper/grinder will be retained periodically once a sufficient volume of woodwaste has been received. The grinder may be relocated closer to some of the woodwaste piles to better facilitate processing.

4.5 Quality Control

If woodwaste is processed on the site, the Operations Supervisor or designee will periodically visually inspect the wood chip product and remove any unacceptable material. WMDSM retains a third party as needed to obtain a sample for testing to ensure that the wood chips meet specifications established by the end user.

4.6 Storage Time

Woodwaste should not be stored longer than approximately one year. Processed wood/wood chip product is typically shipped off site as processing progresses.

5. GENERAL SITE MAINTENANCE

5.1 Site Maintenance

The WWF will be maintained annually. If the area consists of a gravel pad, maintenance will consist of removing the top layer of sand and gravel, as well as unsaleable chip to prevent build-up. The current operation is located on an asphalt surface and is maintained by routinely removing unsaleable chip product and debris using a front-end loader and sweeper. This material is approved for use as Alternative Daily Cover in the e active landfills.

5.2 Fire Prevention/Protection

Operations personnel will regularly monitor the WWF to identify any potential for fires. In accordance with the WWF license (#S-010735-WD-WP-M, dated April 5, 2007), a minimum 50-foot-wood buffer strip, consisting of a 25-foot-wide asphalt strip and a 25-foot-wide grass strip, will be maintained around the woodwaste storage and processing area. WMDSM's operating equipment is equipped with fire extinguishers. The Norridgewock Fire Department will be available upon request, should a fire occur. Soil material is also available to suppress a fire if necessary. The WMDSM water truck is also available as needed.

5.3 Dust Control

WMDSM will utilize its water truck to suppress dust as necessary.

5.4 Erosion Control

Runoff from the area is directed to the sitewide stormwater management system.

SECTION II - PART G

TIRE PROCESSING FACILITY

REVISION BLOCK

REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	Sept. 00	New	Submitted for regulatory review as part of permit application for Tire Processing Facility	ivs(GZA)
1	Dec. 01	All	Tire Processing Facility constructed in 2001; section added with 2001 annual update	WMDSM
2	Dec. 02	All	2002 annual update	WMDSM
3	Dec. 03	Rev. block only	2003 annual review and update	WMDSM
4	Dec. 04	Rev. block, TOC, figures	2004 annual review and update	WMDSM
5	Sept. 05	All – revisions tracked	Minor revision to enlarge processing area and pave additional areas to accommodate a secondary shredding operation that will produce tire-derived fuel	WMDSM/ BDS
6	Dec. 05	Rev. block only	Accept Sept. 05 edits; annual review – no changes	WMDSM
7	Feb. 08	Page 1	2008 annual review and update	WMDSM
8	Apr. 10	All – revisions tracked	2010 annual review and update	WMDSM/ BDS
9	Feb. 13	All – revisions tracked	2012 annual review and update	WMDSM/ BDS
10	Oct. 13	All – revisions tracked	Minor revision to add second TDF shredding operation, 12,000 sq. ft. of additional pavement and a 455kw generator	WMDSM/ BDS
11	June 14	All – revisions tracked	Minor revision (variance) to increase TDF pile height from 10' to 15'	WMDSM/ BDS
12	July 14	All – revisions tracked	Add Figure IIG-6	WMDSM/ BDS
13	Feb. 16	All – revisions tracked	2016 annual review and update	WMDSM/ BDS
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TIRE PROCESSING FACILITY

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SECTION II - PART G

TIRE PROCESSING FACILITY

1. INTRODUCTION

This Operations Manual describes general procedures, requirements, and methodologies to be utilized by WMDSM and independent contractor personnel in the operation of the Tire Processing Facility (TPF) at WMDSM. The TPF is located along and accessed from the main site access road in the vicinity of the Leachate Storage Tank Facility and the construction access road (constructed in 1999) to access the infiltration basins and soil borrow areas. The facility is operated by a qualified independent contractor to produce tire shreds to be shipped off-site for reuse as construction material or fuel, or reused on site as construction material as approved by the MDEP. This operations manual was developed based on standard operating procedures, general site practices, and applicable regulations.

The TPF Supervisor will be a qualified independent contractor and will oversee the operation of the TPF. The TPF Supervisor will operate the facility in a safe manner and in accordance with acceptable site practices. TPF personnel shall read this manual and become familiar with operating procedures. If any employee has questions concerning the contents of this operations manual they should contact their immediate supervisor. A copy of this operations manual will be located at the WMDSM Main Office.

2. OPERATING HOURS

Incoming scrap tires for the TPF will primarily be accepted 5 days per week during WMDSM site operating hours (See Section I – Part A of this Site Operations Manual). The TPF will typically operate Monday through Friday, 6:00 a.m. to 9:00 p.m. Operations after hours and/or on Saturdays and Sundays may be considered to accommodate incoming tire seasonal increases or off-site facility operations for which materials are being supplied. Qualified personnel will be available to operate the TPF during all operating hours.

3. SAFETY AND HEALTH

TPF operations personnel will complete their work in accordance with the safety and health policies of WMDSM or the independent contractor, as applicable. Prior to initiating work on the WMDSM site, all subcontractor on-site personnel will complete WMDSM site orientation. The orientation will address site safety and health policies, emergency response procedures, accident response and reporting procedures, right to know policies, and erosion and sedimentation control practices.

Personnel assigned to the TPF will complete their work in accordance with WMDSM and WM safety and health policies and procedures. All personnel entering the TPF are required to wear steel-toed boots, hard hats, high-visibility clothing, and proper eye protection and other appropriate protective clothing. At a minimum, independent contractor personnel shall wear steel-toed boots, hard hats, high-visibility clothing, as well as any other protective clothing (e.g., hearing protection, eye protection, and work gloves) required per their company policy.

Material Safety Data Sheets (MSDS) for on-site materials, including waste streams as applicable, for the TPF will be incorporated into the facility MSDS notebooks. If the TPF is operated by an independent contractor, the contractor shall maintain applicable MSDS in a notebook kept at the TPF. Copies of the MSDS sheets shall be provided to WMDSM.

Equipment operating on the site shall be furnished with first aid kits. A cellular phone or two-way radio will be used for communicating between the TPF, the main office, scales, and other site operations personnel. The Main Office and/or Scale House are equipped with phones that can be utilized to contact the police, fire department, and/or emergency medical services. BDS has an AED located in the BDS office container. BDS personnel have been trained in the proper use of this device.

4. TIRE PROCESSING FACILITY OPERATIONS

4.1 Facility Access

Access to the TPF is controlled to ensure the public is not exposed to potential safety hazards. Transfer vehicles carrying raw tires will utilize the Route 2 entrance. From the scales they will be directed to the TPF for unloading. Access to the processing area will be by a paved road network. Once the vehicles unload, they will return to the scales to be weighed out.

4.2 Acceptable and Unacceptable Waste

Refer to Section I – Part B of this Site Operations Manual for a description of acceptable and unacceptable waste.

The facility will receive roll-off containers, live-floor trailers, and/or individual truckloads of scrap tires, rough tire shreds and acceptable rubber materials resulting from the removal and replacement of automobile, truck, and equipment tires.

Non-tire waste streams will not be accepted at the TPF. Screening for unacceptable wastes will commence at the site of generation. TPF personnel will inspect incoming loads. If load inspection reveals unacceptable materials, the load will be rejected and the hauler will be directed to return the load to the site of generation. If an employee is in doubt about the acceptability of a load, the material will not be unloaded until the employee has received direction from the TPF supervisor.

4.3 Standard Operating Procedures

The TPF will be equipped to produce both Type B tire shreds and smaller (1½-inch and 2-inch) Tire-Derived Fuel (TDF) via a single- or two-stage process, each process consisting of a series of shredder(s), a classifier and conveyors. The larger Type B tire shreds will be produced by a single series of shredders. TDF will be produced from Type B shreds by running the shreds through one of two separate secondary shredding processes producing either 1½-inch or 2-inch chips. The three shredding operations are located within a single paved process area within the TPF. A plan depicting the layout of the TPF is attached as Figure IIG-1.

As raw material is received, any required manifests will be obtained. Copies of the manifests shall be maintained on the site, either by WMDSM at the site scales or by the independent operator at the TPF.

The raw material will be unloaded in a staging area located immediately adjacent to the Type B processing operation or into adjacent raw tire stockpile(s). Raw tire stockpile(s) will be no more than 5,000 square feet (sf) in area, with a maximum height of 10 feet. Tires placed in the staging area will be shredded during that operating day or will be placed in a raw tire stockpile before the end of the operating day.

Prior to being fed into the Type B processing equipment (first series of shredders), rims, and tubes are removed, as needed. Tires are cleaned of dirt and debris to the extent practicable without the use of water. Automobile tires, truck tires and off-the-road (OTR) tires are sorted and placed in segregated piles.

From the staging area or raw tire stockpile, scrap tires or rough tire shreds will be fed into the Type B mobile processing equipment. A sketch depicting the typical layout of the Type B tire processing equipment is attached as Figure IIG-2. Whole tires are fed onto an 8' conveyor that conveys the material into the first of three shredders. Shreds from the first shredder are discharged onto a belt conveyor that discharges into a second shredder. Rough shredded tires are fed onto a belt conveyor that discharges into a second shredder. Shreds from the second shredder are discharged onto a belt conveyor that discharges into a third shredder. Shreds discharged from the third shredder are moved by conveyor belt to a sizing apparatus. The sizing apparatus separates the properly sized Type B shreds and oversized shreds. Oversized shreds are conveyed back to the second shredder for reprocessing. To maintain blade and equipment life, all Type B shredders are equipped with water misting systems that, during non-freezing weather, can be used to moisten the incoming material. Water for the misting systems will be provided by an on-site non-potable water well. The final product produced by the first shredding operation will meet the requirements for Type B shreds.

Tires that are delivered to the TPF in box trailers or box trucks are unloaded by hand by BDS employees. Using an excavator, the tires are placed onto the 8' conveyor to be shredded by the Type B processing system. Truck tires and automobile tires are shredded separately. If automobile tires are being shredded when the scrap tire trailer is being unloaded, the scrap tires are fed directly onto the 8' conveyor. This process is reversed if truck tires are being shredded when the box trailers/trucks are being unloaded. Smaller OTR tires are sheared and then fed into the Type B processing system. Larger OTR tires are sheared and marketed for civil engineering projects.

Some of the Type B shreds produced by the first shredding operation will be utilized to produce TDF, using one of the two TDF shredding operations. Sketches depicting the layout of the TDF processing equipment are attached as Figures IIG-3 and Figures IIG-4. Type B shreds will be fed into TDF feed bins which will be discharged on rubber belt conveyors where the Type B shreds are inspected and the Type B shreds are conveyed into one of the TDF shredders, which will discharge onto a belt conveyor that discharges into a sizing apparatus. The sizing apparatus will separate the properly sized TDF and oversized shreds. Oversized shreds are conveyed back to the shredder of the TDF shredding operation for reprocessing. To maintain blade and equipment life, the TDF shredders are equipped with water misting systems that, during non-freezing weather, can be used to moisten the incoming material. Water for the misting system will be provided by an on-site non-potable water well. The final product produced by the second (TDF) shredding operation will meet the requirements for TDF (either 1½-inch or 2-inch chip).

Proper sized shreds (Type B or TDF) are conveyed to a discharge area of each shredding operation where they will be loaded onto trucks for transport off-site or placed via front-end loader into the TDF shredding operation or a processed tire stockpile. Individual processed tire stockpiles (Type B shreds or TDF) will not exceed 10,000 sf in area or have a height in excess of 10 feet for Type B shreds or 15 feet for TDF.

TDF shreds are stockpiled on an as-needed basis, on a paved storage area located between the easterly perimeter berm of Phase 11 landfill and the main site access road (see Figure IIG-5). Up to two 10,000 sq. ft. piles can be stockpiled at this location (separated by 35 feet). The stockpiles will be limited to 15 feet in height.

The tire shreds (Type B or TDF) will not be mechanically compacted in the stockpiles to reduce the risk of fire. Furthermore, temperatures are taken weekly from the TDF stockpiles and recorded. Fixed temperature monitoring probes are installed in each stockpile located in front of Phase 11 landfill. Three probes are installed approximately 42 feet apart in the 2-inch TDF stockpile and four probes are installed approximately 44 feet apart in the 1.5-inch TDF stockpile (see Figure IIG-6). Temperatures are measured in the center, at varied depths (i.e., 5, 10 and 12.5 feet deep). Manual temperatures will be taken from the TDF stockpiles located at the TPF (at varied locations and depths) when pile height exceeds 10 feet. If a reading exceeds 100 degrees F in a stockpile, readings shall be taken daily and recorded until the temperature readings return to 100 degrees F or less for two consecutive readings. If any temperature reading exceeds 150 degrees F, the stockpile will be turned over and aerated to reduce the highest core temperature to 100 degrees F or less.

Tire stockpiles (raw or processed) will be separated by 35-foot-wide gravel or paved (mineral) strips. The exterior edge of the stockpiles will be located at least 50 feet from the adjacent edge of woods. A truck access corridor at least 30 feet wide will be maintained by the TPF operator to the infiltration basins/soil borrow area and around the edge of the gravel pad.

4.4 Equipment

The equipment utilized at the TPF will be provided and maintained by the TPF operator.

4.5 Quality Control

The TPF supervisor will periodically inspect the tire shred product to ensure that it meets the specifications established for its end use.

4.6 Storage Times

Raw tires will generally be stored for less than a month. Processed tire shreds may be stored longer than a few months, but should not be stored for more than approximately two years or as approved by the MDEP.

5. GENERAL SITE PROCEDURES

5.1 Site Maintenance

The paved and gravel surfaces of the processing and storage areas will be maintained by the TPF operator as needed to limit migration of sediment into the erosion control structures and to limit tracking of soil and stones from unpaved areas to the processing area.

Maintenance of gravel surfaces will consist of raking the gravel surface to remove tire shreds or other material. The removed material will be replaced with clean sand and gravel, as appropriate. Material removed will be hauled by the TPF operator to a WMDSM secure landfill and stockpiled as directed by the

WMDSM's Operations Supervisor. Paved areas will be swept as needed to limit deleterious material from mixing with the raw or finished product.

5.2 Fire Prevention/Protection/Extinguishment

TPF and WMDSM operations staff will regularly monitor the tire processing and storage areas to identify any potential for fires.

All operating equipment shall be equipped with fire extinguishers. The Norridgewock Fire Department will be available should a fire occur. Soil material is also available to suppress a fire if necessary. The WMDSM water truck is also available as needed. Additional details are provided in BDS's Fire Prevention & Fighting Plan. The Norridgewock Fire Department reviewed the Fire Prevention & Fighting Plan in May of 2014 and approved an increase in the maximum height of TDF piles to 15 feet based on the availability of firefighting resources.

5.3 Dust Control

TPF personnel will utilize WMDSM's water truck to suppress dust as necessary.

5.4 Erosion Control

The paved and gravel surfaces in the processing and storage areas will limit erosion and sedimentation. Runoff from the processing and storage areas is routed to erosion control structures.

5.5 Vector Control

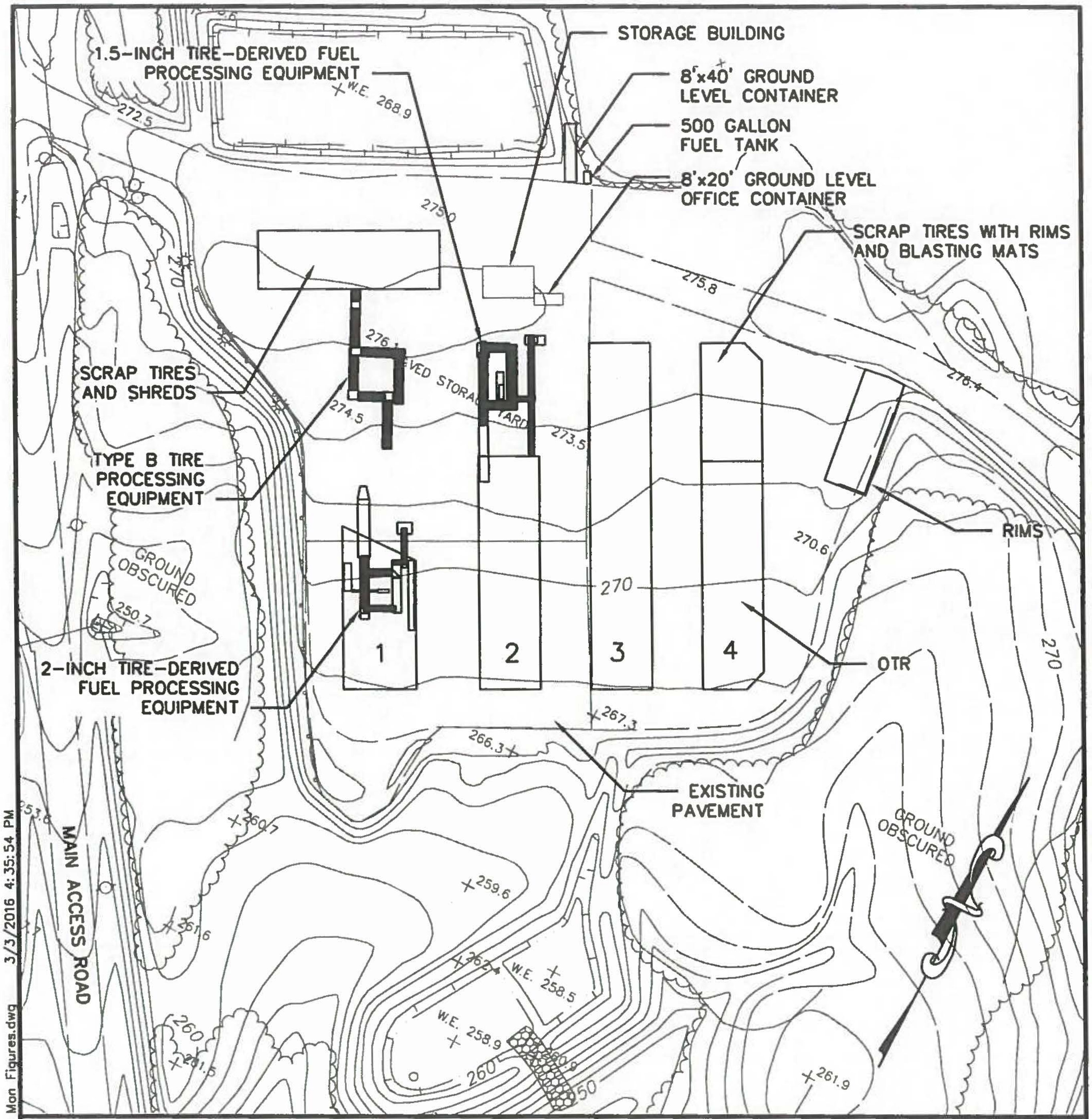
As no putrescible waste will be handled or stored as part of the tire processing operation, vectors are not anticipated to pose a problem. If vector issues arise, appropriate measures will be taken to control the problem.

5.6 Housekeeping

TPF personnel will practice good housekeeping procedures. This includes litter control, proper storage of by-products (such as rims), proper equipment maintenance procedures, maintaining access corridors, and maintaining acceptable stockpile conditions.

FIGURE IIG-1

Site Plan



SITE PLAN

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

St.Germain▪Collins

FIGURE
IIG-1

100 0 50 100 200
SCALE IN FEET
1"=100'

DATE: 01/25/2016 | SCALE: 1"=100' | PROJECT NO.: 3264.1 | FILE: 3264 Ops Man Figures

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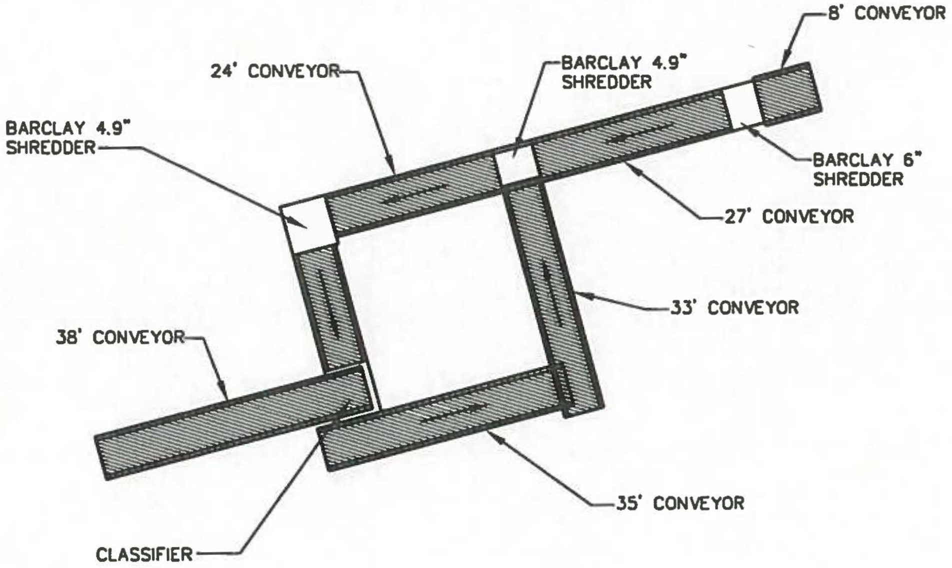
FIGURE IIG-2

Type B Tire Processing Equipment Layout



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TYPE B TIRE PROCESSING EQUIPMENT LAYOUT

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

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FIGURE
IIG-2

DATE: 07/07/2014 | SCALE: 1"=25' | PROJECT NO.: 3264.1 | FILE: 3264 Pro. Equip 021216

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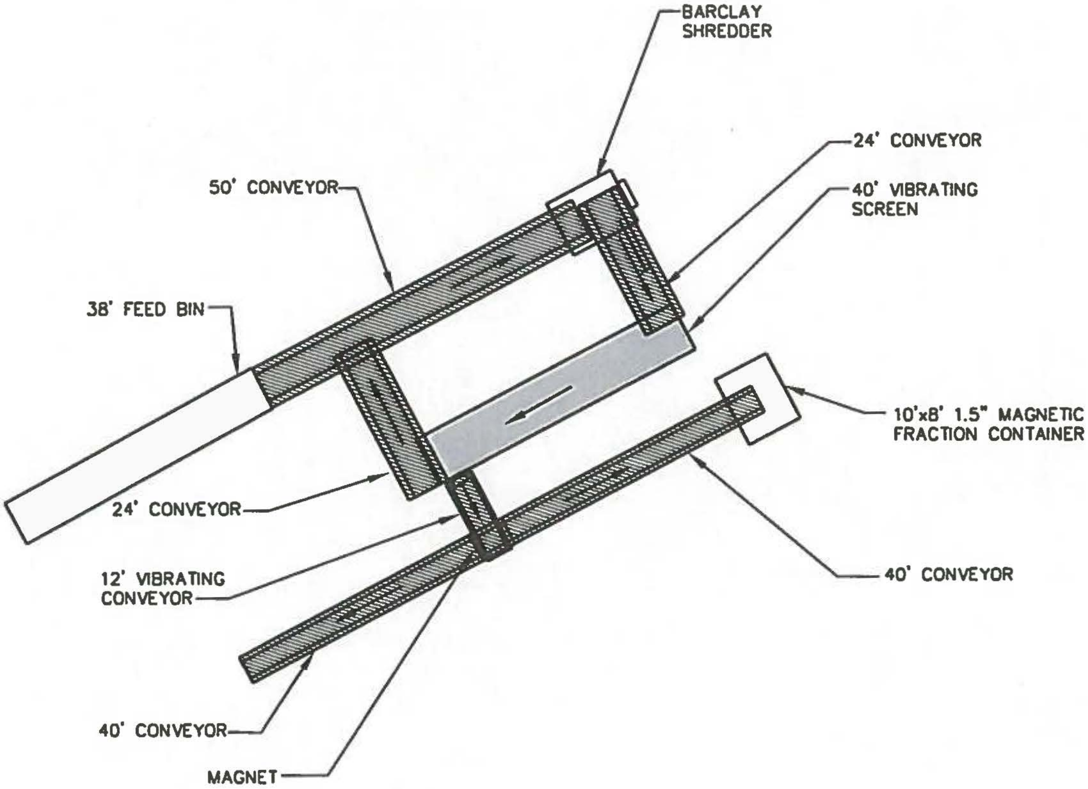
FIGURE IIG-3

1½-Inch Tire-Derived Fuel Processing Equipment Layout



1½-INCH TIRE-DERIVED FUEL PROCESSING EQUIPMENT LAYOUT

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

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FIGURE
IIG-3

DATE: 07/07/2014 | SCALE: 1"=25' | PROJECT NO.: 3264.1 | FILE: 3264 Pro. Equip 021216

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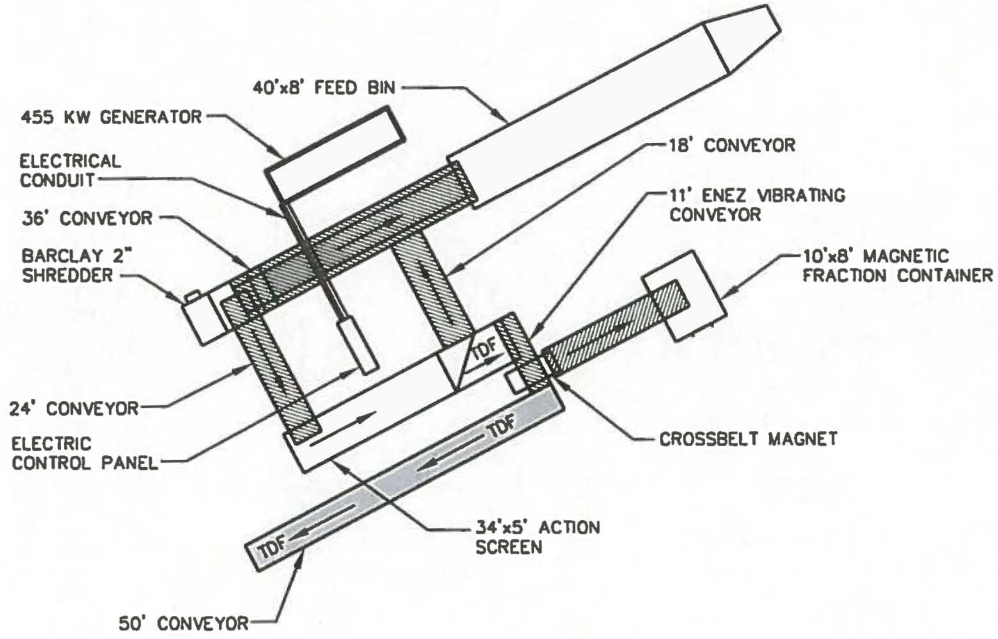
FIGURE IIG-4

2-Inch Tire-Derived Fuel Processing Equipment Layout



2-INCH TIRE-DERIVED FUEL PROCESSING EQUIPMENT LAYOUT

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

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FIGURE
IIG-4

DATE: 07/07/2014 | SCALE: 1"=25' | PROJECT NO.: 3264.1 | FILE: 3264 Pro. Equip 021216

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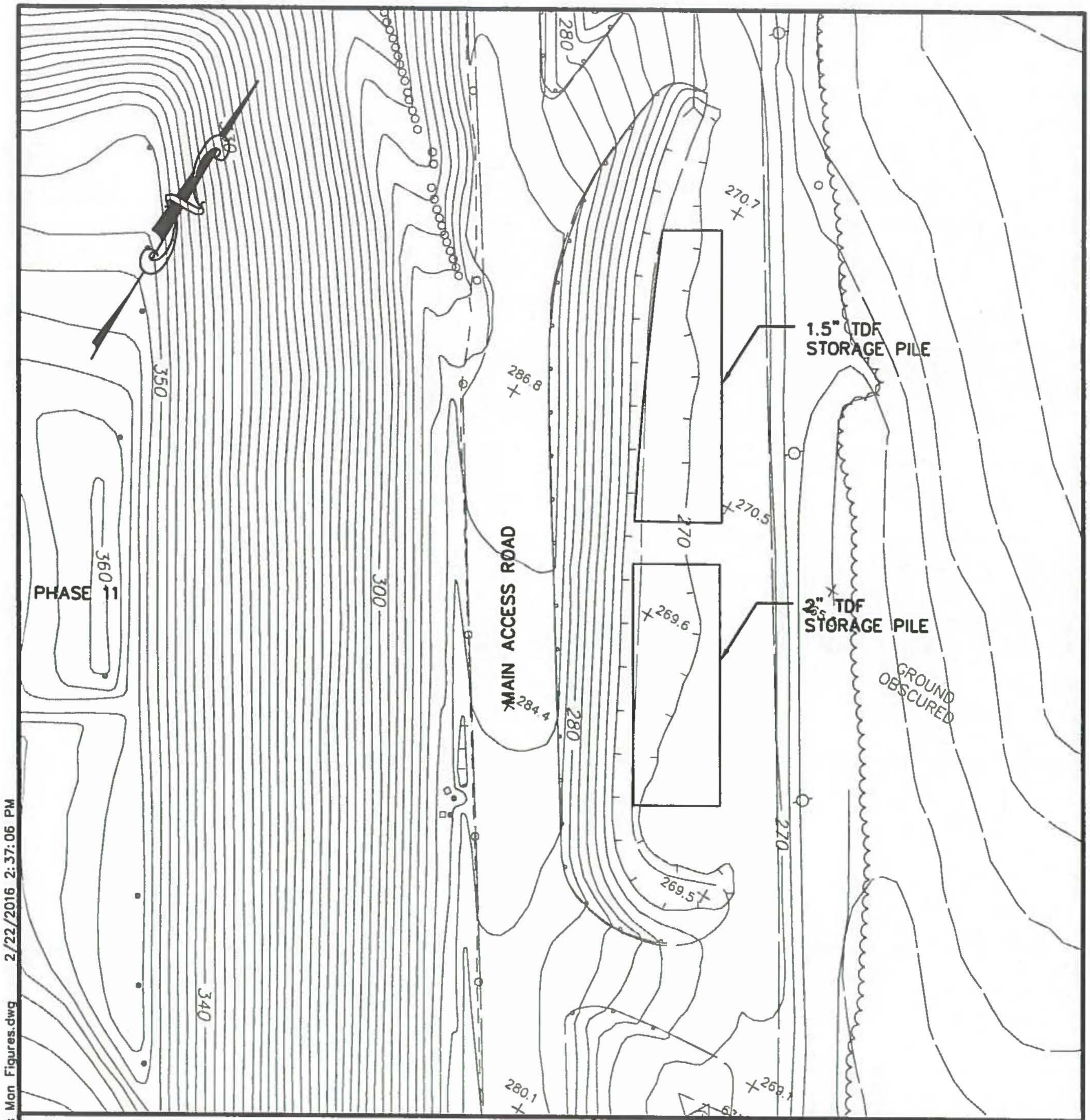
FIGURE IIG-5

Tire-Derived Fuel Supplemental Storage Area



100 0 50 100 200

SCALE IN FEET
1"=100'

TIRE-DERIVED FUEL SUPPLEMENTAL STORAGE AREA

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

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FIGURE
IIG-5

DATE: 01/28/2016	SCALE: 1"=100'	PROJECT NO.: 3264.1	FILE: 3264 Ops Man Figures

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FIGURE IIG-6

TDF Supplemental Storage Area Temperature Monitoring Probe Location Plan

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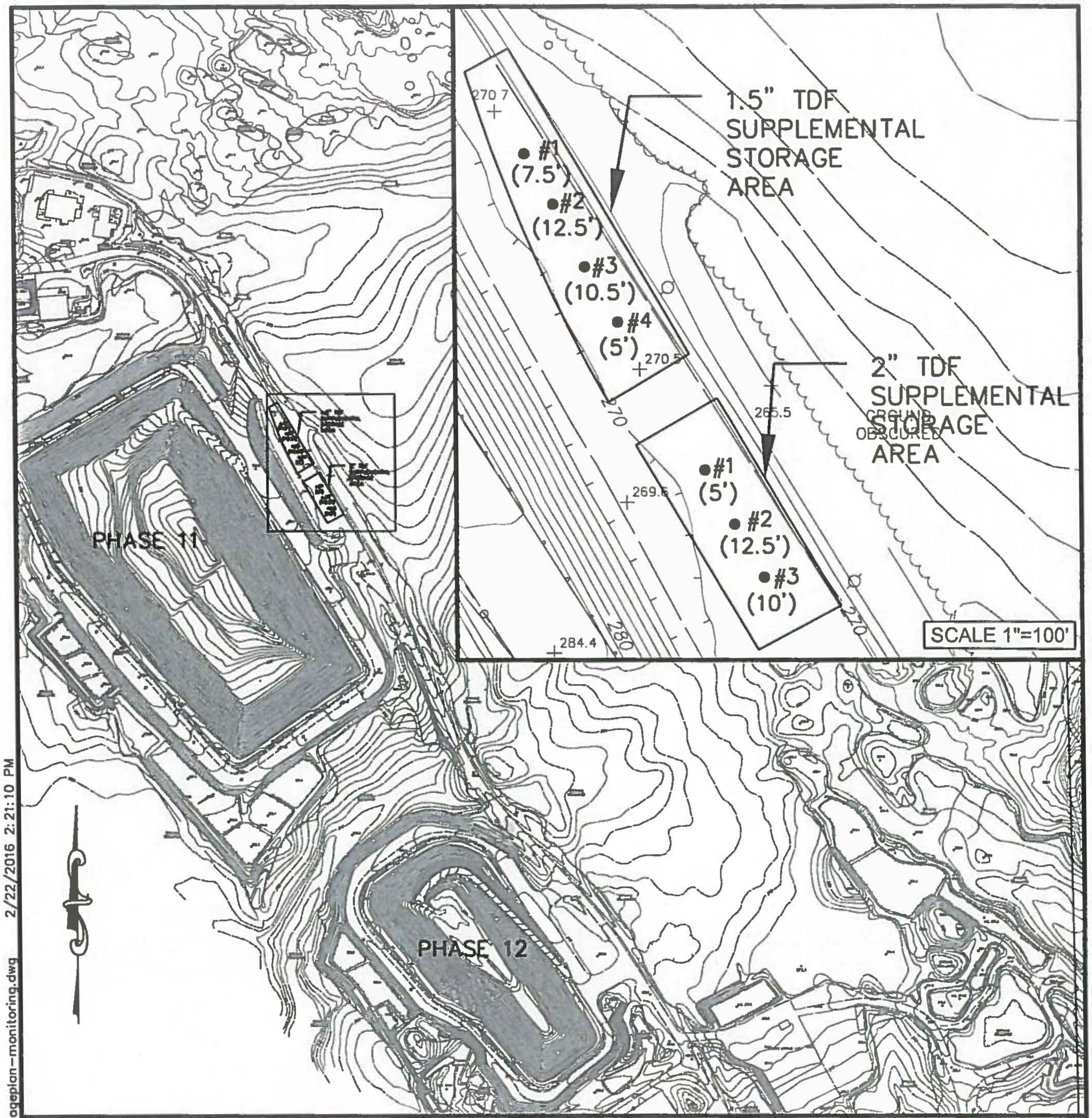

- ● #1 (7.5') TEMPERATURE MONITORING LOCATION (DEPTH INTO PILE)

TDF SUPPLEMENTAL STORAGE AREA TEMPERATURE MONITORING PROBE LOCATION PLAN

TIRE RECYCLING FACILITY
357 MERCER ROAD
NORRIDGEWOCK, MAINE

BDS WASTE DISPOSAL, INC.
PO BOX M
CORINNA, ME 04928

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FIGURE
IIG-6

DATE: 07/07/2014	SCALE: 1"=500'	PROJECT NO.: 3264.1	FILE: 3264_storageplan-monitoring	846 MAIN ST., WESTBROOK, ME 04092 TEL: 207-591-7000 WWW.STGERMAINCOLLINS.COM

SECTION III

LEACHATE MANAGEMENT PLAN

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update	pfb/sam
1	April 00	Refer to TOC*	Response to MDEP comments on Rev. No. 0, annual update	IVS(GZA)
2	Aug. 01	Edits Tracked	Updated to include Phase 9, including underdrain wet well	WMDSM/GZA
3	Dec. 01	All	2001 annual update	WMDSM/GZA
3A	Feb. 02	Section 7.1.2, App. III-C	account for flows in landfill gas condensate line; correct and clarify Form 8 in Appendix III-C	WMDSM/GZA
4	Oct. 02	Edits Tracked	Updated to include Phase 12	WMDSM/GZA
4A	Dec. 02	All	October 2002 edits accepted for submittal with 2002 annual update	WMDSM
5	Oct. 03	Edits accepted	Updated for infrastructure changes associated with and to include Phase 8A	WMDSM/GZA
5A	Dec. 03	Edits accepted	Reviewed and updated main text and updated response action language	WMDSM/GZA
6	Sept. 04	Edits tracked	Accepted Dec. 03 edits, tracked edits w/rt Phase 8B	WMDSM/GZA
7	Dec. 05	Edits tracked	Accepted Sept. 04 edits; tracked edits w/rt Phase 8C', 2005 annual review and update, and addressing MDEP comments on Dec. 2004 operations manual update	WMDSM/GZA
8	Feb. 08	No changes	Accept 2005 edits; annual review; no changes	WMDSM
9	Dec. 16	Edits Tracked	Added site-wide leachate collection and disposal systems upgrade information	WMDSM
	* "TOC" refers to the Table of Contents			

SECTION III

LEACHATE MANAGEMENT PLAN
TABLE OF CONTENTS

APPENDICES

SECTION III
LEACHATE MANAGEMENT PLAN

1. PURPOSE

The purpose of this Leachate Management Plan (LMP) is to establish standard operation and maintenance procedures for the collection, handling, storage, sampling, minimization, and disposal of leachate generated at the Waste Management Disposal Services of Maine (WMDSM), Inc. - Crossroads Landfill in Norridgewock, Maine.

1.1 Supporting Documents

Several other site documents support this LMP. These documents include but are not limited to the following:

Record Documents

- Leachate Storage Tank Project;
- Asbestos Landfill Closure and Toe Drain Construction;
- Phases 1-6 Landfill Construction;
- Phase 7 Landfill Construction;
- Phase 10 Landfill Construction;
- Phase 11A Landfill Construction;
- Phase 11B&C Landfill Construction;
- Phase 9 Landfill Construction;
- Phase 12 Landfill Construction;
- Phase 8A Landfill Construction;
- Phase 8B Landfill Construction; and
- Phase 8C' Landfill Construction.

Technical Information

- Leachate PLC SCADA System Manual;
- Instrumentation-Operational and Maintenance Manuals (2 Volumes);
- AQUASTORE Tank Systems - Operation and Maintenance Manual;
- Leachate Transfer Pump - Engineering Document Package;
- Vortex Mixing System - Operating and Maintenance Manual;

- Swing Check Valve - Manufacturer's Literature;
- Pump Station Pumps - Operation & Maintenance Manual; and
- Valves - Operation & Maintenance Manual.

The Crossroads Landfill maintains copies of these documents at the site.

2. SCOPE

The Crossroads Landfill is owned and operated by Waste Management Disposal Services of Maine, Inc. (WMDSM). The facility is located off Mercer Road (Route 2) approximately two miles west of downtown Norridgewock. The following operations generate leachate at the Crossroads site:

- Asbestos Landfill;
- Secure Landfill (Phases 1-6);
- Secure Landfill (Phase 7);
- Secure Landfill (Phase 10);
- Secure Landfill (Phase 11);
- Secure Landfill (Phase 9);
- Secure Landfill (Phase 12);
- Secure Landfill (Phase 8, Cells A, B, and C');
- Commercial Transfer Station (currently being used for the Material Recovery Facility (MRF));
- Material Recovery Facility (MRF) (recycling activities are currently housed in the Commercial Transfer Station building); and
- Maintenance Facility.

Site personnel are to use the procedures found in this LMP in conjunction with State and Federal regulations as well as company policy to assure that landfill leachate is managed properly.

3. RESPONSIBILITIES

Site Manager (District Manager): The Site Manager is responsible for ensuring that operations relative to leachate management are performed in accordance with this LMP.

Operations Supervisor (Operations Manager): The Operations Supervisor is responsible for ensuring the facility complies with the LMP. The Operations Supervisor or his/her designee interfaces with the treatment facilities, schedules the necessary tank trucks required to manage leachate quantities, collaborates with technician's routine inspections, and ensures observed deficiencies are corrected in a timely manner.

Sr. Leachate Technician: The Sr. Leachate Technician is responsible for the daily function of the leachate collection and disposal system, The Sr. Leachate Technician reviews data reported daily by the system and prioritizes necessary maintenance and repairs with the Operations Supervisor. The Sr. Leachate Technician performs preventative maintenance, installs new replacement equipment, conducts repairs, and coordinates third party systems integrators. Mandatory inspections to ensure that the system is operating properly are documented through the WM CYCLE program. District Engineer: The District Engineer coordinates leachate sampling activities tri-annually and reports results to the MDEP, Town of Norridgewock, and leachate treatment facilities. The District Engineer supports the Operations regarding management of the leachate collection and disposal system. Leachate Technician: The leachate technician performs repairs on the leachate collection and disposal system and related equipment. Leachate Technician will also conduct preventive maintenance checks and periodic services on the leachate handling equipment.

4. SITE DESCRIPTION

The Asbestos Landfill toe drain and leachate collection systems collect leachate from the individual landfill areas. Pump stations, forcemains, and gravity lines carry the leachate to the West Central Pump Station, with the exception of Phases 11 and 12, which flow by gravity to South Central Pump Station. West Central Pump Station also pumps into South Central Pump Station. South Central Pump Station then pumps the liquid to the Leachate Storage Tank Facility. A third party transports the temporarily stored leachate to an approved treatment facility.

An automated, integrated Supervisory Control and Data Acquisition (SCADA) system consists of a main computer program (designated computer at the main office) and multiple local logic controllers. SCADA electronically monitors and controls, individual leachate pump vaults, pump stations, and alarm conditions using serial radios and repeaters (located on Phase 8 and Phase 12) to communicate with local PLC's. The local program logic controllers (PLC's) monitor the leachate levels in the landfill sumps and pump stations using bubbler systems or pressure transducers, operate the pumps, monitor flowmeters, and communicate with the PLC at the Leachate Management Control building located adjacent to the Leachate Storage Tank Facility.

Back-up semi-automated mechanical (e.g., EG Control floats/level switches) systems are maintained in the Phase 7, 8A, 8B, 8C', 9, 10, 11, and 12 landfill sumps, as well as South Central Pump Station, West Central Pump Station, Pump Station E, and Asbestos Pump Station. Liquid levels in the wet wells, located in the vicinity of West Central Pump Station, are monitored using floats/level switches only. The control system is described further in Subsection 5.0 of this plan.

Appendix III-A provides an overview of the leachate collection system. Specific details of the system, such as pipe alignments and cleanout locations, are included in the record drawings maintained at the main office. A brief description of the leachate collection system follows.

4.1 Asbestos Landfill and Pump Station

This 4.5-acre attenuation landfill ceased operations in December 1992. Final capping was completed in 1994 and the post closure period began January 1, 1995. Leachate is collected in a perimeter toe drain system on four sides of the landfill and is conveyed to the Asbestos Pump Station, located at the southwest corner of the Asbestos Landfill. The Asbestos Pump Station conveys the leachate through 8/14-inch double-walled HDPE leachate transfer piping (installed as part of Phase 9 and Phase 8A construction in 2001 and 2003, respectively) that flows to West Central Pump Station.

The Asbestos Pump Station is comprised of a single 100 gallon per minute (gpm) effluent pump in a 6-foot diameter manhole with a Krohne flowmeter on the discharge line.

4.2 Secure Landfill (Phases 1-6)

The 11.7-acre Secure Landfill consists of five phases that are each divided into two to three cells, A, B, and C. Phase 6 is located on top of Phase 1-5. The Phases 1-6 landfill base lining system consists of a recompacted clay secondary liner and either 60 or 80 mil HDPE primary liner. The landfill contains leachate piping in the granular drainage blankets over the HDPE primary liner (leachate collection) and the recompacted clay secondary liner (leachate detection). Phases 4 and 5 include additional subdrains located beneath the recompacted clay secondary liner in the vicinity of the low point of both cells.

Leachate collection and detection piping systems for Phases 1, 2, and 3 flow by gravity through 8/12-inch HDPE pipes to separate wet wells (WW) located adjacent to West Central Pump Station. Phases 1-3 leachate collection is labeled 123 LCS-WW1. Phases 1-3 leak detection is labeled 123LDS-WW2. Flow volumes for the Phases 1, 2, and 3 leachate collection and leachate detection systems are determined using flowmeters located at the discharge points from the respective wet wells. Both wet wells flow through 3/6-inch HDPE forcemains into West Central Pump Station. Leachate collection, detection, and subdrain piping systems for Phases 4 and 5 flow by gravity to Pump Station E or MH-EL. Pump Station E pumps the leachate through a 6/10-inch dual-containment Y located in Leak Detect Manhole 1 (LDMH-1), which connects to the 6/10-inch HDPE forcemain connecting West Central Pump Station and South Central Pump Station. Leachate quantities are totaled separately using three Krohne flowmeters at Pump Station E. Final cap construction of 3.5-acres of the Phases 1-6 landfill commenced in 1995 and was completed in 1996. In 1995 and 1996, the Phase 10 secure landfill was constructed contiguous to and over the south end of Phases 1-6; the Phase 10 liner anchor trench, therefore, extends northerly across much of Phases 4 and 5. The remaining portion of the Phases 1-6 landfill was covered with interim geomembrane cover until 2003. As part of Phase 8A construction in 2003, the Phase 8A overfill liner system was constructed over all but a small portion of the Phase 1-6 footprint (exclusive of the Phase 10 overfill area). The approximately 0.6-acre area not covered by the Phase 8A overfill liner is located in the southwest corner of the Phases 1-6 footprint and is bordered by the Phases 1-6, 8A, and 10 anchor trenches. The Phase 8A overfill liner system is tied-into the Phase 8A base liner to form one continuous lined area. The Phase 8A base liner system consists of 12 inches of compacted silt clay soil (soil barrier layer) overlain by a geosynthetic clay liner (GCL) and 60-mil HDPE geomembrane. The overfill liner system section varies as indicated on the Phase 8A record drawings, but is a composite section consisting of soil barrier layer and/or GCL overlain by geomembrane.

4.3 Secure Landfill (Phase 7)

The Phase 7 Secure Landfill stopped accepting waste in 1995. The landfill was temporarily covered with a HDPE geomembrane in July of 1996 and a temporary synthetic cover prior to that. Portions of the interim geomembrane cover were sequentially removed from the north and east sideslopes and top area of Phase 7 as Phase 9 waste disposal activities overfilled the Phase 7 footprint. The 4.5-acre Phase 7 landfill is double-lined, which includes primary and secondary leachate collection systems and header pipes. These header pipes consist of 6-inch perforated HDPE pipe surrounded by free draining crushed stone. A geocomposite and sand drainage layer are also part of the primary and secondary leachate collection system. The header pipes, drainage geocomposite, and drainage sand convey the leachate to the sump area. In 2003 as part of Phase 8A construction, the Phase 7 sump was extended southwesterly to the southwest corner of Phase 8A, where a new Phase 7 pump vault was constructed. Riser pipes (one primary and one secondary), with sled mounted pumps placed within the risers, extend into the sump and extract the leachate through the Phase 7 Pump Vault and into a 6/10-inch HDPE leachate forcemain that flows from the Phases 7, 8A, and 9C vaults to West Central Pump Station. Flowmeters in the vaults totalize leachate volumes.

4.4 Secure Landfill (Phase 8A, 8B, and 8C')

The Phase 8A single composite lined landfill was constructed in 2003 and consists of 13.9 acres of newly lined base area and approximately 9.4 acres of overfill liner over the Phases 1-6 landfill. The Phase 8B single composite lined landfill was constructed in 2004 and consists of 9.8 acres of newly lined base area. The Phase 8C' single composite lined landfill was constructed in 2005 and consists of 15.7 acres of newly lined base area. The Phases 8A, 8B, and 8C' landfills will overfill Phases 7 and 9. The Phase 8A leachate collection system flows to a sump located along the south central edge of the cell, at the toe of the south perimeter berm where a pump vault was constructed. The Phase 8B leachate collection system flows to an elongated sump located along the Phase 8B/C' division berm in the northeast corner of the cell, at the toe of the north perimeter berm where a pump vault was constructed. The Phase 8C' leachate collection system flows to an elongated sump located along the Phase 8B/C' division berm in the northwest corner of the cell, at the toe of the north perimeter berm where a pump vault was constructed. Sled-mounted pumps placed within sideslope riser pipes extend into the sumps and extract the leachate through the respective pump vault and into leachate transfer piping. Leachate from Phase 8A flows in a 6/10-inch HDPE leachate forcemain, that collects flows from the Phases 7, 8A, and 9C vaults, to West Central Pump Station. Leachate from Phases 8B and 8C flows in a8/14-inch HDPE leachate forcemain that collects flows from the Asbestos Pump Station and the Phases 9A and 9B pump vaults, to West Central Pump Station. Incidentally, the Asbestos Landfill toe-drains are located on the northeast and south sides of the landfill and runs through a perforated 6-inch HDPE pipe into the Asbestos Pump Station. Leachate quantities are totaled using Krohne flowmeters at the Phases 8A, 8B, and 8C' pump vaults.

The Phase 8A, 8B, and 8C' landfills are underlain by a wick drain/underdrain system. Pore water extracted from the wick drains is collected by the underdrain system and conveyed through 8-inch diameter HDPE SDR-17 underdrain conveyance pipes to wet wells located to the southwest of and outside the lined limits of Phase 8A. As redundant measures, the Phase 8A underdrain system slopes toward a sump located adjacent to the Phase 8A leachate sump and the Phases 8B and 8C' underdrain systems slope toward sumps located adjacent to the Phases 8B and 8C' leachate sumps, respectively. Should it be necessary, wick drain water that collects in the auxiliary wick drain/underdrain sump(s) will be pumped using sled-mounted pumps installed in riser pipes that extend from underdrain sumps to the leachate pump vaults.

Pore water collected in the Phase 8A underdrain wet well is labeled 8AUD-WW4. The contents in this wet well are discharged to a stormwater management system as approved by the MDEP on July 2, 2004. The wet well pump discharge line was re-plumbed to discharge into the ECS-29 plunge pool through a separate 8-inch diameter HDPE gravity drain. A valve located outside the wet well on the discharge line that allows pore water to be redirected to the site stormwater management system is clearly labeled to indicate where the wet well discharge is directed. Phases 8B and 8C' underdrain wet well is labeled 8B/CUD-WW5. The quantities of liquid removed from 8B/CUD-WW5 is pumped to West Central Pump Station and are totaled using a flowmeter.

4.5 Secure Landfill (Phase 9A, 9B, & 9C)

Phase 9A (3.7 acres), 9B (5.5 acres), and 9C (approximately 1.7 acres) are double composite lined landfills constructed in 2001. The primary and secondary leachate collection systems of each cell flow to sumps located in the southwesterly corner of Cell A, the east side of Cell B, and the southwesterly corner of Cell C. In 2003 as part of Phase 8A construction, the Phase 9C sump was extended southwesterly to the southwest corner of Phase 8A, where a new Phase 9C sump and pump vault was constructed Sled mounted pumps placed within the riser pipes, extend into the sumps and extract the leachate through the Phase 9 pump vaults and into the leachate transfer piping that flows to West Central Pump Station. The Phase 9A and 9B pump vaults are equipped with two primary and one secondary riser pipes. The Phase 9C pump vault is equipped with one primary and one secondary riser pipes.

Liquid collected in the Phase 9A and 9B sumps is pumped from each sump through a riser pipe and a pump vault into the 8/14-inch HDPE leachate transfer pipe that flows from the Asbestos Pump Station to West Central Pump Station. The leachate transfer pipe is a forcemain from the Asbestos Pump Station, past the Phase 9B Pump Vault, to a high point at cleanout manhole CO-9F, located approximately 350 feet upstream from the Phase 9A pump vault tie-in. From cleanout manhole CO-9F, the leachate transfer piping flows by gravity to West Central Pump Station. The leachate transfer piping contains eight manholes between the Asbestos Pump Station and West Central Pump Station; six cleanout manholes and two leak detection manholes. Leachate from Phase 9C flows via a 6/10-inch HDPE leachate forcemain that flows from the Phases 7, 8A, and 9C vaults to West Central Pump Station. Leachate quantities are totaled using Krohne flowmeters at each of the Phase 9 pump vaults.

The Phase 9 landfill is underlain by a wick drain/underdrain system. Pore water extracted via the wick drains is collected by the underdrain system and conveyed in an 8-inch diameter HDPE SDR-17 underdrain conveyance pipe that discharges into a wet well located adjacent to West Central Pump Station. As a redundant measure, the Phases 9A and 9B underdrain systems slope toward sumps located adjacent to the Phases 9A and 9B leachate sumps. Should it be necessary, wick drain water that collects in the auxiliary wick drain/underdrain sump can be pumped using a sled-mounted pump that can be installed in riser pipes that extend from the perimeter berm adjacent to the pump vaults into the underdrain sumps.

Pore water collected in the Phase 9 underdrain wet well is labeled 9UD-WW3. The contents in this wet well are discharged to a stormwater management system as approved by the MDEP on August 1, 2003. The wet well pump discharge line was re-plumbed to discharge into the ECS-29 plunge pool through a separate 8-inch diameter HDPE gravity drain. A valve located outside the underdrain wet well that allows pore water to be redirected to the site stormwater management system is clearly labeled to indicate where the wet well discharge is directed.

4.6 Secure Landfill (Phase 10A & 10B)

Phase 10 is a 5.8-acre double composite lined landfill constructed in 1995 (Cell B) and 1996 (Cell A). The landfill piggy-backs onto the south sideslopes of Phase 4 and 5, which provides an additional 2.3 acres of landfill footprint. Operations began in December of 1995. Since 1999, the Phase 10 landfill has been inactive and covered with an interim geomembrane cover. A final cover system is scheduled to be constructed in 2016. The primary and secondary leachate collection systems flow to sumps located in the southwest corner of Cell A and southeast corner of Cell B. The leachate is pumped from the sumps via sled-mounted pumps located in riser pipes into a double walled 8/14-inch HDPE pipe that discharges into Pump Station E/MH-EL. From Pump Station E/MH-EL, where the leachate combines with the leachate removed from Phases 4 and 5, the leachate is pumped through a 6/10-inch dual-containment Y in Leak Detect Manhole 1 (LDMH-1) and connects to the 6/10-inch HDPE forcemain connecting West Central Pump Station and South Central Pump Station. Leachate quantities are totaled using Krohne flowmeters at the corresponding pump vault.

4.7 Secure Landfill (Phase 11A, 11B & 11C)

Phase 11A is a 6.1-acre double composite lined landfill constructed in 1998. Both Phase 11B (6.1 acres) and Phase 11C (6.1 acres) are double composite lined landfills constructed in 1999. The primary and secondary leachate collection systems of each cell flow to sumps located in the southwesterly corner of Cell A, the west side of Cell B, and the northwesterly corner of Cell C. Liquid collected in the sump is pumped from the sump through riser pipes and a pump vault into a double-walled HDPE leachate transfer pipe that flows to South Central Pump Station. The leachate transfer pipe is forcemain from the Cell C pump vault to the tie-in of the transfer pipe from the Cell B pump vault. From the Cell B pump vault tie-in, the leachate transfer piping flows by gravity to the South Central Pump Station. The leachate transfer piping contains seven manholes between the Phase 11C pump vault and South Central Pump Station; five cleanout manholes and two leak detection manhole. Leachate quantities are totaled using Krohne flowmeters at each of the pump vaults.

4.8 Secure Landfill (Phase 12A & 12B)

Phase 12A (3.9 acres) and Phase 12B (3.3 acres) are double composite lined landfills constructed in 2002. The primary and secondary leachate collection systems of each cell flow to a sump located in the northwesterly corner of Cell A and the westerly side of Cell B. Liquid collected in the sumps is pumped from the sumps through riser pipes and pump vaults into a double-walled 8/14-inch HDPE leachate transfer pipe that flows to South Central Pump Station. The leachate transfer pipe runs northerly from the Phase 12B pump vault past the Phase 12A pump vault and then easterly to South Central Pump Station. The leachate transfer pipe drains by gravity to South Central Pump Station, except for the first approximately 70 feet of pipe, from the Phase 12B pump vault to the first manhole structure on the alignment, which is forcemain. The approximately 1,270-foot long Phase 12 leachate transfer pipe contains five manholes between the Phase 12B pump vault and South Central Pump Station; four cleanout manholes and one leak detection manhole. Leachate quantities are totaled using Krohne flowmeters at each of the pump vaults.

4.9 Pump Station E/ MH-EL/ LDMH-1

The leachate collection, detection, and subdrain piping from the Phases 4 and 5 Secure Landfills discharge into three separate chambers in Pump Station E. Flows into the subdrain chamber are from the Phase 4 and 5 subdrain systems. The liquid collected in this chamber is conveyed to the larger leachate collection (primary) chamber by a one-third horsepower sump pump. The subdrain line from the subdrain chamber includes an isolation valve, and a flowmeter records flows from the subdrain chamber to the primary chamber. Flows into the leak detection (secondary) chamber are from the Phase 4 and 5 leak detection system. These lines include isolation valves that are located inside this chamber. The liquid collected in this chamber is pumped to the larger leachate collection (primary) chamber using a one-third horsepower sump pump, and a flowmeter records flows from the secondary chamber to the primary chamber. Flow into the leachate collection (primary) chamber consists of leachate directly from Phases 4 and 5 collection systems.

A 6-foot diameter manhole, designated MH-EL, located next to (immediately north of) the Pump Station E, allows the leachate collection lines from Phases 4 and 5 to be isolated for sampling and flow monitoring purposes. Leachate from MH-EL flows by gravity into the leachate collection (primary) chamber of Pump Station E. The leachate collection (primary) chamber of Pump Station E includes two 5-horsepower (hp) submersible pumps. The leachate is pumped from this chamber through structure LDMH-1 and into the double walled HDPE forcemain connecting West Central Pump Station to South Central Pump Station. As part of Phase 8A construction in 2003, the leachate gravity drain from Phases 10A and 10B was reconfigured to also discharge into MH-EL. The leachate volume pumped from the leachate collection (primary) chamber therefore includes liquid pumped from Phases 4 and 5 subdrain chamber, pumped from Phases 4 and 5 detection (secondary) chamber, gravity fed from the Phase 10 leachate collection/leak detection systems (MH-EL), and gravity fed from the Phase 4 and 5 leachate collection system (MH-EL), is measured with a Krohne flowmeter. The volume of leachate removed from the Phases 4 and 5 leachate collection systems is, therefore, determined by subtracting off the metered (known) volumes from Phase 10A and Phase 10B leachate collection and leak detection systems, as well as the Phases 4 and 5 subdrain and leak detection systems.

4.10 West Central Pump Station and associated wet wells

West Central Pump Station and five associated wet wells were constructed in 2003 as part of Phase 8A construction. West Central Pump Station replaced Central Pump Station, which was located within the Phase 8A footprint. West Central Pump Station serves as the main leachate collection point. Leachate collected in West Central Pump Station is conveyed through a double-wall forcemain to South Central Pump Station. At South Central Pump Station, the leachate combines with leachate from the Phases 11 and 12 landfills and is pumped to the Leachate Storage Tank Facility.

As part of Phase 8A construction in 2003, five wet wells were constructed adjacent to West Central Pump Station. These serve as collection points for the (i) Phases 1 through 3 leachate collection system (123LCS-WW1); (ii) Phases 1 through 3 leak detection system (123LDS-WW2); (iii) Phase 9 underdrain system (9UD-WW3); (iv) Phase 8A underdrain system (8AUD-WW4); and (v) Phases 8B and 8C' underdrain systems (8B-CUD-WW5). Lines into West Central Pump Station include an 8/14-inch double-wall forcemain/gravity drain that conveys leachate from Asbestos, Phase 8C', Phase 8B, Phase 9B, and Phase 9A; a 6/10-inch double-wall forcemain that conveys leachate from Phases 7, 9C, and 8A; and 3/6-inch double-wall forcemains from the five adjacent wet wells.

West Central Pump Station is a double-wall structure. The interstitial space between the collection and containment chambers is monitored for leaks. Operations installed an effluent pump and PVC piping to remove liquid out of the interstitial space and into the West Central Pump Station collection chamber. Liquid levels in each wet well are automatically controlled using mechanical floats. Isolation valves are provided on the lines flowing into the wet wells, and a flowmeter is provided on the discharge line from each of the wet wells. The liquid level in West Central Pump Station is automatically monitored using electronic sensors (e.g., level probe). The back-up system for West Central Pump Station consists of mechanical floats.

West Central Pump Station consists of two WILO 10-hp effluent pumps equipped with a duplex pump system. 123LCS-WW1 consist of a single duplex Flygt 3.7-hp effluent pump. 123LDS-WW2 consist of a Goulds 1.7-hp submersible pump. 9UD-WW3, 8AUD-WW4, and 8B/CUD-WW5 each consist of a ½- hp Goulds submersible pump.

4.11 South Central Pump Station

South Central Pump Station collects and conveys the leachate from Phases 11 and 12 and the forcemain from West Central Pump Station through a double walled HDPE forcemain to the Leachate Storage Tank Facility. The South Central Pump Station consists of a double-walled HDPE structure, with an8-foot diameter leachate collection chamber (manhole) inside a 10-foot diameter containment chamber. The interstitial is monitored for leaks. Operations installed an effluent pump and PVC piping to remove liquid out of the interstitial space and into the South Central Pump Station collection chamber. The leachate collection chamber consists of a Fairbanks Morse and a Davis/EMU, 20 hp submersible pumps equipped with a duplex pump system. The liquid level in West Central Pump Station is automatically monitored using electronic sensors (e.g., level probe). The leachate volume pumped from the leachate collection chamber of South Central Pump Station can be quantified using a Krohne flowmeter. However, since the installation of West Central Pump Station and the associated wet wells, the flowmeter is no longer routinely used.

4.12 Leachate Forcemain

A double-walled HDPE forcemain connects West Central Pump Station to South Central Pump Station and South Central Pump Station to the Leachate Storage Tank Facility. The forcemain is approximately 7,800 feet in length, 5 feet below ground, and has 16 associated manholes. Fourteen of the manholes are located between West Central Pump Station and South Central Pump Station; two between the South Central Pump Station and the Leachate Storage Tank Facility. The manholes provide either leak detection or containment/cleanout manholes which provide access for inspection purposes. Leak detection manholes MH-3, MH-6, LDMH-8B, and LDMH-1 are located upgradient of the Leachate Storage Tank Facility and South Central Pump

Station. These manholes contain liquid detection alarms monitored by the instrumentation and control system. If liquid is detected in any of these manholes, then all pumping stations upgradient of the manhole are inhibited

4.13 Leachate Storage Tank Facility

The Leachate Storage Tank Facility uses two A.O. Smith "Aquastore" Tanks. These two tanks are bolted steel and lined with Permaglass. The operating tank, with a capacity of 948,000 gallons, is the daily holding tank. The reserve tank, with a capacity of 91,000 gallons, provides additional storage capacity if needed.

The tank facility is west of the main access road. A concrete containment area surrounds the tanks. This area can contain a six-inch rain event in addition to the contents of both tanks. The underground forcemain from the South Central Pump Station enters the concrete containment area from the north, at which point the HDPE pipe ends. Once inside the containment area, the cement lined ductile iron piping network was upgraded to stainless steel pipe in September 2013. The stainless steel pipe was wrapped in insulation and protective aluminum jacketing. The electrical wiring inside conduit controlling the valves and pumps, were replaced and positioned within aluminum cable trays at a higher elevation for protection purposes.

A valve system on the forcemain within the concrete containment area allows leachate to be directed to either storage tank. Under normal conditions, the larger operating tank will receive the site's leachate for storage until it is discharged into tanker trucks. The reserve tank receives flow if the operating tank becomes full or must be taken out of service for maintenance, repair, etc. As a safety measure, an overflow pipe connects both tanks. This overflow pipe is near the top of each tank. The instrumentation and control system monitors the valve positions and tank levels. This prevents the pumping of incoming leachate into the storage tank(s) should improper valve positioning or high levels exist within the tank(s). Similarly, a high level inside the concrete containment area will inhibit the South Central Pump Station and prevent site wide leachate from pumping to the storage tanks.

A 15-horsepower pump transfers the leachate from the operating tank to the load-out facility. Pumping will automatically stop if the leachate level drops below the pump inlet. A 7.5 horsepower pump is used to circulate the leachate inside the operating tank to minimize freezing potential during cold weather. A more detailed discussion of the control sequence associated with the leachate load-out is included in Subsections 5.0 and 6.1 of this plan.

4.14 Maintenance Facility

Two floor drains collect free liquids from the maintenance facility work/floor areas. The liquid flows from the drain through a PVC pipe to an oil/water separator. The separator drains into a 1,800-gallon holding tank (replaced in 2005). WMDSM pumps and transports the liquid to the active landfill area as necessary. The holding tank is located on the northerly side of the facility.

4.15 Commercial Transfer Station

The Commercial Transfer Station, also used for recycling purposes, has trench drains that collect free liquid from the tipping and loading floor. The liquid flows from the drains through a PVC pipe to a 1,000-gallon holding tank that is located at the southwest corner of the building. WMDSM pumps and transports the liquid to the active landfill area as necessary.

5. CONTROL SYSTEM

The site-wide leachate management system is automated and runs as a single unit instead of separate function controls. The control system was developed with the simple objective that under no circumstances should it be possible for leachate to discharge to the environment. Therefore, every pump vault, pump station, and wet well are continuously monitored by the control system, that poles for status updates at least every ½ second. With each polling request, the control system checks each node (e.g., pump vault or pump station), determines the liquid level at all points in the system, and evaluates whether a pump should be turned on. The system contains a number of checks and balances. Particularly important is the fail-safe that all the pumps are normally "off," meaning that a pump does not run unless its node is responding properly and the control system is satisfied that all downstream nodes are functioning and can manage the additional flow. If the system does not receive a response from each node with each polling request, the system goes into alarm mode. The automated system is described in the following subsections.

5.1 Supervisory Control and Data Acquisition (SCADA) System

The fully-automated, integrated SCADA system consists of a main computer terminal and multiple programmable local logic controllers. SCADA is a remote desktop computer, also known as the leachate computer, is located at the Main Office. This computer functions as a central display terminal with real-time leachate level and pump control graphics, as well as daily leachate generation/load-out reporting.

5.2 Programmable Logic Controller (PLC)

The main PLC is located in the control building at the Leachate Storage Tank Facility. The local PLC's are positioned at the following locations:

- Asbestos Pump Station;
- Pump Station E;
- Phase 7 Pump Vault;
- Phase 8A, 8B, and 8C' Pump Vaults;

- Phase 9A, 9B, and 9C Pump Vaults;
- Phase 10A Pump Vault (monitors both the Phase 10A and 10B pump vaults);
- Phase 11A, 11B, and 11C Pump Vaults;
- Phase 12A and 12B Pump Vaults;
- Phases 1-3 Leachate Collection, Phases 1-3 Leak Detection, Phase 8A underdrain, Phase 8B/8C underdrain, and Phase 9 underdrain wet wells;
- West Central Pump Station;
- South Central Pump Station; and
- The Leachate Storage Tank Facility.

The main PLC communicates to SCADA, the leachate computer at the Main Office, through fiber optic cable. The main PLC communicates to the local PLC's through serial radios. The Site has a serial radio repeater on Phases 8 and 12 to assist overall communication process.

The overall system provides monitoring, control, alarms, and data recording capabilities. The local PLCs handle the logic involved at their location, including flow totals, leachate levels, and pump station status. This data is sent to the main PLC and then the leachate computer for display, alarm conditions, and recording purposes. Leachate levels are monitored using level switches/floats and/or pressure transducers that are polled at ½-second intervals by the local PLCs. If any of the pump station nodes do not respond to a polling request, SCADA inhibits all pump station/vaults upstream of the non-responsive node and goes into alarm mode. A technician can interface with each local PLC or use the leachate computer terminal to access pump control set points in order to troubleshoot and manage the Site's LMS.

The leachate pump vault sumps at the facility, as well as the Asbestos Pump Station, Pump Station E, West Central Pump Station, and South Central Pump Station, are equipped with bubbler tube pressure transducers and/or level probes. Liquid levels in the five wet wells adjacent to West Central Pump Station and the leak detection manholes are monitored using level switches/floats. All leachate sumps and pump stations are equipped with a manual backup system should the primary bubbler tube pressure transducer and/or level probe fail. In addition, the wet wells and leachate detection manholes can be operated manually.

Tabular reports consisting of pump run time data, flowmeter data, and alarm data for each pump station are generated daily from the leachate computer. The alarm log printout presents the alarm description, location of alarm, time and date of occurrence, and alarm status. The printout report also specifies the volume of leachate removed from the storage tanks daily and identifies truck numbers associated with the removal process.

Brief overviews of selected control system components are provided below.

5.3 Pump Control Strategy

All pump stations, excluding the Asbestos Pump Station, contain two main pumps that discharge leachate. The Asbestos Pump Station uses a single pump for this task. The operating modes for the double pump set-ups are alternating or standby. Technicians can change to either mode at any time at the local control panel. In the alternating mode, the pumps alternate on every pumping cycle. In the event the scheduled pump fails, the second pump starts and an alarm reports to the main PLC at the Leachate Storage Tank Facility. The standby mode uses one designated pump to operate at every pumping cycle, until the second pump comes back on-line or is designated as the active pump.

5.4 Local Control Panels

The local PLC's are responsible for monitoring, control, and communications with the main PLC. The technician may use the local control panel to change parameters as necessary. Flow totals, levels, and pump station status are sent to the leachate computer for display, alarming, and recording purposes.

Each local control panel includes a "Hand-Off-Auto" switch for each pump. Pumps can run any time in the "Hand" position unless the main instrument panel has inhibited pumping. The normal position for this switch is the "Auto" position. "Auto" provides automatic control by the main PLC based on leachate levels in the pump stations. Pumping stops when this switch is in the "Off" position.

Should a pump station alarm become activated, a continuous warning is displayed on the screen of the leachate computer, along with an audible alarm condition to alert personnel. In addition, the externally mounted light at the leachate pump vault/station control panel will be illuminated. Concurrent with the local alarm light, an auto dialer, located at the Leachate Storage Tank Facility will call personnel to notify them of the alarm. The auto-dialer is programmed with WMDSM personnel phone numbers in an established sequence. The auto-dialer calls the list of phone numbers continuously, (even during work hours) to ensure prompt notification of personnel in the event of an alarm. The calls continue until an employee acknowledges the alarm.

5.5 Leachate Computer

The leachate computer at the Main Office controls the pump stations, displays pump station status and alarms, and records information at one central location. The main PLC at the Leachate Storage Tank Facility inhibits pumping at upstream pump stations if a down stream pump station or leachate storage tank reports a high level or other inhibiting alarm. Once the leachate level at a downstream pump station or leachate storage tank is lowered to the pump off set point or the alarm is cleared/acknowledged, pumping begins again.

5.6 Leachate Storage Tank and Truck Load-out Control Panel

The main PLC manages the leachate storage tanks and truck load-out area, through a control panel that is located inside the leachate control building. The control panel allows tanker load out, monitoring of alarms and leachate levels in the storage tanks, and load-out pumping. In addition, the main PLC controls three motorized valves and monitors the position of all manually operated valves in the tank area as well as inhibits the pumping of leachate into the tanks when levels are high or valves are incorrectly set.

At the main PLC, there is a touchpad display for entering load-out commands. The truck driver enters an identification number that initiates pumping. This display monitors the flow to each truck. The flow volume is printed at the leachate computer.

6. TRANSFER, TRANSPORTATION, AND DISPOSAL

6.1 Transfer

The leachate in the storage tank is transferred to tanker trucks at the load-out area. The load-out area includes secondary containment of sufficient size to contain the volume of one full tanker. The configuration of piping from the facility allows pumping from either tank to the load-out area. Elevated piping is configured to load leachate directly into the entrance porthole on the top of the tanker. A flowmeter in the load-out pipe line measures the amount of leachate pumped. The flowmeter eliminates the need to weigh trailers for quantity purposes. The flowmeter is calibrated regularly.

The loading process requires the tanker to be parked in the load-out containment area. The driver enters a identification number at the touchpad display that initiates pumping. Then, the driver attaches the discharge hose to the load-out piping and opens the shut-off valve. Next, the driver turns on a switch located near the shutoff valve to begin the loading process. After transferring leachate from the storage tank to the truck, the driver turns the switch off, closes the shut-off valve, removes the hose, re-installs the quick coupling cap on the load-out piping, and departs the site.

The leachate transfer process includes precautionary measures to minimize overfill. For example, a maximum load-out volume is programmed for each pump cycle to prevent overfilling of the tanker. A containment sump within the load-out area will contain liquid should a spill occur.

6.2 Transportation

A subcontracted transportation company is responsible for transferring and transporting the leachate to approved treatment facilities. Tankers with up to 8,000-gallon capacity transport the leachate.

6.3 Disposal

Currently, leachate from the site is treated primarily at the SAPPI Wastewater Treatment Facility in Hinkley, Maine. The maximum daily volume of leachate allowed at the SAPPI facility is 400,000 gallons. The disposal agreement that allows WMDSM to dispose of leachate at this facility is an "evergreen" agreement, in that it remains in force until a new agreement is executed, or cancelled, by both parties. Furthermore, leachate is also treated at the Anson Madison Sanitary Water District (AMSD). The maximum daily volume of leachate allowed at the AMSD facility is 56,000 gallons. The agreement expires on November 30, 2017.

Copies of the current agreements are maintained at the main office.

7. LEACHATE MONITORING

7.1 General

The volume of leachate generated is monitored, tracked, recorded, and reported by the SCADA system based on data relayed from the individual PLC's located at each pump station and vault, and the main PLC at the Leachate Storage Tank Facility.

The collective flow volumes for each pump station/vault are evaluated to determine if more leachate than usual is generated in comparison to historical data, rainfall, and size of active landfill face. Similarly, the volumes of liquid pumped from leak detection sumps and subdrains are used to evaluate the performance of the primary liner system.

7.1.1 Detailed Flow Measurement Description

Flow measurement (totalization) at the Asbestos Pump Station, the wet wells for the Phases 1-3 leachate collection and detection systems, Pump Station E (Phases 4 and 5), South Central Pump Station, Phases 7, 8A, 8B, 8C, 9A, 9B, 9C, 10A, 10B, 11A, 11B, 11C, 12A, and 12B Leachate Pump Vaults, and the Phases 8A, 8B/8C, and 9 underdrain wet wells are automatically monitored by local flowmeters. The flowmeters/PLC monitor live flow rates, totalize daily flow rates, and report pump run times. This data is ultimately polled by SCADA. The leachate computer automatically prints a number of reports each day summarizing and detailing the previous day's activity of the leachate management system. A detailed description of leachate flow measurements conducted by WMDSM is included in Appendix III-C.

7.1.2 Landfill Gas Condensate

The estimated volume of flow from the landfill gas condensate lines will be calculated annually by the landfill gas collection system designer.

7.2 Sampling

Sampling and analysis of the leachate collection and leak detection systems is performed tri-annually in accordance with Section X - Water Quality Monitoring Program of the WMDSM Site Operations Manual.

7.3 Action Leakage Rates and Response Action Plan

The Action Leakage Rates and Response Action Plan may be found in Appendix III-B. A detailed description of leachate flow measurements conducted by WMDSM is included in Appendix III-E.

8. INSPECTION

The SCADA system continuously monitors all functions of the leachate management system., Operational personnel continue to complete visual inspections of key components, (i.e., bubbler tubes, check valves, piping, etc.) of the leachate collection system on a periodic basis to confirm devices are functioning properly and are in good working condition. This section describes the inspection requirements of the system. Documentation of inspections and maintenance required by the Leachate Management Plan will be performed in accordance with the Environmental Compliance Program described in Section I - Part C of this Site Operations Manual. Documentation of inspections/maintenance will be maintained on-site as required per the current Maine Solid Waste Management Regulation, and will be available for review at MDEP's request.

8.1 Pump Stations/Wet Wells, Vaults and Manholes

Operational personnel will conduct periodic inspections of leak detection manholes, cleanout/ containment manholes, pump stations/wet wells, and pump vaults. Inspections are completed pursuant to a CYCLE assignment and documented on an associated form. The inspector reports any deficiencies to the Operations Supervisor that may require corrective action.

8.2 Storage Tanks and Containment Area

The Leachate Storage Tank Facility is inspected periodically by operational personnel. The inspector visually checks around the base of the tanks and the piping within the containment area for any leaks or malfunctions. Annually, the inspector also checks the concrete containment structures and notes any significant cracks.

If necessary, and as determined through visual inspection for sediment build-up in West Central and South Central Pump Stations, the interior of the main leachate storage tank will be inspected for sediment build-up and irregularities requiring corrective actions, and is cleaned as necessary. Truck loadout flowmeters are calibrated per the associated CYCLE assignment.

8.3 Leachate Collection; Leachate Forcemain; Leachate Gravity Drain; Leachate Detection; and Subdrain, Toe Drain, and Underdrain Piping

On an annual basis, Crossroads Landfill inspects ***leachate collection pipes in the landfill units that were active during the proceeding year***. Using a video camera, each pipeline is inspected for damage and/or sediment accumulation. Repairs and cleaning are accomplished as needed. A high pressure, high volume water jet is the primary means used to clean the pipes. Inspections are completed pursuant to a CYCLE assignment and documented on an associated form.

Leachate forcemain and gravity drain flow volumes (current versus historical) are evaluated regularly to ensure the pipelines are functioning properly. If unexpected decreases in flow rates are observed, the potentially affected pipelines will be flushed and televised. Corrective action/maintenance will be developed as necessary and notification of such actions will be provided to the MDEP in writing. WMDSM will maintain the videotapes of any inspections for one year after the report date. Evaluations are completed pursuant to a CYCLE assignment and documented on an associated form.

On an annual basis, Crossroads Landfill inspects ***leachate detection headers in the landfill units that were active during the proceeding year***. The headers are cleaned to remove potential scaling and blockages by utilizing high pressure water application and vacuum to collect solids. Then, the respective header is televised and recorded. Should any blockages be detected, operational personnel are notified to review the televised footage and the process is repeated to establish sufficient flow. Inspections are completed pursuant to a CYCLE assignment and documented on an associated form.

Subdrains are installed ***beneath the Phases 4 and 5 secondary (leachate detection) liner system***. These subdrains are monitored for flow volumes and water quality when flows are present. The condition of the respective subdrain will be evaluated if Average Leakage Rate (ALR)/Response Action Plan (RAP) Threshold No. 3 is triggered and verified for either Phase 4 or 5.

Leachate from the ***Asbestos attenuation landfill*** is collected by a ***toe drain system***. The toe drain system was designed and installed with limited cleaning access up to the Asbestos Pump Station. WMDSM will continue to monitor leachate flow from this landfill unit. Historical data will continue to be compared regularly to current volumes to ensure the pipeline is functioning properly, recognizing that flow rates should decrease somewhat over time. Water collected by the toe drain flows by gravity through a conveyance pipe to the Asbestos Pump Station.

Underdrains are installed ***beneath the Phase 8A, Phase 8B, Phase 8C', and Phase 9 liner systems*** to convey soil pore water extracted from the ***associated wick drain systems*** to wet wells located in the vicinity of West Central Pump Station. The underdrain conveyance pipes are designed to be submerged and expected to develop (a) sag(s) as the compressible glaciomarine soil consolidates. The flow rate from the underdrain is a function of the location and rate of loading, and is expected to fluctuate accordingly.

9. MAINTENANCE

Maintenance activities will be performed as needed pursuant to the inspections discussed in Section 8.0. In addition, equipment repairs are performed following the manufacturer's literature kept on file at the WMDSM office. The Operations Supervisor or designee will schedule and document completion of required maintenance activities. Before any maintenance and repair is performed, operations personnel must follow the WM Hazardous Energy and Control Program (i.e., lockout-tagout). Refer to Section I - Part D of this Site Operations Manual for reference to related health and safety site-specific modules. A computer spreadsheet is used to log maintenance work completed on the leachate management system. An acid flushing maintenance procedure has been developed to periodically remove/mitigate calcium carbonate scale from the Leachate Collection System (LCS) of a secure landfill. The acid flushing procedure is included as Appendix III-D.

Refer to the next sub-section for a discussion of the maintenance requirements for the containment area at the Leachate Storage Tank Facility.

9.1 Concrete Containment Area

The concrete containment area will be cleaned of dirt and debris as necessary to allow for the annual inspection as set forth in Section 8 above.

9.2 Aquastore Tanks

According to the tank manufacturer, the fused glass-to-steel tanks require little maintenance. However, appropriate actions will be taken to correct any maintenance related issues identified during inspections. Refer to the Aquastore Operation and Maintenance Manual for information.

If excessive sediment is found during an inspection inside the main leachate storage tank, the sediment will be removed and the solids treated as a special waste and landfilled in the secure landfill.

10. LEACHATE GENERATION REDUCTION

10.1 Interim Geomembrane Cover (Operational Final Cover)

As landfilling approaches permitted heights, temporary synthetic covers divert precipitation. These covers consist of synthetic material placed over soil or ADC covered waste. The temporary synthetic covers are at least 20-mil thick, with 40-mil textured synthetics used most often, and are anchored using a sand bag and rope ballast system, as necessary. A detailed description is provided in Section II - Part A of this Site Operations Manual.

10.2 Stormwater Diversion

Temporary interim geomembrane cover and geomembrane covered berms are constructed to keep the clean stormwater separated from the waste disposal areas. Stormwater drains from interim geomembrane covers to the appropriate erosion control structure via perimeter drainage swales. A detailed description is provided in Section II - Part A of this Site Operations Manual.

11. CHARACTERIZATION OF WASTE STREAMS

Refer to Section I - Part B Waste Characterization / Acceptance and Section II – Part A Secure Landfill for information about the WMDSM waste characterization/acceptance program and operational activities.

12. RECIRCULATION

Leachate recirculation commenced at the Crossroads facility with the introduction of a pilot program on April 10, 2014. The program was initiated through a meeting at Crossroads with WMDSM staff, Geosyntec Consultants, and the MDEP. The Leachate Recirculation Plan (LRP) was reviewed and recirculation process from load-out, transfer, to completion and leachate tanker post-trip safety inspection was observed.

The LRP identifies inactive and active locations as two distinct areas within Phase 8 where leachate recirculation will occur. Inactive areas are defined as areas over which a final cap (i.e. final cover system) has been constructed or waste placement has been completed. Active areas of the landfill are defined as areas in which waste is being placed, also referred to as working face or active face in this plan.

Leachate recirculation commenced on April 10, 2016 in the inactive area of Phases 1-6 (part of Phase 8A), which was permanently closed in 2012. Recirculation in this area is expected to be complete during the first quarter of 2017. Leachate recirculation is planned on the north sideslope of Phase 9, pending MDEP review and approval, which was final capped in 2014.

Leachate recirculation in the active areas of Phase 8 commenced on September 30, 2014 and is ongoing.

13. EMERGENCY ACTIONS

Operational personnel are trained to handle various types of emergencies according to the Emergency Action Plan (EAP) in Section I - Part E of this Site Operations Manual. WMDSM has also retained Clean Harbors, Inc. to respond to environmental emergencies, if necessary, as indicated in the EAP.

Several precautionary emergency action measures have been incorporated into the management of the leachate system at the Crossroads facility. If a power failure, pump malfunction, high level alarm, etc., occurs, the auto-dialer system is triggered by the Leachate SCADA system. The auto-dialer is programmed with WMDSM personnel phone numbers in an established sequence. The auto-dialer calls the list of phone numbers to alert personnel of potential problems with the leachate management system. Additional information regarding the auto-dialer alarm system is provided in Subsection 5.3.

14. WINTER OPERATIONS

14.1 Pump Stations

Several precautions are taken during the winter months to ensure proper system operation. Each of the local control panels is equipped with an internal thermostat and heater. The heater settings are checked before the onset of cold weather and managed during the winter months. The pump stations and adjacent local control panels are kept clear of snow as part of routine site snow removal activities.

14.2 Leachate Storage Tanks

During periods when the ambient temperature drops below freezing, the circulation pump should be activated to prevent ice buildup inside the storage tanks. Once activated, the circulation pump will remain in operation until ambient temperatures elevate above freezing for an extended period of time.

The heat trace and insulation on the piping within the concrete containment area, level transmitters, circulation pump, and truck load-out will also be observed routinely to ensure that the equipment is working properly when the temperature is below freezing. The main computer terminal monitors these systems and displays an alarm if the heat trace fails. The electrically actuated valves, recirculation/load-out pump, level transmitters, load-out platform, access road, drains, and load-out pad/containment manhole should also be kept clear of snow and ice.

15. REPORTING

Reporting of leachate data to the MMDEP is done on a monthly basis. The information is submitted electronically (Electronic Document Distribution format) and includes updated spreadsheets consisting of the following flow data:

- Phases 1, 2, and 3 primary and secondary Leachate Collection System (LCS);
- Phases 4 and 5 primary and secondary LCS;
- Phase 7 primary and secondary LCS;
- Phase 8A, 8B, and 8C' primary LCS;
- Phase 9A, 9B, and 9C primary and secondary LCS;
- Phase 10A and 10B primary and secondary LCS;
- Phase 11A, 11B, and 11C primary and secondary LCS;
- Phase 12A and 12B primary and secondary LCS;
- Asbestos Landfill toe drain;
- Phase 8B/8C'underdrain system, it discharges into West Central Pump Station;
- Landfill gas condensate lines; and
- Updated Leachate Management Summary Sheet.

Total leachate flow volumes from each landfill unit is reported to the MMDEP as part of the Water Quality Monitoring Report (Section X), of this Site Operations Manual.

Leachate data is compiled for active and inactive sites at Crossroads. This information will be compiled and reported as described in this section until such time WMDSM and the MDEP determine a reduction is appropriate.

APPENDIX III-A

SITE LEACHATE COLLECTION SYSTEM PLANS

APPENDIX III-B

ACTION LEAKAGE RATES AND RESPONSE ACTION PLAN

ACTION LEAKAGE RATES AND RESPONSE ACTION PLAN

Action Leakage Rate Threshold for Phase 1-6

On the basis of the information presented in a report by GeoSyntec Consultants entitled "Attachment No. 5, Action Leakage Rates/Response Action Plan, Crossroads Landfill, Norridgewock, Maine" dated December 1994, and the dilution factor analyses conducted by Robert G. Gerber, Inc. (RGGI) as presented in a February 1994 report from WMDSM to MDEP, WMDSM's response actions for Phases 1 through 6 are based on three Action Leakage Rate (ALR) threshold levels of flow in the secondary collection systems. These are described below.

- ALR Threshold No. 1 is an average daily flow rate through the primary liner calculated using a dilution factor of 0.15 over a one-month period in excess of 25 gad.
- ALR Threshold No. 2 is an average daily flow rate through the primary liner calculated using a dilution factor of 0.15 over a one-month period in excess of 50 gad.
- ALR Threshold No. 3 is a daily flow rate through the primary liner (total flow volume measured on any given day) using a dilution factor of 0.15 in excess of 100 gad.

The dilution factor of 0.15 stated above for ALR thresholds was derived from performance of the dilution analysis using weekly flow rate and specific conductance data obtained from February through November 1995. A dilution factor of 0.15 represents one standard deviation above the average ratio of the calculated leakage through the primary liner to the total flow from the secondary system. The calculated leakage through the primary liner was evaluated using the methods set forth by RGGI as presented in a February 1994 report from WMDSM to MDEP.

The response actions for each ALR threshold are described below. Note that if an ALR exceedance is due to a known problem (e.g., an accidental puncture of a primary liner), response actions will consist of the following items:

- WMDSM will notify MDEP about the problem, repair procedures, and repair schedule; and
- WMDSM will implement and document appropriate repairs.

The following response actions apply to ALR exceedances due to unknown reasons:

Response Action Plan for Phases 1 through 6

Response Actions for ALR Threshold No. 1

WMDSM will initiate the response actions listed below within the first seven working days of a month in which ALR Threshold No. 1 has been exceeded in the previous calendar month (i.e., the average daily rate of flow through the primary liner into the secondary collection system of combined Phases 1, 2, and 3 or combined Phases 4 and 5, calculated over a one-month period, exceeds 25 gad).

- MDEP will be notified in writing.
- Monitoring of flow rates will continue on a daily basis, and analyses will continue to be updated on a weekly basis using the RGGI dilution analysis.
- Liquid-level indicators and pump-controls will be assessed and adjusted if necessary to minimize head build-up on the primary and secondary liners.
- Operations records will be reviewed and the appropriate WMDSM personnel will be interviewed regarding possible incidences that may have affected performance of the leachate collection/transfer system. Pertinent incidences will be further investigated.

Response Actions for ALR Threshold No. 2

WMDSM will initiate the response actions listed below within the first seven working days of a month in which ALR Threshold No. 2 has been exceeded in the previous calendar month (i.e., the average daily rate of flow through the primary liner into the secondary collection system of combined Phases 1, 2, and 3 or combined Phases 4 and 5, calculated over a one-month period, exceeds 50 gad).

- MDEP will be notified in writing.
- Monitoring will continue on a daily basis, and analyses will continue to be updated on a weekly basis using the RGGI dilution analysis.
- A series of steps will be undertaken to further define the specific phase(s) from which the majority of flow is occurring. This process will involve closing isolation valves on selected secondary collection pipes in the wet wells/pump stations in a systematic manner and monitoring the flow rate from the remaining pipe on which the valve is not closed. This process will be conducted in a systematic order to measure the flow rate from each phase, thereby further identifying the phase from which the majority of flow is occurring.
- Liquid-level indicators and pump-controls will be assessed and adjusted if necessary to minimize head build-up on the primary and secondary liners.
- Operations records will be reviewed and the appropriate WMDSM personnel will be interviewed regarding possible incidences that may have affected performance of the leachate collection/transfer system. Pertinent incidences will be further investigated.

- A liquid sample will be obtained from the secondary collection system of the phase(s) generating the majority of flow, and will be analyzed for the parameters listed in the attached Table 1. Results of the analyses will be compared with parameters obtained for the most recent ground-water samples obtained from the closest down-gradient ground-water monitoring well(s).
- Parameters for the most recent ground-water sample will be compared to previous ground-water samples from these location(s).
- Liquid samples will be obtained from the primary and secondary systems on a weekly basis for the next month and will be tested for turbidity, specific conductance, and pH.
- Further investigations may include:
  - dye-tracer tests;
  - pressure-gauge and valve testing of leachate piping transfer systems;
  - calibration of liquid-level indicators, pump controls, flow meters; and
  - leak detection surveys of exposed portions of the primary liner.

- Remedial actions may include:
  - installing interim geomembrane covers (temporary);
  - using low permeability daily cover soil;
  - increasing pumping volumes from the primary collection system; and
  - repairing leaks (if detected) in the primary liner.

A status report will be submitted to the MDEP prior to the 15th of each calendar month regarding the performance of the secondary collection/transfer system for the relevant phase(s), as long as the average daily rate, calculated per this subsection over the previous one-month period, exceeds 50 gad. If average daily rates, calculated per this subsection over one-month periods, continue to exceed 50 gad for more than three consecutive calendar months, a meeting will be scheduled with the MDEP to discuss further response actions.

WMDSM recognizes that, although isolated liquid flows in the secondary collection system (as calculated per this subsection) on the order of 50 gad may be caused by erroneous measurements or equipment anomalies, these incidences warrant immediate attention. Accordingly, any record of 50 gad (as calculated per this subsection) or more which occurs for more than three consecutive days will be immediately investigated by WMDSM personnel and will be reported in writing to the MDEP. It is further noted that if liquid flows in the secondary system (as calculated per this subsection) exceed 50 gad for more than fifteen days in any calendar month, the average daily rate of 25 gad will necessarily be exceeded, thereby requiring, at a minimum, the response actions set forth for ALR Threshold No. 1.

Response Actions for ALR Threshold No. 3

WMDSM will initiate the response actions listed below within five working days following a recorded secondary flow for combined Phases 1, 2, and 3 or combined Phases 4 and 5 that exceeds ALR Threshold No. 3 (i.e., 100 gad).

- MDEP will be notified in writing.

- All response actions listed above the ALR Threshold No. 2 will be initiated.
- A meeting will be scheduled immediately with the MDEP to discuss further response actions.

Action Leakage Rate Threshold for Phases 7, 9, 10, 11, and 12

WMDSM's response actions for Phases 7, 9, 10, 11, and 12 are based on three ALR threshold levels of flow in the secondary collection systems of each phase. These are described below.

- ALR Threshold No. 1 is an average daily flow rate calculated over a one-month period in excess of 25 gad.
- ALR Threshold No. 2 is an average daily flow rate calculated over a one-month period in excess of 100 gad, and/or a daily flow rate of greater than or equal to 200 gad on each of three consecutive days.
- ALR Threshold No. 3 is a daily flow rate (measured on any given day) in excess of 3,000 gad.

The response actions for each threshold are described below. Note that if an ALR exceedance is due to a known problem (e.g., an accidental puncture of a primary liner), response actions will consist of the following items:

- WMDSM will notify the MDEP about the problem, repair procedures, and repair schedule; and
- WMDSM will implement and document appropriate repair.

The following response actions apply to ALR exceedances due to unknown reasons:

Response Action Plan for Phases 7, 9, 10, 11, and 12

Response Actions for ALR Threshold No. 1

WMDSM will initiate the response actions listed below within the first seven working days of a month in which ALR Threshold No. 1 has been exceeded in the previous calendar month.

- MDEP will be notified in writing.
- Monitoring of flow rates will continue on a daily basis, and analyses will continue to be updated on a weekly basis.
- Liquid-level indicators and pump-controls will be assessed and adjusted if necessary to minimize head build-up on the primary and secondary liners.
- Operations records will be reviewed and the appropriate WMDSM personnel will be interviewed regarding possible incidences that may have affected performance of the leachate collection/transfer system. Pertinent incidences will be further investigated.

Response Actions for ALR Threshold No. 2

- WMDSM will notify the MDEP in writing and, within the first seven working days of a month in which ALR Threshold No. 2 has been exceeded in the previous calendar month WMDSM will initiate the response actions listed below unless the elevated flow rates can be attributed to erroneous measurements and/or equipment malfunction.
- Monitoring will occur on a daily basis, and the frequency of analyses updating and review will be increased to a daily basis for the next month.
- Liquid-level indicators and pump-controls will be assessed and adjusted if necessary to minimize head build-up on the primary and secondary liners.
- Operations records will be reviewed and the appropriate WMDSM personnel will be interviewed regarding possible incidences that may have affected performance of the leachate collection/transfer system. Pertinent incidences will be further investigated.
- A liquid sample will be obtained from the secondary collection system of the phase(s) generating the majority of flow, and will be analyzed for the parameters listed in the attached Table 1. Results of the analyses will be compared with parameters obtained for the most recent ground-water samples obtained from the closest down-gradient ground-water monitoring well(s).
- Parameters for the most recent ground-water sample will be compared to previous ground-water samples from these location(s).
- Liquid samples will be obtained from the primary and secondary systems on a weekly basis for the next month and will be tested for turbidity, specific conductance, and pH.
- Further investigations may include:
  - dye-tracer tests;
  - pressure-gauge and valve testing of leachate piping transfer systems;
  - calibration of liquid-level indicators, pump controls, flow meters; and
  - leak detection surveys of exposed portions of the primary liner.

- Remedial actions may include:
  - installing interim geomembrane covers (temporary);
  - using low permeability daily cover soil;
  - increasing pumping rates from the primary collection system; and
  - repairing leaks (if detected) in the primary liner.

A status report will be submitted to the MDEP prior to the 15th of each calendar month regarding the performance of the secondary collection/transfer system for the relevant phase(s), as long as the average daily rate, calculated over the previous one-month period, exceeds 100 gad. If average daily rates, calculated over one-month periods, continue to exceed 100 gad for more than three consecutive calendar months, a meeting will be scheduled with the MDEP to discuss further response actions.

WMDSM recognizes that, although isolated liquid flows in the secondary collection system on the order of 100 gad may be caused by erroneous measurements or equipment anomalies, these incidences warrant immediate attention. Accordingly, any record of 100 gad or more which occurs for more than three consecutive days will be immediately investigated by WMDSM personnel and will be reported in writing to the MDEP. It is further noted that if liquid flows in the secondary system exceed 100 gad for more than seven days in any calendar month, the average daily rate of 25 gad will necessarily be exceeded, thereby requiring, at a minimum, the response actions set forth for ALR Threshold No. 1.

Response Actions for ALR Threshold No. 3

WMDSM will initiate the response actions listed below within five working days following a recorded flow from the secondary collection system of Phase 7, 9, 10, 11, or 12 that exceeds ALR Threshold No. 3.

- MDEP will be notified in writing.
- All response actions listed above the ALR Threshold No. 2 will be initiated.
- A meeting will be scheduled immediately with the MDEP to discuss further response actions.

TABLE 1

ANALYTICAL TEST PARAMETERS FOR LIQUID OBTAINED FROM SECONDARY LCS

Leak Detection Monitoring Points		Field Parameters	Analytical Parameters			
123LD	9ABCLD	Turbidity	VOCs (1)	TDS	Cobalt	Sodium
4ABLD	10ABLD	Specific Conductance	Phenols (2)	TSS	Copper	Zinc
45SD	11ABCLD	Temperature	BOD	Total Alkalinity	Iron	
5ABLD	12ABLD	pH	COD		Lead	
7LD		Eh/ORP	TOC	Aluminum	Magnesium	
		Dissolved Oxygen	Ammonia	Arsenic	Manganese	
		Flow Rate	Chloride	Barium	Mercury	
		Field Observation	Nitrate	Calcium	Nickel	
			Sulfate	Chromium	Potassium	

APPENDIX III-C

DETAILED FLOW MEASUREMENT DESCRIPTION

DETAILED FLOW MEASUREMENT DESCRIPTION

Monitoring of Phases 1 through 6

Daily Monitoring Activities

The SCADA system monitors the leachate management system and automatically calculates and records the following daily information:

- The cumulative volume of liquid pumped from the Phases 1, 2, and 3 leachate collection wet well and the Phases 1, 2, and 3 leachate detection wet well, recorded to the nearest gallon.
- The cumulative volume of liquid pumped from the primary chamber of Pump Station E (Phases 4 and 5 leachate collection, leachate detection, and subdrains, as well as Phases 10A and 10B), as well as the cumulative volume of liquid pumped from the secondary and subdrain chambers of Pump Station E into the primary chamber and the volume of liquid pumped from Phase 10A and Phase 10B, each recorded to the nearest gallon.

A computer-generated "Daily Flow Report" is printed automatically by SCADA. The reports convey such information as pump run times, average flow rates, pump station/vault levels, and flow volumes for the applicable Phase 1-6 removal systems. These reports are maintained at the WMDSM Main Office.

In addition to the daily flow report data, all adjustments and maintenance modifications to the leachate management system are recorded on a computer spreadsheet entitled "Leachate System Maintenance Log", that is maintained by operations personnel and kept at the Main Office.

Monthly Reporting Activities

The calculated secondary flow rates and primary flow volumes are automatically recorded on a daily basis on a monthly summary spreadsheet by SCADA. The secondary flow volume recorded combine the flows from the secondary collection systems of Phases 1, 2, and 3 and of Phases 4 and 5. The spreadsheet is submitted to the MDEP in electronic document distribution (EDD) format as part of the monthly leachate report. The data is evaluated by operational personnel regularly. Any anomalies such as excessive flow volumes or discrepancies in data are brought to the attention of the Operations Supervisor and/or the District Engineer.

Monitoring of Phases 7, 8, 9, 10, 11, and 12

Daily Monitoring Activities

Data acquisition is performed automatically by the SCADA system on a daily-basis for the Phases 7, 8A, 8B, 8C, 9A, 9B, 9C, 10A, 10B, 11A, 11B, 11C, 12A, and 12B primary and secondary leachate collection and detection systems, as applicable. The data is recorded and presented on the site "Daily Flow Report." The reports convey such information as pump run times, average flow rates, pump station/vault levels, and flow volumes for the applicable leachate removal systems (e.g., Phases 9A, 9B, and 9C). These reports are maintained at the WMDSM Main Office.

In addition to the daily flow report data, all adjustments and maintenance modifications to the leachate management system are recorded on a computer spreadsheet entitled "Leachate System Maintenance Log", that is maintained by operations personnel and kept at the Main Office.

Monthly Reporting Activities

The calculated secondary flow rates and primary flow volumes are automatically recorded on a daily-basis on a monthly summary spreadsheet by SCADA. The spreadsheet is submitted to the MDEP in electronic document distribution (EDD) format as part of the monthly leachate report. The data is evaluated by operational personnel regularly. Any anomalies such as elevated liquid levels in the sumps, excessive flow volumes, or discrepancies in data are brought to the attention of the Operations Supervisor and/or the District Engineer.

Monitoring of Asbestos Pump Station

Daily Monitoring Activities

Data acquisition is performed automatically by the SCADA system on a daily-basis for the Asbestos Pump Station. The data is recorded and presented on the site "Daily Flow Report." The reports convey such information as pump run times, average flow rates, pump station/vault levels, and flow volumes. These reports are maintained at the WMDSM main office.

In addition to the daily flow report data, all adjustments and maintenance modifications to the leachate management system are recorded on a computer spreadsheet entitled "Leachate System Maintenance Log", that is maintained by operations personnel and kept at the Main Office.

Monthly Reporting Activities

The flow volumes are automatically recorded on a daily-basis on a monthly summary spreadsheet by SCADA. The spreadsheet is submitted to the MDEP in electronic document distribution (EDD) format as part of the monthly leachate report. The data is evaluated by operational personnel regularly. Any anomalies such as elevated liquid levels in the pump stations, excessive flow volumes, or discrepancies in data are brought to the attention of the Operations Supervisor and/or the District Engineer.

Monitoring of Phases 8A, 8B/8C, and 9 Underdrain Wet Wells

Daily Monitoring Activities

Data acquisition is performed automatically by the SCADA system on a daily-basis for the

Phases 8A, 8B/8C, and 9 underdrain wet wells, if liquid (pore water) collected in the associated wet well discharges into West Central Pump Station (WCPS). If an underdrain wet well is plumbed to discharge into the ECS-29 plunge pool, the flow data is not recorded. Since 2003 and 2004, respectively, Phases 8A and 9 underdrain wet wells discharge into the ECS-29 plunge pool. Currently, the Phase 8B/C' underdrain wet well discharges into WCPS. The data is recorded and presented on the site "Daily Flow Report." The reports convey such information as pump run times, average flow rates, wet well levels, and flow volumes. These reports are maintained at the WMDSM Main Office.

In addition to the daily flow report data, all adjustments and maintenance modifications to the leachate management system are recorded on a computer spreadsheet entitled "Leachate System Maintenance Log", and is maintained by operations personnel and kept at the Main Office.

Monthly Reporting Activities

The flow volumes are automatically recorded on a daily-basis on a monthly summary spreadsheet by SCADA. The spreadsheet is submitted to the MDEP in electronic document distribution (EDD) format as part of the monthly leachate report. The data is evaluated by operational personnel regularly and reviewed by the Operations Supervisor and/or District Engineer, as needed.

Monitoring of Weather

WMDSM initially maintained a weather station from the inception of monthly reporting activities. During the past several years, WMDSM has relied on monthly weather reports from Anson Madison Sanitary District. A weather station was purchased in late 2016 to be activated in early 2017. The weather station monitors such information as temperature, barometric pressure, relative humidity, precipitation, wind speed, and wind direction. Daily reports will be generated automatically and maintained at the WMDSM Main Office. The monthly leachate report, submitted to the MDEP, included the precipitation information.

APPENDIX III-D

ACID FLUSH MAINTENANCE PROCEDURE

ACID FLUSH MAINTENANCE PROCEDURE

The following maintenance procedure has been developed to remove/mitigate calcium carbonate scale from the Leachate Collection System (LCS) of a secure landfill.

WMDSM will contract with a qualified chemical distributor to supply a mild Hydrochloric Acid solution (2% acid by weight/pH of approximately 1.0). The acid solution will be delivered via tanker trucks in quantities up to approximately 5,000 gallons. All acid handling (off-loading/introduction to the LCS) will be performed by qualified personnel, provided by the contractor. WMDSM personnel are not to handle acid during off-loading, unless they have been specially trained and qualified. WMDSM personnel will be responsible for directing the contractor to the appropriate locations for off-loading.

Prior to flushing, leachate will be extracted from the landfill, to the extent possible, to maximize the benefit from the low pH acid solution. Introduction of the acid can be accomplished through any of the following:

1. Leachate Collection Header (LCH) - The LCH must be equipped with secure fittings to safeguard against potential backflushing.

2. Stormwater Collection Header (SCH) - The SCH must be equipped with secure fittings to safeguard against potential backflushing.

3. Leachate Collection (LC) Riser Pipes (2HP or 5HP) - Off loading hose must be inserted at least 3 feet into the LC Riser Pipe to safeguard against potential splash back. These pipes are 2 feet in diameter, which minimizes the potential for backflushing.

To maximize the benefit, acid may be circulated within the LCS by utilizing installed components and/or standard pumping equipment. Leachate will not be flushed into the site-wide leachate collection network until the pH has risen to at least 3.0.

Field testing and notes will be gathered by the qualified contractor, assisted by operational personnel as needed, to determine the effectiveness of the maintenance procedure. Documentation will consist of the following:

1. Initial flowmeter and bubbler tube readings from primary LCS after leachate levels have been lowered as much as possible.

2. pH of leachate prior to acid introduction. Samples will be obtained through the installed sample collection port.

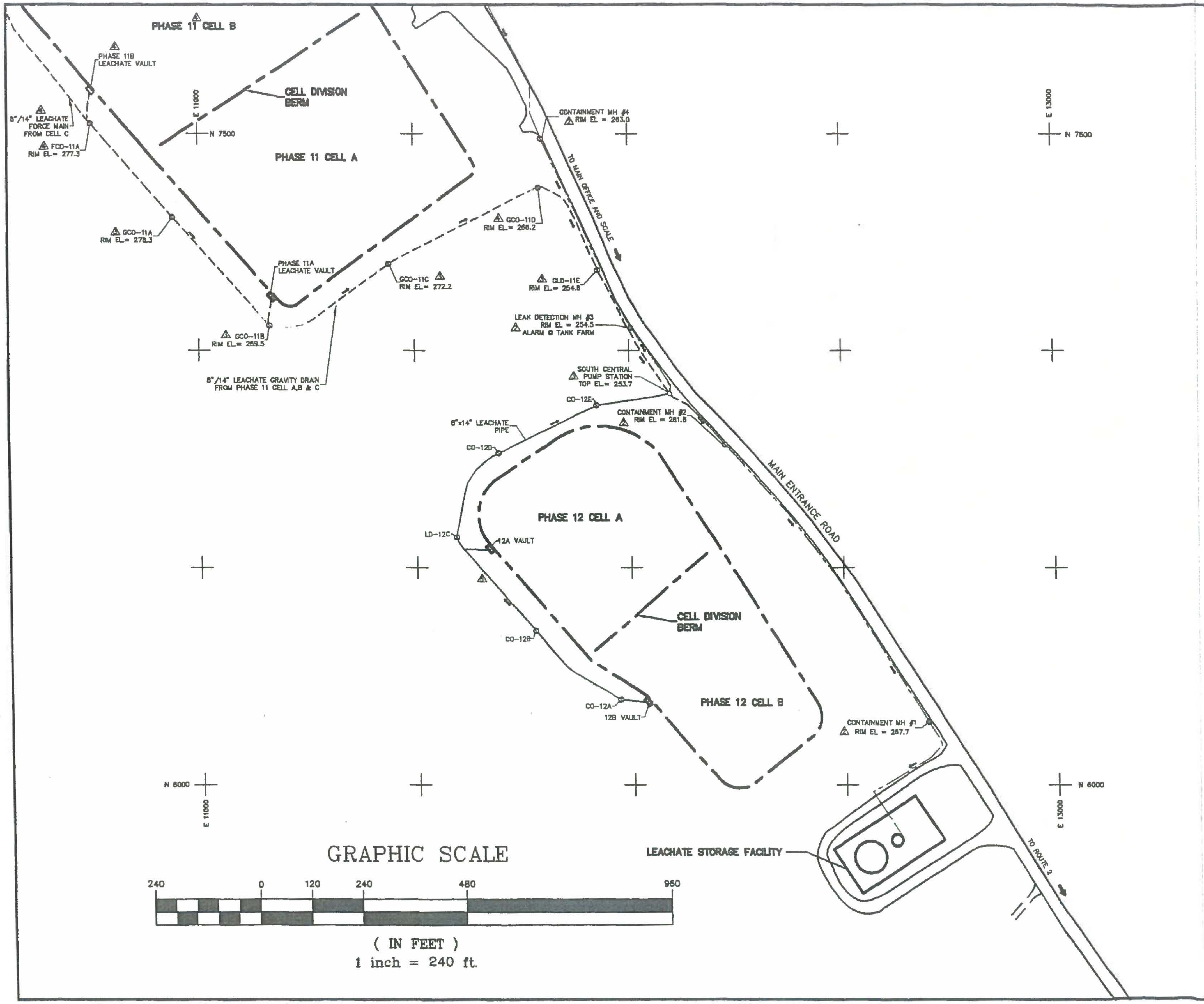
3. Amount of acid flushed into the LCS and the location(s) it was introduced.

4. Observations during acid introduction (i.e., bubbler readings, foaming, odor, or other observations).

5. pH readings at 15 minute intervals once introduction of acid has been completed. pH readings will continue until it has stabilized at 3.0 or greater.

6. Circulation activities with associated pump readings.

The ongoing effectiveness of the flush will be documented through monthly leachate monitoring reports. All acid flushing maintenance activities will be reported to the MMDEP in conjunction with WMDSM's annual report.



NOTE:

1) CONSTRUCTION OF LEACHATE COLLECTION SYSTEM COMPLETED SPRING OF 1994, AS-BUILT SURVEY OF VISIBLE MANHOLES COMPLETED AT THAT TIME.

LEGEND:

LEACHATE FORCE MAIN	— - — - —
LEACHATE MANHOLE	●
LEACHATE FLOW	→
LEACHATE GRAVITY LINE	— — — —
INSULATED PORTION OF PIPE	————

GROUND CONTROL, PROPERTY LINE
INFORMATION AND MAPPING UPDATES
PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
P.O. BOX 207, RTE 201N
SKOWHEGAN, MAINE 04976

CONTOUR INTERVAL: N/A
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED

5	[illegible]	PHASE 12 CELL-A & B GRAVITY LINE	DJS	
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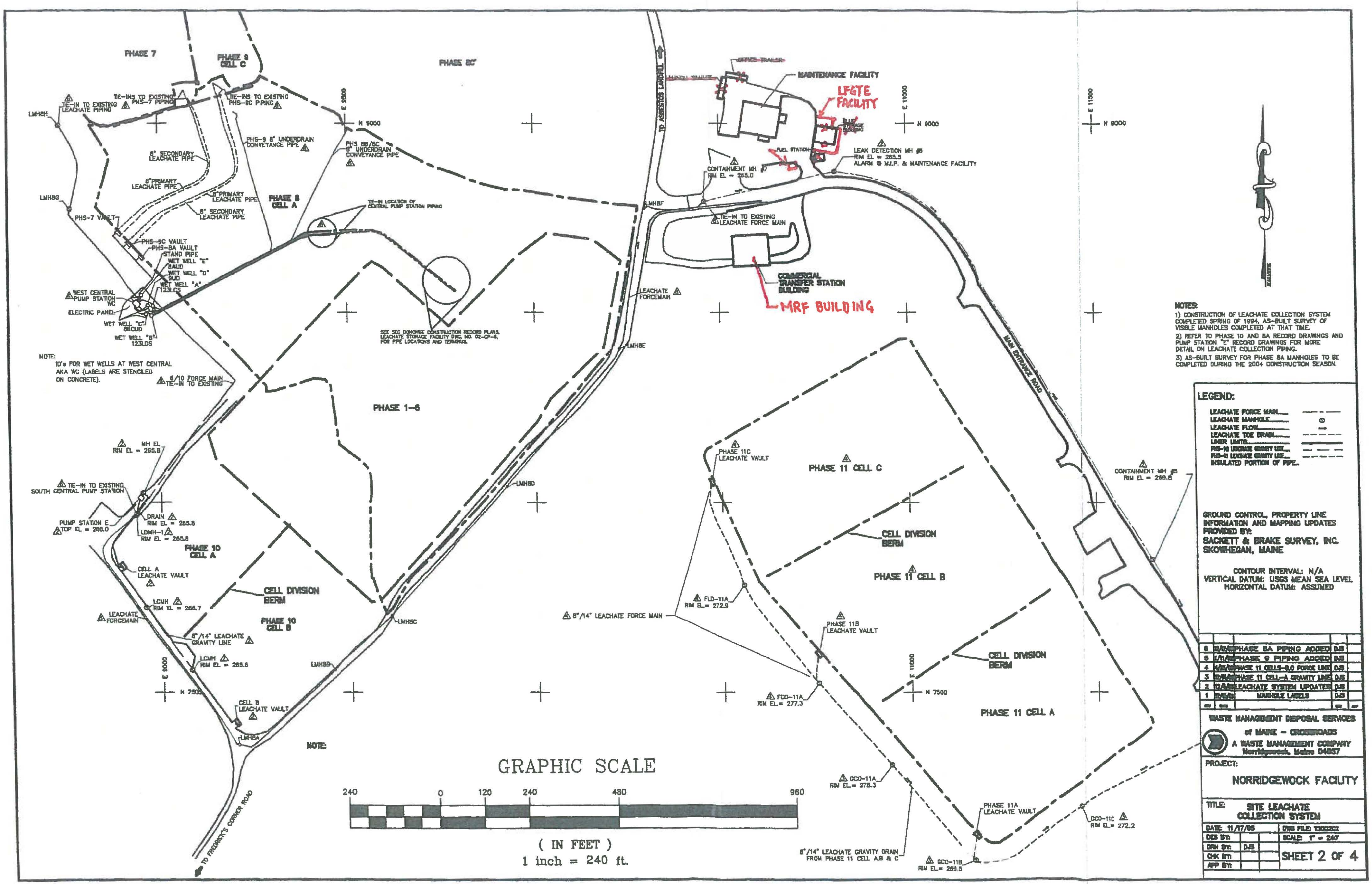
3	[illegible]	PHASE 11 CELL-A GRAVITY LINE	DJS	
2	[illegible]	MANHOLE RIM ELEVATIONS	DJS	
1	[illegible]	MANHOLE LABELS	DJS	

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE – CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
NORRIDGEWOCK FACILITY

TITLE: SITE LEACHATE COLLECTION SYSTEM

DATE: 11/17/96			DWG FILE: T300201
DES BY:			SCALE: 1" = 240'
DRN BY:	DJS		SHEET 1 OF 4
CHK BY:			
APP BY:			



NOTES:

1) CONSTRUCTION OF LEACHATE COLLECTION SYSTEM COMPLETED SPRING OF 1994, AS-BUILT SURVEY OF VISIBLE MANHOLES COMPLETED AT THAT TIME.

2) REFER TO PHASE 10 AND 8A RECORD DRAWINGS AND PUMP STATION "E" RECORD DRAWINGS FOR MORE DETAIL ON LEACHATE COLLECTION PIPING.

3) AS-BUILT SURVEY FOR PHASE 8A MANHOLES TO BE COMPLETED DURING THE 2004 CONSTRUCTION SEASON.

LEGEND:

LEACHATE FORCE MAIN	— - —
LEACHATE MANHOLE	⊘
LEACHATE FLOW	→
LEACHATE TOE DRAIN	- - - -
LINER LIMITS	━━━
PHS-10 LEACHATE GRAVITY LINE	— — —
PHS-11 LEACHATE GRAVITY LINE	- - - - -
INSULATED PORTION OF PIPE	

GROUND CONTROL, PROPERTY LINE INFORMATION AND MAPPING UPDATES PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
SKOWHEGAN, MAINE

CONTOUR INTERVAL: N/A
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED

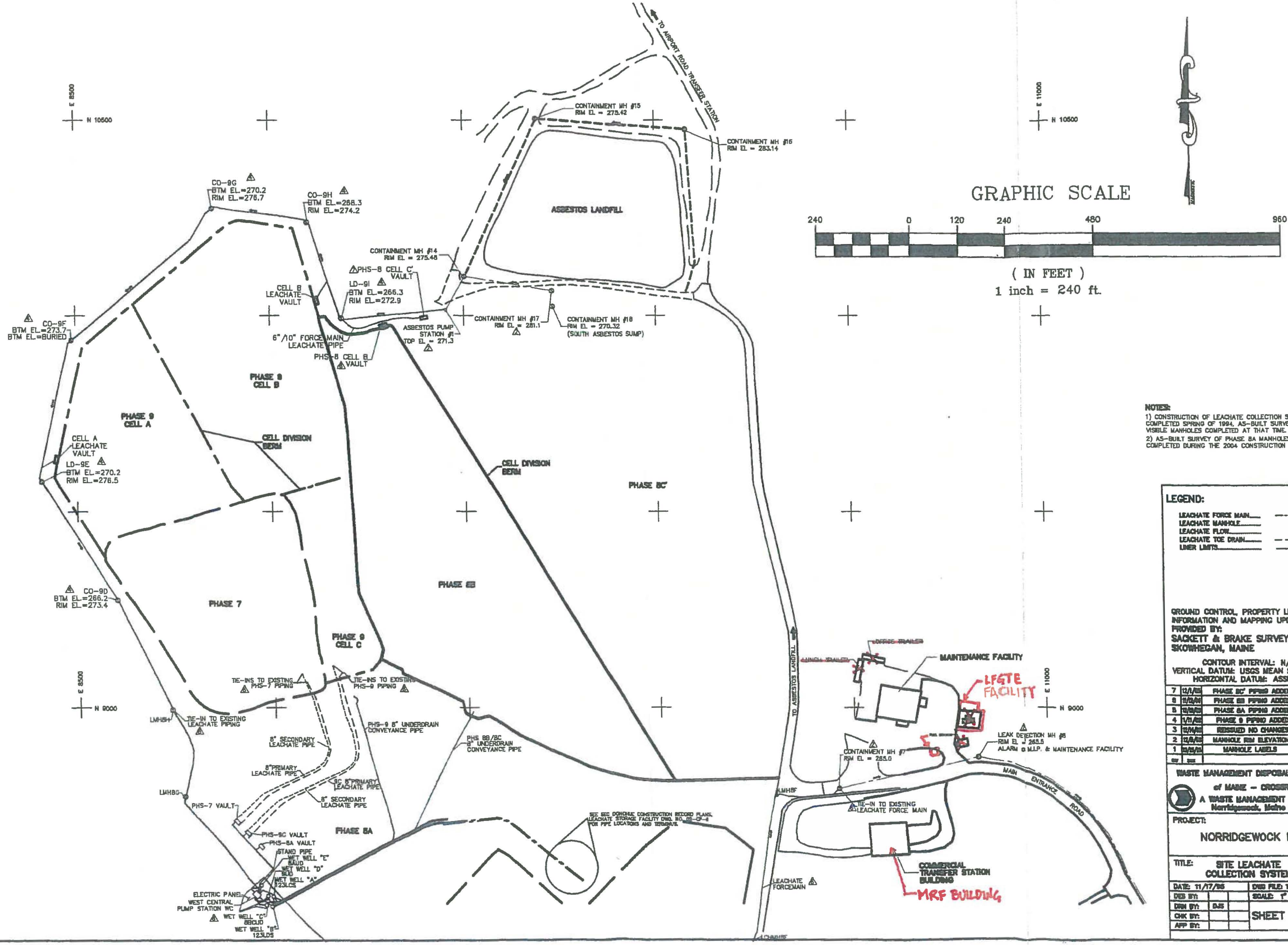
6	[illegible]	PHASE 8A PIPING ADDED	DJS	
5	[illegible]	PHASE 9 PIPING ADDED	DJS	
4	[illegible]	PHASE 11 CELLS-B,C FORCE LINE	DJS	
3	[illegible]	PHASE 11 CELL-A GRAVITY LINE	DJS	
2	[illegible]	LEACHATE SYSTEM UPDATES	DJS	
1	[illegible]	MANHOLE LABELS	DJS	

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE – CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
NORRIDGEWOCK FACILITY

TITLE: SITE LEACHATE COLLECTION SYSTEM

DATE: 11/17/05		DWG FILE: T300202	
DES BY:		SCALE: 1" = 240'	
DRN BY:	DJS	SHEET 2 OF 4	
CHK BY:			
APP BY:			



NOTES:

1) CONSTRUCTION OF LEACHATE COLLECTION SYSTEM COMPLETED SPRING OF 1994, AS-BUILT SURVEY OF VISIBLE MANHOLES COMPLETED AT THAT TIME.

2) AS-BUILT SURVEY OF PHASE 8A MANHOLES TO BE COMPLETED DURING THE 2004 CONSTRUCTION SEASON.

LEGEND:

LEACHATE FORCE MAIN	––·–––·––
LEACHATE MANHOLE	⊙
LEACHATE FLOW	➡
LEACHATE TOE DRAIN	— — — —
LINER LIMITS	———

GROUND CONTROL, PROPERTY LINE INFORMATION AND MAPPING UPDATES PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
SKOWHEGAN, MAINE

CONTOUR INTERVAL: N/A
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED

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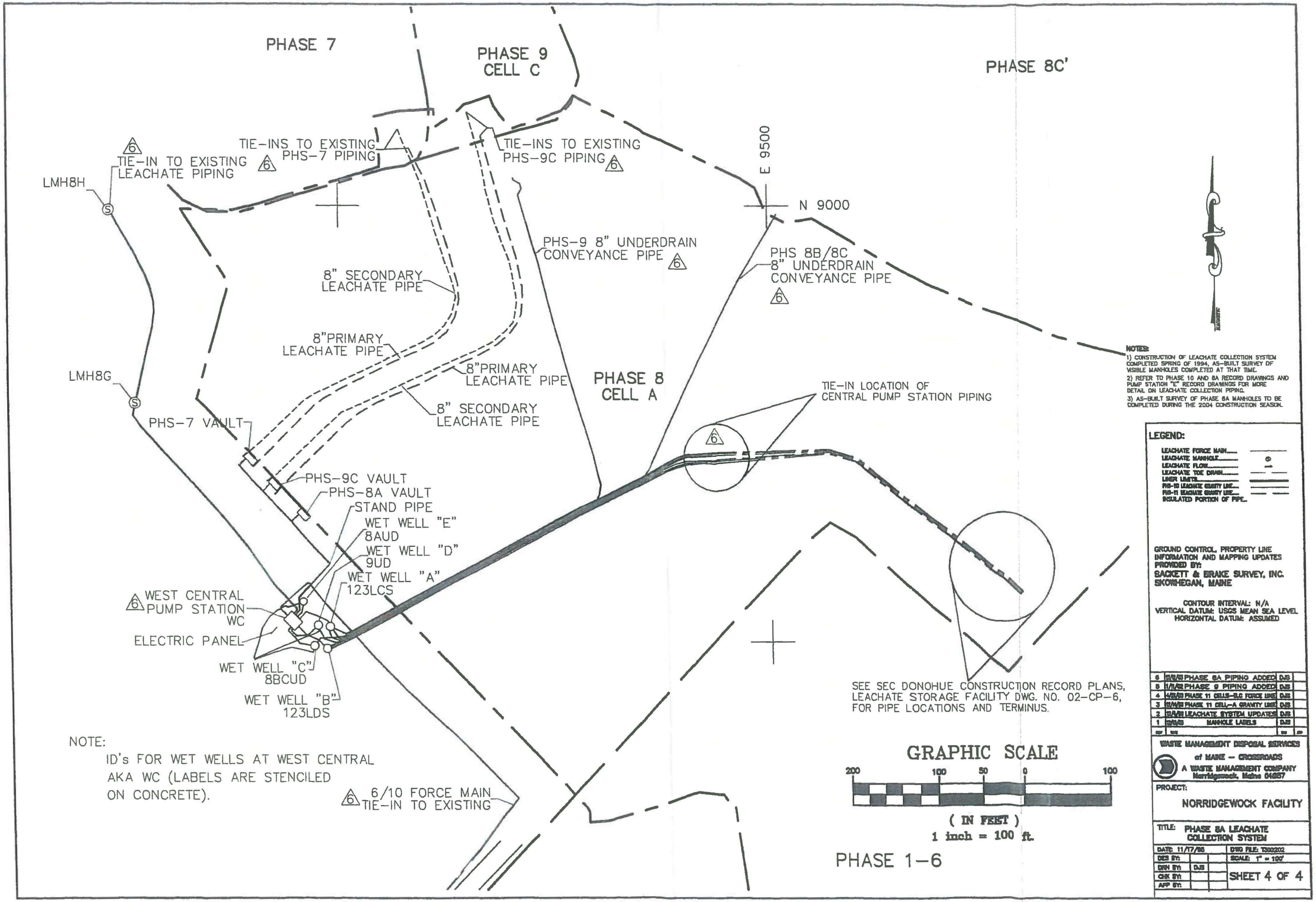
6	[illegible]	PHASE 8B PIPING ADDED	DJS	
5	[illegible]	PHASE 8A PIPING ADDED	DJS	
4	1/11/[illegible]	PHASE 9 PIPING ADDED	DJS	
3	[illegible]	REISSUED NO CHANGES	DJS	
2	12/8/[illegible]	MANHOLE RIM ELEVATIONS	DJS	
1	[illegible]	MANHOLE LABELS	DJS	
[illegible]	[illegible]		[illegible]	[illegible]

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE – CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
NORRIDGEWOCK FACILITY

TITLE: SITE LEACHATE COLLECTION SYSTEM

DATE: 11/17/96		DWG FILE: T300203	
DES BY:		SCALE: 1" = 240'	
DRN BY:	DJS	SHEET 3 OF 4	
CHK BY:			
APP BY:			



NOTE:
ID's FOR WET WELLS AT WEST CENTRAL AKA WC (LABELS ARE STENCILED ON CONCRETE).

NOTES:

1) CONSTRUCTION OF LEACHATE COLLECTION SYSTEM COMPLETED SPRING OF 1994, AS-BUILT SURVEY OF VISIBLE MANHOLES COMPLETED AT THAT TIME.

2) REFER TO PHASE 10 AND 8A RECORD DRAWINGS AND PUMP STATION "E" RECORD DRAWINGS FOR MORE DETAIL ON LEACHATE COLLECTION PIPING.

3) AS-BUILT SURVEY OF PHASE 8A MANHOLES TO BE COMPLETED DURING THE 2004 CONSTRUCTION SEASON.

LEGEND:

LEACHATE FORCE MAIN......
LEACHATE MANHOLE..........
LEACHATE FLOW..............
LEACHATE TOE DRAIN.......
LINER LIMITS..................
PHS-10 LEACHATE GRAVITY LINE...
PHS-11 LEACHATE GRAVITY LINE...
INSULATED PORTION OF PIPE..

GROUND CONTROL, PROPERTY LINE INFORMATION AND MAPPING UPDATES PROVIDED BY:
SACKETT & BRAKE SURVEY, INC.
SKOWHEGAN, MAINE

CONTOUR INTERVAL: N/A
VERTICAL DATUM: USGS MEAN SEA LEVEL
HORIZONTAL DATUM: ASSUMED

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5	1/11/02	PHASE 9 PIPING ADDED	DJB	
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2	[illegible]	LEACHATE SYSTEM UPDATES	DJB	
1	[illegible]	MANHOLE LABELS	DJB	
[illegible]	[illegible]		[illegible]	[illegible]

WASTE MANAGEMENT DISPOSAL SERVICES
of MAINE — CROSSROADS
A WASTE MANAGEMENT COMPANY
Norridgewock, Maine 04957

PROJECT:
NORRIDGEWOCK FACILITY

TITLE: PHASE 8A LEACHATE COLLECTION SYSTEM

DATE: 11/17/98
DWG FILE: T300202
DES BY:
SCALE: 1" = 100'
DRN BY: DJB
CHK BY:
APP BY:
SHEET 4 OF 4

ENVIRONMENTAL PROTECTION

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
357 Mercer Road
Norridgewock, Maine 04957
207-634-2714

November 2015

Prepared By:

St.Germain ▪ Collins

GENERAL INFORMATION

Facility Name:	Waste Management Disposal Services of Maine, Inc.- Crossroads Landfill, a subsidiary of Waste Management
Facility Address:	357 Mercer Road, Norridgewock, Maine, 04957
Facility Phone:	207-634-2714
Designated Person Responsible for Spill Prevention:	Jeffrey McGown
Types of Operations:	The Crossroads Landfill facility contains secure landfills, Residential Transfer Station, Material Recovery Facility, Tire Processing Facility, and a Landfill Gas to Energy (LFGTE) Plant.
Date of Last Plan Review:	November 2015

EMERGENCY CONTACT LIST (40 CFR 112.7(a)(3)(vi))

FACILITY CONTACTS

PRIMARY

Name:	Jeffrey McGown	Office Number:	207-634-2714, ext 210
Title:	District Manager	Cell Number:	207-240-9739

SECONDARY

Name:	John Chessa	Office Number:	207-634-2714, ext 213
Title:	Operations Manager	Cell Number:	207-487-1442

ENVIRONMENTAL CONTACT

Name:	Sherwood McKenney	Office Number:	207-634-2714, ext 223
Title:	District Engineer	Cell Number:	207-240-9787

SPILL RESPONSE CONTRACTOR

Clean Harbors Environmental Services, Inc.	800-645-8265

AGENCY CONTACTS

National Response Center:	800-424-8802
EPA Region 1:	888-372-7341
Maine Department of Environmental Protection	
Regional Office:	207-287-7800
24 hour Oil Spill Hotline:	800-482-0777
24 hour Hazardous Material Spill Hotline:	800-452-4664

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LIST OF TABLES

APPENDICES

1.0 GENERAL APPLICABILITY (40 CFR 112.1)

This Spill Prevention, Control, and Countermeasure (SPCC) Plan has been prepared for the Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill (WMDSM), pursuant to Federal Regulations promulgated in 1973 (Code of Federal Regulations (CFR), Title 40, Chapter I, Subchapter D, Part 112 – Oil Pollution Prevention) and revised most recently in July 2011. The objective of the SPCC Plan is to prevent the discharge of oil from non-transportation related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

For the purpose of this SPCC Plan, the following are defined in 40 CFR 112.2:

- "Oil" means oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil.

- "Discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil.

- "Navigable Waters" of the United States means "navigable waters" as defined in section 502(7) of the FWPCA, and includes:

    1) all navigable waters of the United States, as defined in judicial decisions prior to the passage of the 1972 Amendments of the Federal Water Pollution Control Act, (FWPCA) (Pub. L. 92-500) also known as the Clean Water Act (CWA), and tributaries of such waters;

    2) interstate waters, including interstate wetlands;

    3) intrastate lakes, rivers, and streams (including intermittent streams) which are utilized by interstate travelers for recreational or other purposes; and mudflats, sand flats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce;

    4) intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce;

    5) waters of the United States, including the territorial seas; and

    6) all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide.

The SPCC Plan regulations apply to:

- All facilities that have an above ground aggregate storage capacity exceeding 1,320 gallons of oil. (All containers with volumes less than 55 gallons and motive power containers (i.e. fuel and hydraulic tanks on moving vehicles)) are exempt. This does not include tank trucks that are used as mobile re-fuelers.

- All facilities that have a completely buried storage capacity greater than 42,000 gallons of oil, excluding containers that are "permanently closed." The WMDSM Crossroads Landfill does not have any underground storage tanks containing oil.

2.0 PROFESSIONAL ENGINEER CERTIFICATION (40 CFR 112.3(d))

By means of this Certification/Re-Certification, I attest that I am familiar with the requirements of provisions of 40 CFR 112, that I or my designated agent have visited and examined the facility, that this SPCC Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of 40 CFR 112, that procedures for required inspections and testing have been established and that the Plan is adequate for the facility.

11/16/15

Engineer: Scott D. Collins
Registration Number: 7860
State: Maine

Date:

Seal

SCOTT D.
COLLINS
No. 7860
11/16/15

3.0 WRITTEN REPORTS (40 CFR 112.4)

A written report is required to be sent to the Regional Administrator of the United States Environmental Protection Agency (USEPA) and the Maine Department of Environmental Protection (MEDEP) within 60 days (30 days for MEDEP) when the following amounts of oil reach navigable waters or adjoining shorelines:

1. A discharge of over 1,000 U.S. gallons of oil occurs in a single spill, or
2. It is the second spill event occurring within any 12-month period of more than 42 U.S. gallons of oil.

This report is to contain the following information:

a) Name of the facility;

b) Name(s) of the person reporting;

c) Location of the facility;

d) Maximum storage or handling capacity of the facility and normal daily throughput;

e) Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements;

f) An adequate description of the facility including maps, flow diagrams, and topographical maps as necessary;

g) The cause of such discharge as described in 40 CFR 112.1(b), including a failure analysis of the system or subsystem in which the failure occurred;

h) Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence; and

i) Such other information as the Regional Administrator may reasonably require pertinent to the discharge.

Table 1 Oil Discharge History

Description of Discharge	Corrective Actions Taken	Plan for Preventing Recurrence
WMDSM has operated the facility since 1990, and is not aware of any releases of petroleum product that meet the above definitions.		

4.0 SPCC PLAN AMENDMENT (40 CFR 112.5)

In accordance with 40 CFR 112.5(a), Crossroads Landfill periodically reviews and evaluates this SPCC Plan for any change in the facility design, construction, operation, or maintenance that materially affects the facility's potential for an oil discharge, including, but not limited to:

- Commissioning or decommissioning of oil containers;
- Replacement, reconstruction, or movement of oil containers;
- Reconstruction, replacement, or installation of piping systems;
- Construction or demolition that might alter secondary oil containment structures;
- Changes of product or service; or
- Revision of standard operation or maintenance procedures.

An amendment under 112.5(a) must be prepared within 6 months and implemented as soon as possible, but not later than six months following the amendment.

Amendments to the Plan made to address changes of this nature are referred to as technical amendments, and must be certified by a professional engineer in accordance with 40 CFR 112.3(d). Non-technical amendments can be done (and must be documented) by the facility owner and/or operator. Non-technical amendments include the following:

- Change in the name or contact information (i.e., telephone numbers) of individuals responsible for the implementation of this Plan; or
- Change in the name or contact information of spill response or cleanup contractors.

A review and evaluation of this SPCC Plan should also be conducted at least once every 5 years. As a result of this review and evaluation, Crossroads Landfill will amend the SPCC Plan within six months of the review to include more effective prevention and control technology if:

1. Such technology will significantly reduce the likelihood of a spill event from the facility, or
2. Such technology has been field-proven at the time of the review.

The required documentation for whether the SPCC Plan will or will not be amended following a review is provided in Appendix A.

5.0 MANAGEMENT APPROVAL (40 CFR 112.7)

This SPCC Plan establishes preparedness, prevention, planning, spill response, and spill notification procedures as set forth in applicable state and federal regulations. This Plan has been compiled by an agent of Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill and reviewed and certified by a professional engineer (internal or third party) following the sequence specified in 40 CFR 112.

As specified in 40 CFR 112.3(e), a copy of this Plan will be maintained at the Crossroads Landfill and made available upon request for on-site review by the Regional Administrator of the USEPA during normal business hours.

This facility is committed to the prevention of discharges of oil to navigable waters and the environment and maintains the highest standards for spill prevention control and countermeasures through regular review, updating, and implementation of the SPCC Plan. This Plan has the full approval of management at a level of authority to commit the necessary resources to fully implement the Plan.

Jeffrey McGown, District Manager

Signature____________________ Date 11-16-2015

Plan Distribution

Copies of the SPCC Plan are kept on file at the following location:

- District Engineer's Office, Crossroads Landfill
- Operations Manager's Office, Crossroads Landfill

6.0 GENERAL REQUIREMENTS (40 CFR 112.7)

There are no additional facilities or procedures, methods, or equipment not yet fully operational identified in the SPCC Plan that require details of installation and operational start-up. Crossroads Landfill is in conformance with 40 CFR 112.7(a)(1).

6.1 COMPLIANCE WITH APPLICABLE REQUIREMENTS (40 CFR 112.7 (a)(2))

This SPCC Plan is in conformance with all applicable requirements of 40 CFR Part 112, except for minor deviations, as allowed by 40 CFR 112.7(a)(2). The deviations, and the equivalent environmental protection provided, are described below:

- 40 CFR (112.8(c)(6)) requires integrity testing of containers. Smaller oil storage containers are not integrity tested. Instead, they are stored off the ground or on impermeable liners and visually inspected on a regular basis. This is further discussed in Section 7.2.6 of this Plan.

- 40 CFR (112.7(c) requires appropriate containment and/or diversionary structures or equipment to prevent a discharge. EPA OSWER 9360.8-38 Memorandum requires general containment for potential tank overfills and piping leaks for double-wall tanks. This guidance specifies that double-wall tanks have redundant overfill protection, when the facility operator is relying solely on the double-wall construction of the tank to provide secondary containment. Double-wall tanks with general containment for tank overfills and piping leaks and redundant overfill protection will provide an Environmental Equivalence. The double-wall tanks at the Crossroads Landfill meet the "overfill alarm and an automatic flow restrictor or flow-shutoff, and product transfers are constantly monitored" requirements for overfill protection.

- 40 CFR 112.8(d)(5) requires warning vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations. As an Environmental Equivalence to this requirement, alternative methods of protecting equipment from the possibility of a collision such as installing fences, barriers, curbing or other physical obstacles are allowed. The regulated storage tanks at the facility are either located inside buildings, are not readily accessible by vehicles, or are protected from collision by physical barriers. This is further discussed in Section 7.3 of this Plan.

6.2 FACILITY INFORMATION (40 CFR 112.7(a)(3))

Facility Owner, Address and Telephone:
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
357 Mercer Road
Norridgewock, Maine 04957
207-634-2714

Facility Operator, Address and Telephone:
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
357 Mercer Road
Norridgewock, Maine 04957
207-634-2714

Contact: Jeffrey McGown, District Manager

6.2.1 Location of Facility

Crossroads Landfill is located off Mercer Road in a rural area approximately 1.5 miles southwest of the junction of Route 2 and Route 139 in Norridgewock, Maine. See Site Location Map (Figure 1 in Appendix B) for more information about the location of the facility and surrounding areas.

6.2.2 General Description of Facility

Crossroads Landfill is owned and operated by WMDSM and is located at 357 Mercer Road, Norridgewock, Maine. Crossroads Landfill is a commercial and residential solid waste and recycling facility. The facility includes 817 acres of land comprising of secure landfills, administrative offices, a scale house, a vehicle/equipment maintenance facility, a material recycling and storage facility, a tire processing facility operated by BDS Waste Disposal, Inc., a container storage area, field offices, a residential transfer station, a wood waste recycling area, and a LFGTE Plant. A Waste Management of Maine, Inc. (WMME) solid waste satellite hauling company is co-located at the Crossroads Landfill, and for the purposes of this plan is intended to be included as part of WMDSM. Refer to the facility hours of operation in Section IA of the Site Operations Manual.

The Site Plan (Figure 2 in Appendix B) shows the location and contents of each fixed oil storage container and location of mobile or portable containers. The Site Plan also shows surface waters, and location of spill response equipment.

6.2.3 Topography and Surface Water Flow

The topography at the facility and surrounding areas is generally flat and gently slopes towards the southeast, southwest, and south. The surface water generally flows to the south, southeast, and southwest towards Mill Stream.

6.2.4 General Description of Petroleum Storage Tanks (112.7(a)(3)(i))

Table 2 below details the various types of oil products stored at the facility. For purposes of this inventory, only containers that exceed or are equal to a 55-gallon capacity are listed. Refer to the Site Plan for locations of oil handling activities.

Table 2 Storage Tank Summary

Tank No.	Location	Year Installed	Capacity (gallons)	Contents	Construction	Overfill Protection
1	Fueling Area	2008	12,000	Diesel	Steel	Level Gauge, High Level Alarm, Automatic Flow-Shutoff
2	Maintenance Facility	1996	500	Engine Oil	Steel	Level Gauge, Vent Whistle
3	Maintenance Facility	1996	500	Hydraulic Oil	Steel	Level Gauge, Vent Whistle
4	Maintenance Facility	1987	598	Used Oil	Steel	Level Gauge, High Level Alarm
5	Maintenance Facility	1992	275	Used Oil	Steel	Level Gauge
6	Main Office	1988	275	Fuel Oil	Steel	Level Gauge, Vent Whistle
7	Fueling Area	2008	2,000	Gasoline	Steel	Level Gauge, High Level Alarm, Automatic Flow-Shutoff
9	Maintenance Facility	2013	500	Used Oil	Steel	Level Gauge
11	Secure Landfill	2013	3,000	Diesel	Steel	Level Gauge, Vent Whistle
12	LFGTE Plant	2009	1,500	Lubrication Oil	Steel	Level Gauge, High Level Alarm
13	LFGTE Plant	2009	1,500	Used Oil	Steel	Level Gauge, High Level Alarm
BDS Tank	Tire Processing Facility	2013	500	Diesel	Steel	Level Gauge, Vent Whistle

Note:
1. Table does not include oil-filled operational equipment.
2. Tank Nos. 8 and 10 removed from facility.
3. The 500-gallon tank located at the Tire Processing Facility is operated and managed by BDS Waste Disposal, Inc. (BDS). The capacity of the tank does not require BDS to implement a SPCC plan. As a result, spill prevention and control measures for this tank are not included in this WMDSM SPCC Plan. The tank specifics identified in the table above are for informational purposes only.

6.3 DISCHARGE PREVENTION MEASURES (40 CFR 112.7(a)(3)(ii))

This section discusses procedures for routine handling of oil products at the facility, including loading, unloading, and fuel transfers. These activities occur primarily at the Secure Landfill Fueling Area, Fueling Area, Maintenance Facility, LFGTE Plant, and Main Office. In general, the system of structural and non-structural control measures consist of spill containment structures, operating procedures that are specifically designed to minimize potential for a release of oil, training of personnel, facility security measures, routine inspections and record keeping, and regular SPCC Plan review.

Secure Landfill Fueling Area

The fuel storage tank is filled by third party contractor tanker trucks. The tank (Tank 11) is equipped with a direct read product level gauge and vent whistle. Transfer operations occur as needed, and fuel is off-loaded from the tank via a dispenser for landfilling operations.

Fueling Area

The fuel storage tanks are filled by third party contractor tanker trucks. Both tanks (Tanks 1 and 7) are equipped with direct read product level gauges, overfill alarms and automatic flow-shutoffs. Transfer operations occur as needed, and fuel is off-loaded from the tanks via a dispenser for landfilling and hauling company operations.

Maintenance Facility

Storage tanks in the Maintenance Facility are filled by vendors with various oil products. Crossroads Landfill personnel remove these products with the use of air, electric or manual pumps, in quantities as needed. These tanks are equipped with direct reading product level gauges.

Waste oil tanks located adjacent to the Maintenance Facility are filled with waste oil by facility personnel. Waste oil is burned in heating units inside the Maintenance Facility.

Drums of various oils are stored in the Maintenance Facility. The drums are brought in full by vendors, and removed by vendors when they are empty. Oil is manually removed from the drums by use of spigots or similar device, in small quantities, as needed.

Main Office

The storage tank in the Main Office is filled by vendors with heating oil. This tank is connected directly to a heating appliance. The tank is equipped with a direct reading product level gauge and a vent whistle.

LFGTE Plant

The storage tanks in the LFGTE Plant are filled by third party vendors. The tanks are equipped with liquid level gauges and high level overfill alarms. Two large oil-filled transformers (960 gallons and 312 gallons) are located on a concrete pad just outside the LFGTE Plant. Each transformer contains less than 1 ppb PCB mineral oil.

6.4 DISCHARGE AND DRAINAGE CONTROLS (40 CFR 112.7(a)(3)(iii))

This section discusses discharge and drainage control such as secondary containment around oil storage containers and other structures, equipment, and procedures for the control of a discharge. Oil storage containment activities occur primarily at the Secure Landfill Fueling Area, Fueling Area, Maintenance Facility, Main Office, and LFGTE Plant.

Secure Landfill Fueling Area

The Secure Landfill Fueling Area has a tank, 3,000 gallon off-road diesel fuel tank. The 3,000 gallon off-road diesel fuel tank is a double wall tank with jersey barriers for collision protection. A spill kit for the Secure Landfill Fueling Area is not necessary because the tank is within the landfill footprint.

Fueling Area

The Fueling Area has two tanks, one 2,000 gallon unleaded gasoline tank and one 12,000 gallon diesel fuel tank. The 12,000 gallon diesel fuel tank and the 2,000 gallon unleaded gasoline tank are double wall tanks with steel/concrete bollards and jersey barriers for collision protection. The spill kit for the Fueling Area is located near the tanks. An outside contractor would be contacted to control and clean-up spills as deemed necessary by site personnel. Erosion Control Structure (ECS) 3B serves as spill containment back-up, as necessary. The structure is equipped with an outlet valve within the manhole which could be closed to contain liquids within ECS 3B, if necessary. A sign is posted near the dispensers with instructions.

Maintenance Facility

The tanks within the Maintenance Facility have a combined maximum storage capacity of 2,373 gallons. The secondary containment consists of concrete containment dikes, which have a minimum effective capacity of 1,188 gallons (Tanks 2, 3, and 5), 3,330 gallons (Tanks 4 and 9). In the event of an oil spill from the tanks, the concrete dikes will contain the spill until detection and spill response actions are initiated. In the event of an oil spill during transfer operations, product would flow southerly across paved driveway toward the grassy area. The spill kit is located in a storage area on the second floor of the Maintenance Facility. An outside contractor would be contacted to control and clean up spills as deemed necessary by site personnel.

Multiple 55-gallon drums and other smaller containers containing various oils are stored in the Maintenance Facility. The 55-gallon drums are located on spill pallets. Each pallet provide at least 61 gallons of containment capacity, which is more than the required 55 gallons for any single drum. The floor of the Maintenance Facility is impervious. A spill kit is located in a storage area on the second floor of the Maintenance Facility to clean up minor spills. An outside contractor would be contacted to control and clean up spills as deemed necessary by site personnel.

Main Office

The tank in the basement of the Main Office building has a maximum storage capacity of 275 gallons. The secondary containment for this area is a double wall tank. In the event of an oil spill during transfer operations, product would flow easterly across paved driveway. The spill kit for the Main Office is located near the fill-port on the outside of the office building. An outside contractor would be called in to control and clean up spills as deemed necessary by site personnel.

LFGTE Plant

The LFGTE Plant has a maximum oil storage capacity of 3,000 gallons (Tanks 12 and 13). These tanks are double wall tanks. In the event of an oil spill during transfer operations, product would flow easterly across paved driveway. The spill kit for LFGTE Plant is located near the tanks, an outside contractor would be contacted to control and clean up spills as deemed necessary by site personnel. There is no sized secondary containment for the two oil-filled transformers located outside the LFGTE Plant.

6.5 SPILL COUNTERMEASURE (40 CFR 112.7(a)(3)(iv))

Upon discovery of an oil spill, the person making the discovery should immediately notify the District Manager. Any response equipment and manpower at the facility's disposal will be used as needed to contain the spill and prevent oil from discharging offsite or into a navigable waterway. Personnel will consult with the District Manager or his designee to determine if outside spill response contractors are required. If management determines that outside resources are necessary, Spill Response Contractors, listed in the front of this Plan, may be utilized.

Any discharge will be contained and cleaned up using appropriate spill response equipment which may include shovels, pumps, and absorbent materials (pads, booms, oil-dry, etc.). Response equipment (i.e., spill kits) are located at the Fueling Area, at the Main Office fill port, in the Maintenance Facility and the LFGTE Plant as shown on the Site Plan. Response equipment locations will be identified to all facility personnel upon employment and during SPCC training. The supply of response equipment will be replenished, as needed. Spill response procedures are discussed in Section 6.9.

6.6 **RECOVERY AND DISPOSAL OF MATERIAL SPILLED** (40 CFR 112.7(a)(3)(v))

Spilled material will be recovered into appropriate containers such as 55-gallon drums, or if the size of the spill warrants, into a roll-off container. When containers are filled, they will be secured and the container appropriately labeled identifying the substance(s), the date of the spill/clean up, and the location, as warranted. Waste material generated during clean-up activities will be characterized in accordance with federal and state regulations, as required. The spill residual will be disposed of by a licensed waste handler or disposed of on-site, if appropriate.

6.7 **EMERGENCY CONTACT LIST** (40 CFR 112.7(a)(3)(vi))

The Emergency Contact List includes emergency contact names and phone numbers for facility personnel, and appropriate agencies, and is included in the front of this SPCC Plan. A Spill Response Contractor List including phone numbers is also included in the front of this SPCC Plan.

6.8 **SPILL REPORTING PROCEDURES** (40 CFR 112.7(a)(4))

Records of each spill event should be documented using the Spill Information Work Sheet provided in Appendix C. This information will facilitate the proper reporting of a discharge to the appropriate individuals and agencies.

Any spill that results in the discharge of oil into navigable waters must **immediately** be reported to the agencies listed in the Emergency Contact List (see page i). The National Response Center should be contacted first.

6.9 **SPILL RESPONSE PROCEDURES (40 CFR 112.7(A)(5))**

Crossroads Landfill responds immediately to spills of oil. Crossroads Landfill's personnel are properly trained to respond to spills and only trained personnel perform clean-up activities. Spill response contractors will be responsible for clean-up activities when the facility does not have the necessary training, equipment, or materials to manage the spill.

Crossroads Landfill's standard approach toward a release as follows:

1. Assess hazards
    - Assess the quantity of substance spilled and integrity of containment.

- Cease operations, as necessary.
- Secure the area.
- Determine if the spill could potentially impact waterways or leave the site.

2. Close valves and deactivate pumps contributing to the discharge.
3. If available, close downstream storm water control valves and deactivate pumps that could potentially cause further migration.
4. Notify supervisory personnel (person responsible for spill prevention).
5. Use equipment and manpower to minimize the amount of oil discharged and to prevent it from entering any navigable waterways.
6. Ensure proper personal protective equipment (PPE) is used during cleanup activities.
7. Once the discharge is stopped and contained, use absorbent materials to absorb the spilled oil. The oil-soaked material must be disposed of according to federal, state, and local regulations.
8. If spill is reportable, immediately notify authorities listed on Emergency Contact List in the front of this SPCC Plan.
9. In the event a spill reaches a waterway, notify National Response Center (800-424-8802).

6.10 SPILL/RELEASE SCENARIOS (40 CFR 112.7(b))

Based on how and where oil and other petroleum products are used and stored at this facility, Table 3 describes potential types of spill/release scenarios; estimated release volumes, based on the volume of the largest oil tank in the area; the probable flow direction of the spill; and the predicted spill rate.

Table 3 Potential Spill Scenarios

Tank #	Potential type Failure	Spill Flow Direction	Maximum Volume	Spill Rate
1	Tank failure	Diesel fuel should flow westerly across grassy area towards ECS 3B	12,000 gallons	Hours to instantaneous
	Hose/pipe failure	Diesel fuel should flow west across grassed area towards ECS 3B	12,000 gallons	Hours to instantaneous
	Line break on tanker delivery truck	Diesel fuel should flow west across grassed area towards ECS 3B	Typically 3,000 to 4,400 gallons	Hours to instantaneous
2, 3	Tank failure	NA - tanks located within containment area	500 gallons each	Hours to instantaneous
	Line break on tanker delivery truck	Oil should flow southeasterly across paved driveway towards ECS 3B	Typically 2,000 to 4,400 gallons	Hours to instantaneous
4, 5, 9	Tank failure	NA - tanks located within containment area	275 to 5000 gallons	Hours to instantaneous
	Line break on tanker delivery truck offloading waste oil	Waste oil should flow southerly across paved driveway towards ECS 3B	Typically 2,000 to 4,400 gallons	Hours to instantaneous
6	Tank failure	Fuel oil would flow across basement floor toward exterior door	275 gallons	Hours to instantaneous
	Tanker rupture offloading at fill port in front parking lot of Main Office building	Fuel oil should flow southerly across paved driveway to grassed area	Typically 2,000 to 3,000 gallons	Hours to instantaneous
7	Tank failure	Gasoline should flow westerly across grassy area towards ECS 3B	2,000 gallons	Hours to instantaneous
	Hose/pipe failure	Gasoline should flow west across grassed area towards ECS 3B	2,000 gallons	Hours to instantaneous
	Line break on tanker delivery truck	Gasoline should flow west across grassed area towards ECS 3B	Typically 3,000 to 4,400 gallons	Hours to instantaneous
11	Tank failure	Diesel fuel should flow into landfill	3,000 each	Hours to instantaneous
	Hose/pipe failure	Diesel fuel should flow into landfill	3,000 each	Hours to instantaneous
	Line break on tanker delivery truck	Diesel fuel should flow into landfill	Typically 2,000 to 4,400 gallons	Hours to instantaneous
12, 13	Tank failure	Lubrication oil should flow westerly across paved driveway towards ECS 3B	1,500 each	Hours to instantaneous
	Line break on tanker delivery truck	Lubrication oil should flow westerly across paved driveway towards ECS 3B	Typically 2,000 to 4,400 gallons	Hours to instantaneous
14, 15	Tank failure	Mineral oil should flow westerly across paved driveway towards ECS 3B	312 to 960 gallons	Hours to instantaneous
NA	Failure of storage container, 55 gallon drums, miscellaneous oils	NA - drums located within containment areas	55 gallons	Hours to instantaneous
NA	Leak or spill from vehicle/equipment fuel tank, gasoline or diesel fuel	varies	0 to 50 gallons	Hours to instantaneous

Legend:
1. gpm: gallons per minute.
2. For larger tanks, it is assumed that it will take 10 minutes to completely empty the tank during a release.
3. A 50 gpm pumping rate is assumed for delivery trucks.
4. N/A: not applicable.
5. Table does not include small (<55 gallons) oil-filled equipment inside LFGTE Plant and MRF.
6. Tanks 8 and 10 removed from facility.

6.11 CONTAINMENT AND DIVERSIONARY STRUCTURES (40 CFR 112.7(c))

Appropriate containment and/or diversionary structures or equipment to prevent a discharge as described in 40 CFR 112.1(b) have been provided for this facility. The containment systems, including walls and floors, are capable of containing oil and are constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs.

Approved prevention systems include:

- Dikes, berms, or retaining walls sufficiently impervious to contain oil;
- Curbing or drip pans;
- Culverting, gutters, or other drainage systems;
- Weirs, booms, or other barriers;
- Spill diversion ponds;
- Retention ponds; or
- Sorbent materials.

Methods of secondary containment at this facility include a combination of structures (e.g., dikes, berms, built-in secondary containment), drainage systems (e.g., sedimentation ponds), and land-based spill response materials (e.g., sorbents) to prevent oil from reaching navigable waters and adjoining shorelines.

- For bulk storage containers (refer to Table 2 of this Plan):
  - **Double-wall tank construction:** Tanks 1, 6, 7, 11, 12 and 13 have double-wall design with a secondary shell.
  - **Dikes:** A concrete containment dike is provided around Tanks 2, 3, 4, 5, and 9. Tanks 2, 3, and 5 are located within a concrete containment dike in the Maintenance Facility with a capacity of 1,188 gallons. Tanks 4 and 9 are located within a concrete containment dike adjacent to the Maintenance Facility with a capacity of 3,330 gallons.
  - **Spill pallets:** Drums not within a diked area are placed on spill pallets. Each spill pallet has a capacity of 61 gallons or more, which can effectively contain 110 percent of the volume of any single 55-gallon drum. Drums are also stored inside buildings and are not exposed to precipitation.
- In transfer areas and other parts of the facility where a discharge could occur:
  - **Drip pans**: The fill port for the used oil AST is equipped with a drip pan to contain small leaks from the piping/hose connections.

  - **Sorbent material**: Spill cleanup kits that include absorbent material, booms, and/or other portable barriers are located within close proximity of the oil product storage and handling areas for rapid deployment should a spill occur. The inventory is checked routinely to ensure that used material is replenished.

The following prevention systems are used at this facility:

- Indoor storage of petroleum except for Tanks 1, 7, 11, 14 and 15;
- Dikes or berms sufficiently impervious to contain oil;
- Spill pallets;
- Absorbent materials;
- Regular visual inspections of petroleum storage containers; and
- Training.

Absorbent materials are available at the Fueling Area, at the fill port located outside the Main Office building and at the Maintenance Facility. Additionally, the indoor storage of oil petroleum storage containers provides supplemental containment in the event of a spill.

6.12 DEMONSTRATION OF PRACTICABILITY (40 CFR 112.7(d))

Crossroads Landfill has determined that use of containment and diversionary structures and the use of readily available spill equipment to prevent discharged oil from reaching navigable water is practicable and effective at this facility. Facility supervision of fueling and transfer operations would potentially limit the volume of fuel released, making the use of absorbent materials (i.e., pads, socks) effective in preventing the discharge of oil from the site.

6.13 INSPECTIONS, TESTS, AND RECORDS (40 CFR 112.7(e))

Visual inspections and/or integrity testing of bulk storage tanks at the facility must be conducted in accordance with applicable industry standards. The applicable industry standard for shop-built containers is the January 2006 Steel Tank Institute (STI) Standard SP001-04, "Standard for Inspection of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids". The shop-built containers at this facility will be inspected and integrity tested (if applicable) in accordance with this standard. Records of visual inspections and integrity tests (if applicable); as well as problems and any corrective actions taken will be kept for a minimum of 3 years.

The oil storage tanks and containers at the facility must be visually inspected monthly and annually, and documented on the forms included in Appendix D. These checklists incorporate the requirements of STI SP001-04. In accordance with SP001-04, the individual at the facility who is responsible for oil spill prevention (or a designated representative) must conduct the visual inspections. The oil storage containers and facility equipment shall be visually surveyed to discover conditions, if any, which indicate problems that could contribute to an oil leak or spill. Additionally, facility employees visually inspect facility equipment for signs of spills or other issues during the course of their normal workday.

Problems are to be reported to the individual designated at the facility who is responsible for oil spill prevention (i.e., District Manager). Corrective action must be taken as soon as possible.

6.14 **SPILL PREVENTION TRAINING** (40 CFR 112.7(f))

Upon beginning employment, new oil handling personnel are instructed by management to the general contents of the facility SPCC Plan. Existing employees will receive training within three months of the issuance of an amended Plan.

The District Manager is responsible for spill prevention training at this facility, and will ensure this training will be provided to the oil handling personnel annually. This training will highlight any past spill events or failures and recently developed precautionary measures. A Spill Prevention Briefing Log (Appendix E) will be completed at each annual briefing. Records of spill prevention training will be kept for at least three years.

Topics discussed during training sessions will include the following topics:

- Operation and maintenance of equipment to prevent oil discharges;
- Discharge procedure protocols;
- Applicable pollution control laws, rules, and regulations;
- General facility operations;
- Contents of the SPCC Plan;
- SPCC procedures;
- Locations of spill and fire control equipment; and
- Inspection and record keeping procedures.

6.15 **SECURITY** (40 CFR 112.7(g))

Oil handling, processing, and storage areas are required to be secure with controlled access to Crossroads employees and approved contractors/consultants to prevent vandalism and unauthorized access. The oil storage tanks are located on the facility property. Direct access to the aboveground storage tanks (ASTs) and drums is restricted to authorized personnel.

6.15.1 ***Facility Fencing***

The operational areas of Crossroads Landfill's site are secured with fencing. In general, the access gate off from Route #2 is unlocked at the start of the day and locked at the end of the workday by a Crossroads employee. The facility remains locked when unattended. No unauthorized entrance to the Crossroads Landfill is permitted. Visitors must check in at the Main Office or Scale House. An attendant is always present during operational hours at the landfill and at Airport Road Transfer Station which is located off Airport Road. The gates at both entrances are locked and secured after normal working hours.

6.15.2 ***Security for Oil Flow Devices***

During the workday, oil flow devices are under the direct control of Crossroads Landfill personnel. When the facility is closed, equipment will remain within the locked facility area.

6.15.3 ***Security for Oil Starter Devices***

For Crossroads Landfill, only the outdoor fuel storage tanks are fitted with oil starter pumping devices. The fuel pumps for Tanks 1, 7 and 11 (diesel and gasoline) are fitted with locking mechanisms. The fuel pump dispenser handles are locked when not in use. The air supply for pneumatic new and used oil transfer pumps in the shop is turned off when the facility is unattended.

6.15.4 ***Security for Loading/Unloading Devices***

When not in service for an extended period of time, loading/unloading oil piping connections will be securely capped or blank-flanged.

6.15.5 ***Facility Lighting***

The Crossroads Landfill maintains lighting during evening hours. A pole-mounted street light is located adjacent to the Fueling Area located near the Maintenance Facility and at the Main Office, where fueling activities may take place after daylight hours. Additional lighting can be provided by vehicles on site.

6.16 TANK TRUCK LOADING/UNLOADING RACK REQUIREMENTS (40 CFR 112.7(h))

There are no loading racks at the Crossroads Landfill.

6.17 FIELD CONSTRUCTED ABOVEGROUND STORAGE TANKS (40 CFR 112.7(i)

There are no field-constructed aboveground storage tanks at the Crossroads Landfill.

6.18 STATE SPECIFIC REQUIREMENTS (40 CFR 112.7(j))

This SPCC Plan is in conformance with all applicable requirements of 40 CFR Part 112, except for minor deviations, as allowed by section 112.7(a)(2) of the regulation as discussed in Section 6.1 of this Plan.

The Crossroads Landfill is located in the State of Maine. The State of Maine currently does not have regulations pertaining specifically to spill prevention and control for aboveground oil storage facilities. In 2002, the Maine Legislature passed a law (38 M.R.S.A. Section 570-K) that gave the Maine Department of Environmental Protection the authority to oversee compliance with EPA's Oil SPCC regulations for facilities used to market and distribute oil to others, which does not include this facility.

6.19 QUALIFIED OIL-FILLED OPERATIONAL EQUIPMENT (40 CFR 112.7(k))

Oil-filled operational equipment means equipment that includes an oil storage container (or multiple containers) in which the oil is present solely to support the function of the apparatus or the device. Oil-filled operational equipment is not considered a "bulk storage container."

Oil-filled operational equipment at the Crossroads Landfill includes:

- Baler in MRF (<55 gallons);
- LFGTE engine day tanks (<55 gallons);
- LFGTE compressors (<55 gallons); and
- Two transformers (960 gallons and 312 gallons) outside LFGTE Plant.

For the oil-filled operational equipment at the Crossroads Landfill, general secondary containment will be provided as discussed in Section 6.4. Specifically spill kits are maintained in close proximity to the oil-filled operational equipment for spills inside buildings and ECS 3B could be utilized to retain oil should one of the transformers rupture.

7.0 SPECIFIC REQUIREMENTS (40 CFR 112.8)

7.1 FACILITY DRAINAGE (40 CFR 112.8(b))

Walled, Diked or Bermed Oil Storage Areas

Walled oil storage areas at the Crossroads Landfill consist of the containment areas in the Maintenance Facility. Neither of these areas is equipped with valves. If liquid is present in the containment areas, it will be manually pumped out into another container and properly disposed of.

Drainage of Unbermed Areas

Drainage conditions at the Crossroads Landfill inhibit the discharge of storm water and other liquids from flowing directly off site. The tanks referenced in this Plan, except Tank 6, are located within a drainage area that discharges to ECS-3B prior to discharge to Mill Stream. Drainage in the area containing Tank 6 flows through vegetated areas prior to discharging to seasonally wet areas on the southerly side of the Crossroads Landfill.

Drainage Treatment Units

There are no waste water treatment units at the Crossroads Landfill.

7.2 BULK STORAGE CONTAINERS (40 CFR 112.8(c))

7.2.1 Construction (40 CFR 112.8 (c)(1))

The oil tanks used at this facility are constructed of steel, in accordance with industry specifications. The design and construction of the bulk storage containers are compatible with the characteristics of the oil product they contain, and conditions of storage such as temperature and pressure conditions.

Piping between bulk storage tanks is made of steel and rubber hose and placed aboveground on appropriate supports designed to minimize stress.

7.2.2 Secondary Containment (40 CFR 112.8(c)(2))

Secondary containment for the tanks is described in Section 6.4 of this Plan.

7.2.3 Drainage of Diked Areas (40 CFR 112.8(c)(3))

Spills within diked areas will be cleaned up with absorbent material. The facility does not have any outdoor valved diked areas; therefore, drainage of diked areas is not applicable.

7.2.4 Corrosion Protection (40 CFR 112.8(c)(4))

There are no metallic underground storage tanks at the Crossroads Landfill.

7.2.5 Partially Buried and Bunkered Storage Tanks (40 CFR 112.8(c)(5))

There are no partially buried or bunkered storage tanks at Crossroads Landfill.

7.2.6 **Inspections and Tests (40 CFR 112.8(c)(6))**

This facility is following the requirements of Steel Tank Institute (STI) Standard SP-001, for testing and inspecting aboveground containers for integrity. Under SP-001, these tanks are considered Category 1 tanks and therefore require periodic inspection of the tanks. Tanks 1, 6, 7, 11, 12 and 13 are double walled construction. Tanks 2, 3, 4, 5 and 9 are elevated with all sides visible. In addition to the December 5, 2008 amendment, USEPA has issued guidance stating that "for well-designed shop-built containers with a shell capacity of 30,000 gallons or under," a program of visual inspections for the container(s) may provide equivalent environmental protection. In accordance with that guideline, the smaller oil storage containers, equipment tanks, and drums at the facility are not integrity tested. Table 4 on the following page summarizes required inspections and tests performed on the Crossroads Landfill oil storage containers.

Storage drums are elevated on spill pallets with all sides visible. Storage drums are not refilled, and therefore are single use containers. STI SP-001 requires portable containers to be replaced or recertified every 12 years for steel containers and every 7 years for plastic containers.

The external inspections are only required at this facility for the 12,000 gal diesel AST (Tank 1) and could include hydrostatic testing, radiographic testing, ultrasonic testing, and acoustic emissions testing. Records of certified tank inspections will be kept at the facility for at least three years. Non-destructible testing records are retained for the life of the tanks.

The personnel performing the periodic inspections are knowledgeable of storage facility operations, characteristics of the liquid stored, the type of aboveground storage tanks and the associated components. Facility personnel perform monthly and annual inspections, as described in this SPCC Plan and in accordance with the checklists. The scope of the inspections and procedures are covered in the training provided to employees involved in handling oil at the facility. The routine inspections focus specifically on detecting any changes in conditions or signs of product leakage from the tanks, piping systems, and appurtenances. Leaks from tank seams, gaskets, rivets, and bolts are promptly addressed, by first removing the tank from service and implementing corrective actions. Records of inspections and tests are signed by the inspector and kept at the facility for at least three years.

In accordance with inspection procedures outlined in this Plan, non-conforming items pertaining to tank or containment integrity need to be evaluated by an engineer experienced in AST design, a certified inspector, or a tank manufacturer to determine corrective action.

Table 4 Scope and Frequency of Oil Storage Containers Inspections and Tests

	Tank ID										
Inspection/Test	**1**	**2&3**	**4**	**5**	**6**	**7**	**9**	**11**	**12**	**13**	**Drums**
STI SP-001 AST Category	1	1	1	1	1	1	1	1	1	1	1
AST Size (gallons)	12,000	500	598	275	275	2,000	500	3,000	1,500	1,500	55
Visual inspection by facility personnel (as per checklists in Appendix D)	M, A	M, A	M, A	M, A	M, A	M, A	M, A	M, A	M, A	M, A	M, A
External inspection by certified inspector (as per STI SP-001)	20 yrs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Legend: M: Monthly
A: Annual
NR: Not Required
Tanks 8 and 10 removed from facility

The frequency above is based on implementation of a scheduled inspection/testing program. To initiate the program, ASTs will be inspected by the following dates:

- Tank 1: external inspection is required by 11/01/2028
- Tanks 2 & 3: external inspection is not required (elevated)
- Tank 4: external inspection is not required (elevated)
- Tank 5: external inspection is not required (elevated)
- Tank 6: external inspection is not required (elevated)
- Tank 7: external inspection is not required (elevated)
- Tank 9: external inspection is not required (elevated)
- Tanks 11, 12 & 13: external inspection is not required (double wall)

7.2.7 Heating Coils (40 CFR 112.8(c)(7))

There are no heating coils at the Crossroads Landfill.

7.2.8 **Overfill Prevention Systems (40 CFR 112.8(c)(8))**

The overfill prevention devices used at the Crossroads Landfill are as follows:

- Tanks 1 and 7 are equipped with a level gauge, a high level alarm, and an automatic flow-shut off valve.
- Tanks 2, 3, 6 and 11 are equipped with overfill vent whistles and sight gauges.
- Tanks 4, 5, and 9 are equipped with a sight gauge.
- Tanks 12 and 13 are equipped with level gauges and high level alarms.

Facility personnel are present throughout the filling operations to monitor the product level in the tanks. Liquid level sensing devices must be regularly tested to ensure proper operation.

Storage drums are not refilled, and therefore overfill prevention systems do not apply to the drums.

7.2.9 **Effluent Treatment Facilities (40 CFR 112.8(c)(9))**

There are no effluent treatment facilities at the Crossroads Landfill.

7.2.10 **Visible Discharges (40 CFR 112.8(c)(10))**

Visible discharges from any container or appurtenance – including seams, gaskets, piping, pumps, valves, rivets, and bolts – are quickly corrected upon discovery.

Oil is promptly removed from the diked area and disposed of according to approved waste disposal methods.

7.2.11 **Mobile and Portable Containers (40 CFR 112.8(c)(11))**

Mobile or portable oil storage containers are containers that have the capacity to store 55 gallons or more of oil and operate exclusively within the facility limits. This includes 55 gallon drums, skid tanks, totes, and intermodal bulk containers. Mobile or portable oil storage containers must be positioned or located to prevent a discharge. Except for mobile refuelers and other non-transportation-related tank trucks, secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation are required. Mobile refuelers and other non-transportation-related tank trucks require general secondary containment unless the mobile tanks are primarily kept in a stationary location.

Small portable oil storage containers, such as 55-gallon drums, are stored inside the Maintenance Facility where secondary containment is provided by spill pallets. Any discharged material is quickly contained and cleaned up using sorbent pads, oil dry, and/or appropriate cleaning products.

7.3 FACILITY TRANSFER OPERATIONS (40 CFR 112.8(d))

Transfer operations at this facility include:

- The transfer of oil from Tanks 2 and 3 in the Maintenance Facility via pneumatic suction pumps to dispenser hoses used to fill machinery and vehicles being serviced in the maintenance building. The oil is pumped from the oil storage tanks by means of overhead steel transfer lines to hose reels containing rubber hose.
- The transfer of new oil from 3rd party tanker trucks into Tanks 2, 3 and 12 in the Maintenance Facility and LFGTE Plant.
- The transfer of oil from 55 gallon drums in the Maintenance Facility.
- The transfer of used oil from portable used oil drain pans into the used oil tank (Tank 4) in the Maintenance Facility via pneumatic suction pumps. The used oil is pumped from the drain pans by means of rubber hose and overhead steel transfer lines.
- The transfer of used oil from Tanks 4, 5 and 9 to the used oil burners.
- The filling of facility trucks and equipment using the diesel and gasoline dispenser at the Fueling Area. The tank-mounted suction pump uses a rubber dispenser hose.
- The transfer of diesel fuel and gasoline from tanker trucks into Tank 1 (diesel fuel) and Tank 7 (gasoline).
- The transfer of #2 fuel oil from tanker trucks into Tank 6.
- The transfer of diesel fuel from tanker trucks into Tank 11 and from Tank 11 into equipment.
- The transfer of waste oil from the LFGTE Plant to one of the waste oil tanks in the Maintenance Facility or into 3rd party tanker trucks for proper disposal.

There is no buried piping at this facility.

Lines that are not in service or are on standby for an extended period of time are capped or blank-flanged and marked as to their origin.

The pipe supports are designed to minimize abrasion and corrosion and to allow for expansion and contraction. Pipe supports are visually inspected during the inspection of the facility.

The aboveground piping is located within areas that are not accessible to vehicular traffic (e.g., inside building, protected by vehicle barrier posts). Brightly painted bollards are placed where needed to prevent vehicular collisions with equipment. The aboveground piping and valves are examined to assess their condition. Inspection includes aboveground valves, piping, appurtenances, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. Observations are noted on the inspection checklist provided in this Plan.

8.0 CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA (40 CFR 112.20(E))

The intent of this form is determine if the facility for which this SPCC Plan is written must prepare a Facility Response Plan as defined by 40 CFR 112.20.

Facility Name: Crossroads Landfill
Facility Address: 357 Mercer Road – Norridgewock, Maine

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

   ☐YES ☒NO

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest above ground oil storage tank plus sufficient freeboard to allow for precipitation within any above ground storage tank area?

   ☐YES ☒NO

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see appendix E to this part, section 10, for availability) and the applicable Area Contingency Plan.

   ☐YES ☒NO

4. Does the facility have a total oil storage capacity of greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?

   ☐YES ☒NO

5. Does the facility have a total oil storage capacity of greater than or equal to 1 million gallons and has the facility experienced a reportable spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

   ☐YES ☒NO

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature ____________________

Name (type or print) Jeff McL[illegible]

Title District MGR

APPENDIX A - SPCC PLAN REVIEW AND EVALUATION LOG

APPENDIX A - SPCC PLAN REVIEW AND EVALUATION LOG

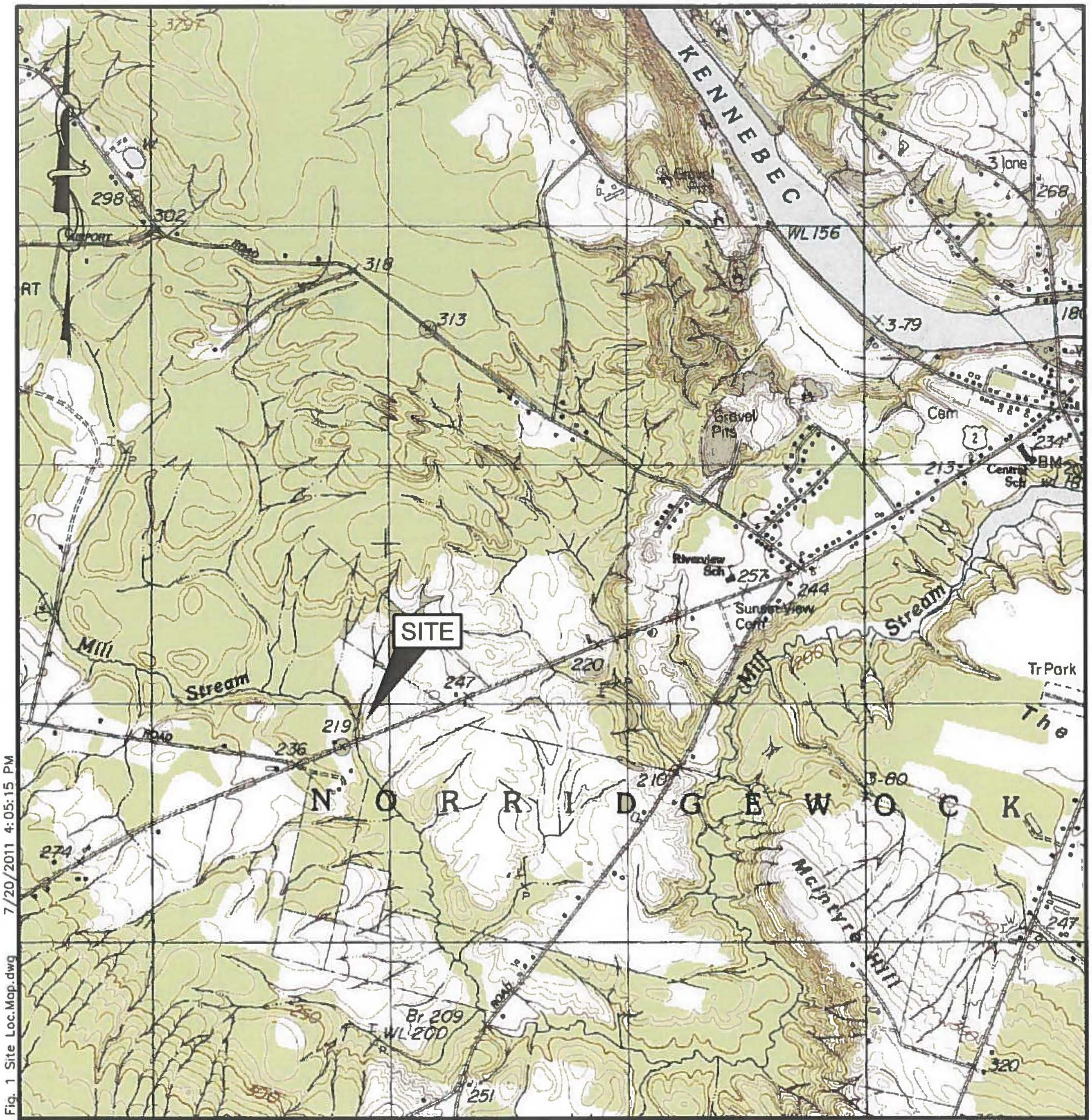
The table below logs the review and evaluation of the SPCC Plan and documents amendments and/or P.E. certification that has been required.

"I have completed my review and evaluation of the SPCC Plan for the *Crossroads Landfill* on the date indicated, and as a result, will or will not amend the Plan as indicated below."

	Reviewer Signature	**Reviewer Name**	**Date**	**Plan Amended?**		**Nature of Changes Made**	**P.E. Cert Required?**		**Date Certified**
1		Scott Collins	May 2013	[✓ Yes]	No	Added two tanks, removed one tank.	[✓ Yes]	No	
2		Scott Collins	June 2014	Yes	[✓ No]		Yes	[✓ No]	
3		Brian DesMarais	November 2015	[✓ Yes]	No	Removed two tanks.	[✓ Yes]	No	
4		Brian DesMarais	October 17 2016	Yes	No	Minor text edits recommended to clarify responsibility for BDS tank	Yes	[✓ No]	
5				Yes	No		Yes	No	
6				Yes	No		Yes	No	
7				Yes	No		Yes	No	
8				Yes	No		Yes	No	

Each time an amendment to this Plan occurs, a new Management Approval signoff in Section 5 needs to be completed.

APPENDIX B - SITE FIGURES



SITE LOCATION MAP

REFERENCE:
USGS SERIES 7.5 TOPOGRAPHIC MAP, NORRIDGEWOCK QUADRANGLE, OBTAINED FROM USGS.

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

2000 0 1000 2000 4000
SCALE IN FEET
1"=2000'

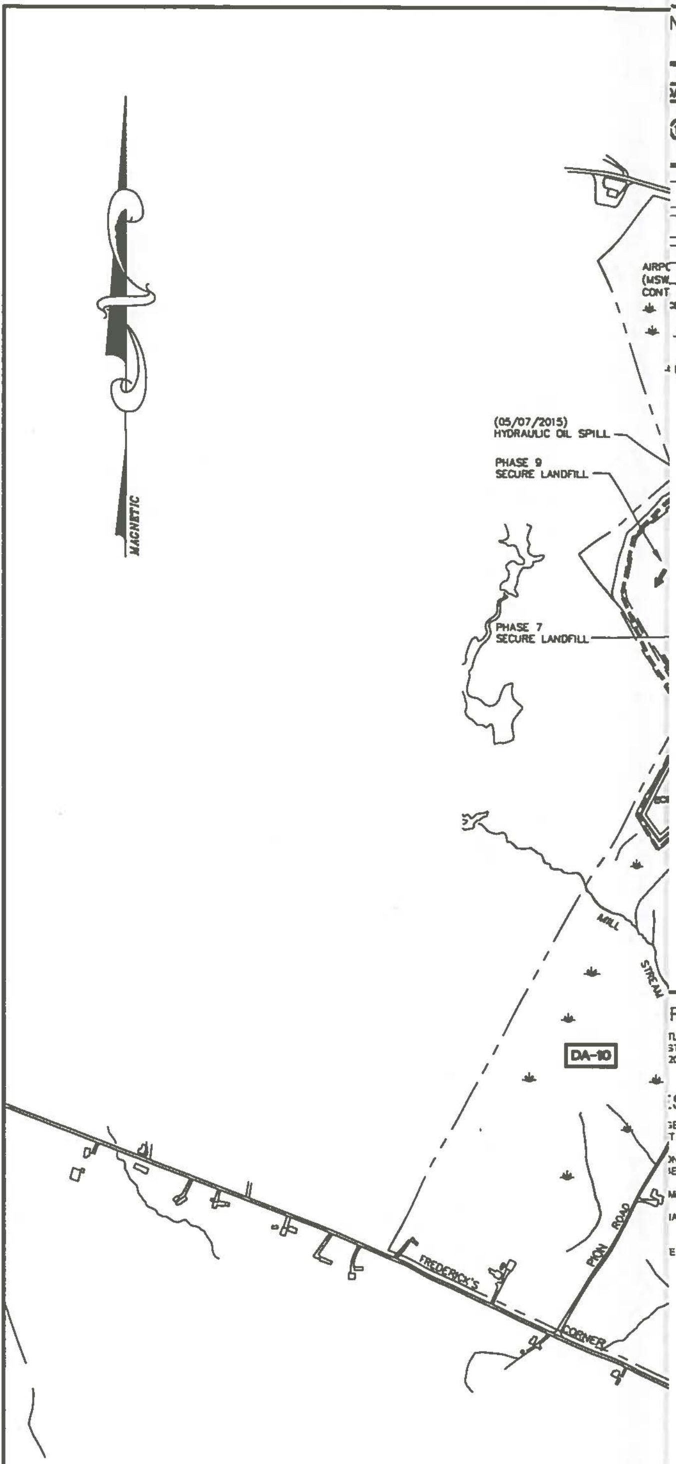
ENVIRONMENTAL CONSULTING GROUP
St.Germain • Collins

FIGURE 1

DATE: 05/26/2011	SCALE: 1"=2000'	PROJECT NO.: 2468.1	FILE: 2468.1 Fig. 1 Site Loc.Map

846 MAIN ST., SUITE 3, WESTBROOK, ME 04092 TEL: 207-591-7000 WWW.STGERMAINCOLLINS.COM

M:\Dwgs\2468 WM Crossroads\2468.1\dwgs\2468.1 Fig. 1 Site Loc.Map.dwg 7/20/2011 4:05:15 PM



ND:

▬ ▬ ▬	DRAINAGE AREA BOUNDARY
DA-6	DRAINAGE AREA NUMBER
⑬	OUTFALL LOCATION AND NUMBER
→	GENERAL DIRECTION OF STORM WATER FLOW
— - —	PROPERTY LINE
═	PAVED ROAD
╌╌	GRAVEL ROAD
▭	STRUCTURE
CB-23	EROSION CONTROL STRUCTURE
⚘ ⚘	WET AREAS
Ⓢ	SPILL RESPONSE EQUIPMENT

RENCE:

TLED "STORMWATER POLLUTION PREVENTION PLAN, DRAINAGE PLAN" BY GZA GEOENVIRONMENTAL, INC. ENGINEERS
STS PREPARED FOR WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. NORRIDGEWOCK, MAINE 04957, DATED
2006.

:S:

GE AREAS AND PATHWAYS SHOWN ON THIS PLAN HAVE BEEN DRAWN BASED ON TOPOGRAPHY AND SITE FEATURES
T AT THE TIME OF ST.GERMAIN COLLINS JUNE 2011 SITE VISIT.

ONS OF CERTAIN SITE FEATURES SHOWN ON THIS PLAN WERE ESTIMATED VISUALLY BY GZA PERSONNEL DURING THE
ER 2005 SITE VISIT AND SHOULD BE CONSIDERED APPROXIMATE.

MPRISES APPROXIMATELY 817 ACRES.

IAL POLLUTANT SOURCE AREAS ARE SHOWN ON THIS PLAN AND DESCRIBED IN MORE DETAIL IN APPENDIX E OF

E PLAN SHOULD BE REVIEWED AND REVISED, AS NECESSARY, ON AN ANNUAL BASIS.

500 0 250 500 1000
SCALE IN FEET
1"=500

SITE PLAN

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

Germain · Collins

FIGURE 2

IN ST., WESTBROOK, ME 04092 TEL: 207-591-7000 WWW.STGERMAINCOLLINS.COM

OIL STORAGE TANK SUMMARY

TANK NO.	LOCATION	YEAR INSTALLED	CAPACITY (GALLONS)	CONTENTS	CONSTRUCTION	OVERFILL PROTECT
1	FUELING AREA	2008	12,000	DIESEL	STEEL	LEVEL GAUGE, HIGH L ALARM, AUTOMATIC FLOW
2	MAINTENANCE FACILITY	1998	500	ENGINE OIL	STEEL	LEVEL GAUGE, VENT W
3	MAINTENANCE FACILITY	1998	500	HYDRAULIC OIL	STEEL	LEVEL GAUGE, VENT W
4	MAINTENANCE FACILITY	1987	598	USED OIL	STEEL	LEVEL GAUGE
5	MAINTENANCE FACILITY	1992	275	USED OIL	STEEL	LEVEL GAUGE
6	MAIN OFFICE	1988	275	FUEL OIL	STEEL	LEVEL GAUGE, VENT, W
7	FUELING AREA	2008	2,000	GASOLINE	STEEL	LEVEL GAUGE, HIGH L ALARM, AUTOMATIC FLOW
8	MAINTENANCE FACILITY	1990	1,000	USED OIL	STEEL	REMOVED 2015
9	MAINTENANCE FACILITY	2013	500	USED OIL	STEEL	LEVEL GAUGE
10	LEACHATE TRANSFER AREA	2004	55	DIESEL	POLYETHYLENE	REMOVED 2015
11	SECURE LANDFILL FUELING AREA	2013	3,000	DIESEL	STEEL	LEVEL GAUGE, VENT W
12	LFGTE PLANT	2009	1,500	LUBRICATION OIL	STEEL	LEVEL GAUGE, HIGH LEV
13	LFGTE PLANT	2009	1,500	USED OIL	STEEL	LEVEL GAUGE, HIGH LEV
BDS TANK	TIRE PROCESSING FACILITY	2013	500	DIESEL	STEEL	LEVEL GAUGE, VENT W

APPENDIX C - SPILL INFORMATION WORK SHEET

WM
WASTE MANAGEMENT
Think Green.

Spill Information Worksheet
MAINE

NEW ENGLAND

PART 1: SPILL INFORMATION (TO BE COMPLETED ON INITIAL CALL-IN)

Ensure the driver or operator has 1) **secured vehicle** in a safe location, 2) **shut off engine**, 3) **deployed traffic control** devices, 4) attempted to **stop leak**, and 5) made efforts to **contain spill**. If the spill is a result of an accident, also follow Safety incident procedures.

If the spill is in an active roadway or presents a safety hazard contact the local Fire Department immediately.

Date of Spill: ____________ Time of Spill: ____________ AM ☐ PM ☐

Vehicle Number: ________ District: ____________ Driver: ______________

Address of Spill: ______________________ Town: ______________

Cross Street, Business, or Landmark: ______________________________

Property Owner/Contact: ______________________________ Customer? ☐

Description of Area (residential property, proximity to water, catch basin etc.):

____

Cause of Spill (attach additional documentation if needed):

____

____

Substance: Hydraulic ☐ Veg-based Hydraulic ☐ Diesel ☐ Motor/Trans Oil ☐ Coolant ☐ Leachate ☐
Other ☐ ____

Volume Released and How Estimated: ______________________________

Y	N	
☐	☐	Is the vehicle in secure and safe location?
☐	☐	Has the service truck/maintenance been dispatched to the scene?
☐	☐	Has the leak been stopped (valve closed, pump off, no more product, etc.)?
☐	☐	Is the spill contained? How? ______________________
☐	☐	Has the spill reached or is threatening to reach a catch basin?*
☐	☐	Has the spill reached any water (river, brook, lake, wetland, etc.)?*
☐	☐	Are emergency personnel (Fire, Police, Environmental Agency, Spill Response Company) on scene? List: ______________________

Other Notes: ____

____

WM Employee Completing Form:

Name: ______________ Signature: ______________ Date: ________

Spill Information Worksheet (continued)

PART 2: NOTIFICATIONS (MAINE)

Internal WM Notifications

At least one WM notification must be to a live voice.

(Leave a message with your contact info. at each unsuccessful attempt)

1. **Notify at least one person from WM Environmental or Engineering Staff:**
   - ⇨**Brian DesMarais**, Environmental Manager, **Cell: (603) 731-7440, Office: (603) 929-5411**
   - ⇨**Sherwood McKenney**, District Engineer, **Cell: (207) 240-9787, Office: (207) 634-2714 x223**
   - ⇨**Steve Poggi**, Engineering Manager, **Cell: (603) 234-3196, Office: (603) 929-5413**
2. **Ensure that District/Site Management is notified, and WM Safety is informed of the event.**
3. **For Collection Company spills, notify Ray Lawrence, Cell: (508) 277-7862**

Notes from Calls (include names of contacts made): ______________________________

____

External Notifications

Environmental or Engineering personnel should make all external notifications. In their absence, external communications should be handled by available management.

If no Environmental, Engineering, or management personnel can be reached, you must continue through the notifications.

1. **If not notified already, call local 911 Responder or Fire Department.** FD will likely respond to major spills or incidents in roadways. It is important to describe the nature and extent of the spill to the FD as much as possible so they can properly gauge their response.
2. **Notify Maine Department of Environmental Protection within 2 hours of the spill.**

   ⇨**Maine DEP Spill Hotline: (800) 482-0777, after Hours or from Out of State: (207) 657-3030**

   WM Caller: ____________ Time of call: __________ Spill #: __________

   DEP Personnel: ______________ Callback Number: ______________

   DEP Instructions: ____

   ____
3. **If Hazardous Materials are spilled (asbestos, some special wastes), call Maine State Police.**

   ⇨**Maine State Police: (800) 452-4664 (24 hrs),** from Out of State: (207) 624-7000 (24 hrs)
4. **If needed, contact a clean-up contractor** with OSHA 40-hour HAZWOPER-trained personnel and licenses to transport hazardous waste.
5. **If the spill has reached a waterway (lake, river, stream, etc.) the National Response Center (NRC) must also be called (800) 424-8802.** Typically, NRC doesn't require any additional action.

Notes from Calls (include names of contacts made): ______________________________

____

____

Fax or email completed sheet to Brian DesMarais (866-816-4511) and District Manager

APPENDIX D - MONTHLY TANK INSPECTION CHECKLIST AND ANNUAL SPCC PLAN REVIEW CHECKLIST

APPENDIX D - ANNUAL SPCC PLAN REVIEW CHECKLIST

Page 1 of 3

Date Reviewed: ________________ **Reviewed by:** ________________________________

Date Last Reviewed: ________________

On an annual basis, review the following items to evaluate if they are still accurate for your facility. If there is a change in the facility design, construction, operation, or maintenance that materially affects the potential for a discharge from the facility, you must prepare an amendment to this SPCC Plan within six months of the change, and implement the amendment as soon as possible, but not later than six months following preparation of the amendment (40 CFR 112.5(a)).

Examples of changes that may require amendment of the SPCC Plan include, but are not limited to:

- Commissioning or decommissioning of containers or tanks;
- Replacement, reconstruction, or movement of containers or tanks;
- Reconstruction, replacement, or installation of piping systems;
- Construction or demolition that alter secondary containment structures; and
- Changes of product or service.

ADMINISTRATIVE

Are the following documents available for use at the facility?

Yes	No	NA	
____	____	____	SPCC Plan

Are the site-specific sections accurate?

Yes	No	NA	
____	____	____	Secure Landfill Fueling Area
____	____	____	Fueling Area
____	____	____	Maintenance Facility
____	____	____	LFGTE Plant
____	____	____	Main Office
____	____	____	Are spill response numbers posted?

Have employees received appropriate training/briefings including:

Yes	No	NA	
____	____	____	SPCC Training (oil handling personnel)
____	____	____	SPCC Briefings (oil handling personnel)

ANNUAL SPCC PLAN REVIEW CHECKLIST (CONTINUED)

Page 2 of 3

SPILL RESPONSE EQUIPMENT

Yes	No	NA	
____	____	____	Is spill response equipment available as indicated in the SPCC Plan?
____	____	____	Is spill response equipment in good working order?

Additional equipment/materials that are needed?

____

____

GENERAL

Yes	No	NA	
____	____	____	Are areas free of unnecessary clutter?
____	____	____	Are small oil containers kept in flammable lockers or other acceptable locations?

DRUM STORAGE AND HANDLING AREAS

Yes	No	NA	
____	____	____	Are containers free of signs of leakage, rust, or other deterioration?
____	____	____	Are containers kept closed when not in use?
____	____	____	Are containers stored off the floor/ground, in containment areas?
____	____	____	Are drip pans provided under spigots?
____	____	____	Are spigots and valves free of leaks?
____	____	____	Are containers labeled?

CONTAINMENT BERMS/STRUCTURES

Yes	No	NA	
____	____	____	Are containment areas free of debris and liquid accumulations?
____	____	____	Are containment/drainage structures intact, and free of cracks, breaches, etc.?
____	____	____	If present, are drainage valves secured?

ANNUAL SPCC PLAN REVIEW CHECKLIST (CONTINUED)

Page 3 of 3

ABOVEGROUND STORAGE TANKS

Yes	No	NA	
_____	_____	_____	Are fuel hoses, pumps and valves drained and properly secured when not in use?
_____	_____	_____	Are valves, flanges, and gauges free of signs of leakage?
_____	_____	_____	Is monitoring equipment operational?

WASTE OIL STORAGE AREA

Yes	No	NA	
_____	_____	_____	Are waste oil storage areas maintained in a neat and tidy fashion?
_____	_____	_____	Are drums and other hazardous substance containers located within designated areas?
_____	_____	_____	Are containers properly marked and dated?

Notes

____

____

____

____

Completed copies of this form shall be kept with the SPCC Plan for a minimum of 3 years from the date of the inspection.

APPENDIX E - SPILL PREVENTION BRIEFING LOG

APPENDIX E - SPILL PREVENTION BRIEFING LOG

Date of Briefing: ______________________________

Briefing Conducted by: ______________________________

In accordance with 40 CFR 112.7(f), and in order to ensure adequate understanding of the SPCC Plan for this facility, spill prevention briefings must be conducted at least once per year for all oil-handling personnel, and should include at least the topics listed below. Use this form to document attendance at the spill prevention briefing.

The following topics were discussed at the meeting (check all that apply):

☐ SPCC Plan, including the contact list and telephone numbers, and including potential spill flow routes and strategic barricading points
☐ Facility operations, especially those pertaining to oil storage and handling
☐ Applicable pollution control laws, rules and regulations
☐ Spill events or failures at this or other sites
☐ Operation and maintenance of equipment to prevent oil spills
☐ Spill response and reporting procedures
☐ Other ______________________________

Facility personnel in attendance:

______________________________ ______________________________

______________________________ ______________________________

______________________________ ______________________________

______________________________ ______________________________

______________________________ ______________________________

______________________________ ______________________________

______________________________ ______________________________

Completed copies of this briefing log shall be kept with the SPCC Plan for a minimum of 3 years from the date of the training.

SECTION IX

EROSION CONTROL PLAN

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update w/ Dec 96 Erosion Control Plan	n/a
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM/GZA
3	Dec. 02	Section 3.0	2002 annual update	WMDSM
4	Dec. 03	Section 3.0 (edits tracked)	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits, 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; annual update	WMDSM
8	Dec 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
* "TOC" refers to the Table of Contents				

SECTION IX
EROSION CONTROL PLAN

TABLE OF CONTENTS

1.0 GENERAL

Erosion and sediment control is the proper planning, implementation, and stabilization of all activities that involve or result in the disturbance of soils in order to avoid significant movement of the soil materials to downgradient receptors or its release as fugitive dust. This Erosion Control Plan (ECP), together with construction-project-specific Erosion and Sedimentation Control Plans and the WMDSM Storm Water Pollution Prevention Plan (SWPPP), set forth the strategy by which erosion and sediment control is accomplished for all activities at the Crossroads facility.

Specifically, this ECP relates to the day-to-day maintenance and non-industrial operations of the Crossroads facility. Non-industrial operations would be those operations that do not involve the handling or disposal of solid waste. Maintenance and non-industrial operations activities at the Crossroads facility often involves disturbing and/or moving soil material. Fine-grained soil material underlies much of the site and is easily eroded and difficult to remove from suspension once in stormwater runoff.

In addition to this ECP, each major construction project (those projects completed by outside contractors) will be required to have a project-specific Erosion and Sedimentation Control Plan. Federal regulations require a SWPPP be developed and implemented for all industrial sites, such as the Crossroads facility. The WMDSM SWPPP is included as Section V of this Site Operations Manual. The SWPPP is intended to cover all industrial activities that are undertaken at the facility, primarily the secure landfill operation. Although the provisions of the ECP and the SWPPP are intended to be comprehensive (cover all activities on the facility) and to complement each other, the requirements of the SWPPP take precedence over the ECP where there are conflicts.

1.1 OBJECTIVES

The objectives of this ECP are to:

- Outline the temporary erosion and sedimentation control measures to be implemented by site personnel while completing on-site activities;
- Provide an overview of the permanent erosion control devices established at the facility;
- Provide guidelines for implementing, monitoring, and maintaining the temporary and permanent erosion control measures; and
- Outline the parties responsible for implementing the ECP.

1.2 NECESSITY FOR STRICT EROSION AND SEDIMENT CONTROLS

The necessity for controlling erosion and sediment across the site is to avoid impairment of the receiving areas (wetlands or uplands) and waters (drainageways, intermittent streams, tributaries of Mill Stream). Many developed areas of the site are located immediately adjacent to wetland areas. The Crossroads facility lies within the Mill Stream watershed; with tributaries to Mill Stream running through or adjacent to portions of the site. Mill Stream flows into the Kennebec River in

Norridgewock. Neither Mill Stream nor the Kennebec River at Norridgewock are considered “waterbodies most at risk from development” (06-096 CMR 502). Further, WMDSM’s operating permits require strict erosion control and prohibits the discharge of turbid water from the facility.

1.3 RESPONSIBILITIES AND AUTHORIZATIONS

All WMDSM personnel share responsibility for properly implementing and monitoring the erosion and sediment control strategy outlined in this ECP. However, erosion and sediment control is ultimately the responsibility of the District Manager. The Operations Supervisor has responsibility for operation and maintenance of the erosion control devices, with the District Engineer responsible for compliance issues.

2.0 EROSION AND SEDIMENT CONTROL FOR SITE OPERATIONS

This section of the plan outlines: key erosion and sedimentation control concerns for this facility, typical operations activities that have the potential to result in erosion and sedimentation, control strategies to consider prior to undertaking operations activities that result in the disturbance of site soils (advanced planning), and the use and application of best management practices (BMPs) for controlling erosion and sedimentation for site operations. The BMPs are based upon the Maine Department of Environmental Protection’s March 2015 manual entitled "Maine Erosion and Sediment Control Practices Field Guide for Contractors: Best Management Practices" (BMP Manual). The BMP Manual is incorporated by reference into this ECP. Note, site BMP’s installed and established prior to 2015 may be different than BMP’s described and suggested in the BMP Manual.

2.1 KEY CONCERNS - NATURE OF SITE SOILS

The predominant soil types underlying the Crossroads facility are a fine-grained silt and clay and uniform fine sand. The silt and clay soil is highly susceptible to erosion and, once in suspension, difficult to remove. Once the fine-grained material is suspended, standard BMPs to remove the material have limited effectiveness due to the material being colloidal in nature and, therefore, the excessive time that is required for the fine-grained particles to settle out. These soils typically have a high runoff potential and low infiltration rates. This means that a small amount of rain can result in substantial runoff. Other soils that can be transported in stormwater runoff are the uniform fine sand that also exists at the facility and is sometimes used as a construction material and unstabilized topsoil.

In many cases, it is not possible to eliminate the source of turbidity. Therefore, this ECP recognizes the characteristics of these materials and includes provisions to remove the materials from the runoff. However, it is important to remember that THE MOST EFFECTIVE CONTROL IS TO PREVENT AND MINIMIZE the suspension of this material by stabilizing work sites as soon as practicable.

2.2 SITE OPERATIONS REQUIRING EROSION AND SEDIMENTATION CONTROLS

All site activities should be completed in a manner that controls erosion and sedimentation. In many respects, the design of the facility, specifically the permanent BMP infrastructure, is such that runoff from developed portions of the facility is collected and conveyed via swales and culverts to erosion control structures (sedimentation basins and infiltration basins) for treatment prior to discharge to receiving areas/waters. Specific maintenance and non-industrial operations activities that require special attention to erosion and sedimentation control include, but are not limited to:

- Access road cleaning, dust control, and maintenance;
- Hauling and stockpiling daily and intermediate cover materials;
- Litter control; specifically with regard to potential for fouling erosion control structure outlets;
- Maintenance of erosion control structures; particularly the outlet structures;
- Small construction activities completed by site operations personnel; and
- Any activity that results in the disturbance of soils in undeveloped portions of the site.

2.3 MAINE BMPs AND APPLICATION TO FACILITY OPERATIONS

Standard and accepted BMPs have been established for controlling erosion and sedimentation. Detailed discussion of the BMPs is provided in the BMP Manual. Table 1 provides a general summary of temporary and permanent BMPs that are typically implemented for construction projects at the Crossroads facility. Most of the temporary and permanent BMPs identified are designed for and constructed as part of larger construction projects typically performed by outside contractors. Some of the temporary BMPs shown in the table can be implemented as part of facility operations, as necessary.

During the operation of the facility, certain activities may occur outside of the watershed tributary to the erosion control structures. For these activities, the BMPs for erosion and sediment control are of particular importance. Key BMPs for operational activities include:

- ***Straw or hay mulch*** is used to provide cover for disturbed or seeded areas until revegetation is established. Mulch placed on slopes greater than 15% will likely be anchored by applying a soil binder (tackifier) and use of an approved netting. Mulch on slopes of less than 15 percent may be anchored by applying a soil binder (tackifier) without the use of netting. Water alone may be used to anchor mulch on slopes less than 8 percent if construction occurs during the growing season, but 3 percent or less if construction occurs during the dormant season. Mulch application rates are provided in the BMP Manual and the Technical Specifications (Section 02800, "Placement of Topsoil and Hydroseeding").

- ***Silt fence*** is used to trap sediments within runoff water until disturbed areas are stabilized with riprap or grass cover. Silt fence is installed along the downgradient side of all construction and maintenance projects. Multiple rows of silt fence should be used to reduce the runoff length between silt fence barriers and in locations adjacent to sensitive areas.

- ***Hay bales*** are used to trap sediments and reduce runoff velocities. Hay bales are often used at key locations to supplement the silt fence. Hay bales should not be placed in channels (ditches) as excessive erosion and undermining often results.

- ***Stone or bark mulch (erosion control mix) check dams*** are temporary erosion/sedimentation control devices intended to reduce runoff velocities within drainage ditches by creating small dikes across the drainage ditch which act as plunge pools or sediment traps.

- All ditches not receiving riprap lining or interim geomembrane cover should be temporarily stabilized with a biodegradable ***erosion control mat*** until grass is established.

- Conditions may warrant the installation of a ***temporary sump*** where runoff can be collected and pumped to one of the erosion control structures.

2.4 SEQUENCING OF BMPs

- Provide for erosion control and have control measures, such as silt fence, in place before areas are disturbed.
- Limit the amount of exposed area.
- Revegetate disturbed areas as rapidly as possible. All areas should be permanently stabilized within 15 days of final grading or within 15 days after completing rough grading. Areas within 100 feet of any wetland boundary should be temporarily or permanently stabilized within 7 days of final grading.
- Additionally, if construction is planned between October 15 and May 1 of any calendar year, then once final grade has been established, place dormant seed within the disturbed areas prior to mulching as outlined in the BMP Manual. If dormant seeding is used for the site, all disturbed areas shall receive adequate topsoil and seed at a depth and rate, respectively, outlined in the BMP Manual.

2.5 ADVANCED PLANNING TO AVOID EROSION AND SEDIMENTATION ISSUES

At a minimum, evaluate the following items prior to undertaking any maintenance, investigative, and/or limited construction work that requires or results in the disturbance of soils:

- Protection afforded by existing BMPs;
- Nature and proximity of sensitive receptors, such as wetlands;
- Topography and existing cover (gravel, pavement, topsoil) of work area; and
- Time of year and recent weather conditions with respect to probable type and potential intensity of precipitation, saturation of surface soils, infiltration capacity of surface soils, and ability to stabilize disturbed areas.

Based on the evaluation, select an appropriate time to complete the work and determine which BMPs should be implemented.

The following rules of thumb should be considered when planning work activities:

- Periods of lowest runoff historically occur during summer months and major work should be scheduled accordingly. Note, however, that short but intense storm events can occur with little warning during summer months.
- Runoff rates are significantly higher after precipitation events have raised the soil moisture content. Schedules need to have enough flexibility such that work can be suspended during periods of wet soil conditions, if necessary, without jeopardizing the work or surrounding areas.
- Establishment of permanent vegetative cover is more challenging after mid-September/ early-October. Therefore, activities should be planned to allow large disturbed areas to have permanent cover placed and mulched by mid-September. If this is not possible, temporary seeds (or modified seed mixes with faster growing species) and mulches will be needed. However, these are generally less successful than the permanent covers and can result in a large area being susceptible to erosion during winter conditions and spring runoff.
- Frozen ground and snow pack can provide protection from disturbance due to moving equipment and can allow limited types of work to be completed without substantial risk, such as road or berm construction, as long as any fill is properly placed and appropriate BMPs are utilized to protect the fill surface.

3.0 PERMANENT BMP INFRASTRUCTURE

This section of the ECP provides an overview of the existing permanent BMP infrastructure at the site. The permanent BMP infrastructure includes a conveyance system consisting of swales and culverts that collect and convey stormwater runoff from most developed portions of the site to a network of sedimentation (detention) basins and infiltration basins. Additionally, the access road network at the facility is graded to shed runoff into the conveyance system and selected (high traffic) portions of the access road network are paved to control fugitive dust and promote runoff into the conveyance system. Refer to Appendix IA in Section IA (General) for a site plan that depicts the operations areas on the site as well as the network of basins that are referred to as Erosion Control Structures (ECSs).

The design and construction of the conveyance and ECS network is the responsibility of outside consultants and contractors. However, because site operations personnel are responsible for operating and maintaining the conveyance and ECS network, an overview of the permanent BMP infrastructure established at the facility is provided in this ECP.

3.1 SEDIMENTATION AND INFILTRATION BASIN SYSTEM DESCRIPTION

, The current ECS network consists of four infiltration basins (ECS 22, 22A, 23, and 28) and 11 sedimentation (detention) basins (refer to the site plan). Record drawings of the basins are maintained at WMDSM's main office.

The infiltration basins are located in the vicinity of the Tire Processing Facility and on-site sand borrow area. Please note that ECS 22A is a northeasterly extension of ECS 22 and is not shown on the site plan. The infiltration basins are underlain by natural sand deposits and are typically equipped with riprap-lined emergency spillways to accommodate high flow conditions. Riprap stilling basins or plunge pools are provided at the discharge points of the emergency spillways to dissipate outlet velocities prior to discharging into a grass treatment swale that blends into the natural topography.

The 11 sedimentation basins include ECS 3A, 3B, 20, 21, 24, 25, 26, 27, 29, 30, and 31. Flows into ECS 3A are predominately from off-site areas and the basin outlet allows the flow to be diverted around downgradient basin ECS 3B that treats flows from active portions of the site. Commencing in 1994, the overall design of most of the sedimentation basins on the site was standardized; these basins include all the existing sedimentation basins except ECS-3A.

ECS 17 was decommissioned as part of Phase 9 construction in 2001. ECS 10, 12, and 13 were decommissioned and ECS 26 constructed as part of Phase 12 construction in 2002. ECS 29 was constructed in late 2002 as part of Phase 8A construction. ECS 29 replaced ECS 9, 15, and 16 that were all within the Phase 8A construction area, as such ECS 9, 15, and 16 were decommissioned. ECS-18 was decommissioned in 2004 as part of Phase 8B construction. ECS-19 was decommissioned and replaced with ECS-30 in 2005 as part of Phase 8C' construction.

Typically, the ECS berms have 3H:1V or 2H:1V slopes. The 3H:1V berm slopes are loamed and seeded, with erosion control mat. The 2H:1V berm slopes received riprap underlain by a nonwoven geotextile fabric. Berm heights are typically less than about 6 to 8 feet above surrounding grades. Berm top widths are maintained at about six feet. Filter berms are provided in each basin to aid in the settlement and partial removal of sediment from stormwater. The filter berms typically have a constant crest elevation and are armored along their length with 1-1/2-inch crushed stone on the upstream side and riprap on the downstream side, and are equipped with overflow notches and valved by-pass pipes. Most of the basins are also equipped with a filter bed and/or underdrain system to further filter fine soil particles and reduce total suspended solids concentrations from basin outflows. The systems consist of filter sand, 4-inch-diameter ADS perforated pipes, geotextile fabric, and crushed stone. The underdrain systems connect to the primary outlet structure, allowing for positive drainage and cleaning. The filter bed/underdrain systems have been effective at removing suspended sediment prior to discharge of stored stormwater under most operating conditions.

The primary outlet structure for most of the basins consists of a 5-foot-diameter reinforced concrete riser (manhole) and outlet pipe (RCP or, preferably, corrugated exterior, smooth interior, ADS N-12 pipe) fitted with an anti-seep collar. The underdrain pipes discharge into the riser structure. The riser is equipped with two inlets: (1) a small-diameter, gated low-level orifice; and (2) an overflow weir at the top of the riser. The overflow weirs are fitted with trash racks. The gated, low-level outlet allows for manual control of outflows when water levels are below the primary overflow weir. The design elevations of the gated low-level orifice and the overflow weir have been set, to the extent practicable, to eliminate discharge through the overflow weir during a 25-year design storm event, thereby increasing storage capacity and retention time, and providing a redundant emergency outlet. These provisions increase the quiescent settling of particulate matter and provide the ability to throttle basin discharges, thereby allowing WMDSM personnel to partially control the quantity and quality of stormwater discharge from the site. The outlet pipes from most of the primary outlet structures are also gated for additional operating flexibility.

Most of the basins are equipped with riprap-lined emergency spillways to accommodate flows from a 25-year design storm. Riprap stilling basins or plunge pools are provided at the discharge points of the basin outlet pipes and emergency spillways to dissipate outlet velocities prior to discharging into grass treatment swale(s) that blend into the natural topography.

To allow WMDSM greater control of stormwater discharges, stormwater forcemains run from ECS 29 to ECS 21, and from ECS 21 to infiltration basins ECS 28, 22, and 22A. This allows WMDSM to pump water that is too turbid to discharge into an infiltration basin. Tanker trucks have also been used to transfer turbid water from the sedimentation basins to the infiltration basins.

3.2 SEDIMENTATION BASIN OPERATION

As discussed above, the sedimentation basins located on the Crossroads site are intended to trap and store sediment that may be present in runoff from developed portions of the facility. These basins have multi-stage outlets that 1) can prevent water other than the water that passed through the filter bed/underdrain system from discharging from a basin by closing the valve on the low-level orifice or 2) can prevent discharge from the basin by closing the valve on the basin outlet pipe.

Note the following basin does not have a gated outlet pipe:

BASINS	COMMENTS
ECS 20	basin handles runoff from the southeast portion of the Asbestos landfill that was closed and stabilized in 1994.

To take advantage of the increased storage volume and to provide additional settling time, it is recommended that prior to forecasted large storm events, the valves at the stormwater basins be closed. During a storm event, a decision on whether to open a valve should be made by the Operations Supervisor using the following guidelines:

- If the water entering the basin's filter bed bay is not visibly turbid and the discharge from the underdrain is not visibly turbid, the valve on the low-level orifice and the valve on the basin outlet pipe may be opened. Prior to opening a valve, consideration should be given to the condition of the tributary area to the basin (i.e., are there any open/disturbed areas in the tributary area). Inflow into the basin, the water level relative to the low-level orifice, and discharge from the underdrain system should be monitored frequently during the storm.

- If the runoff entering the basin's filter bed bay becomes turbid, the valve on the low-level orifice should be closed.

- If the water level in the basin approaches the invert of the low-level orifice, closing the valve should be considered in light of the anticipated intensity and duration of the storm event.

- If the underdrain discharge becomes visibly turbid, the valve on the basin outlet pipe should be closed. Pumping operations to transfer the water to an infiltration basin should be considered in light of the anticipated intensity and duration of the storm event.

- If there is initial turbidity observed in the water entering the basin or being released from the underdrain, keep the valves closed. Commence the pumping operation if storage volume is insufficient to manage storm event and any predicted weather.

The pump and/or haul operations at the Crossroads facility are intended to reduce the amount of turbid water stored in the erosion control structures. The pumps for the stormwater forcemain should be readily available for mobilization when significant rainfall events are predicted. The pump and/or haul operation is initiated if the runoff discharging from the underdrains is visibly turbid and the water level in the basin is such that additional precipitation may result in overtopping the 5-foot diameter overflow weir. Pumping should continue until the storm event subsides and the water level within the basin is well below the top of the 5-foot diameter overflow weir and/or the turbidity of the water existing in the basin is eliminated.

Use of the forcemain to transfer stored water from the sedimentation basins to the infiltration basins may also be used as a management strategy between storm events.

4.0 INSPECTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES

4.1 GENERAL

Inspections and maintenance of temporary and permanent erosion and sediment control measures will be performed in accordance with CYCLE discussed within the Environmental Compliance Program (Section IC) of this Site Operations Manual. Typical inspection and maintenance tasks include, but are not limited to:

- Ensure the valves in each basin are functioning properly;
- Remove accumulated sediment from sand filter beds as needed;
- Inspect and repair filter berms as needed, ensuring that an approximately constant crest elevation is maintained;
- Clean stormwater manholes, catch basins, and culverts as needed;
- Maintain swales free of debris;
- Clear debris from inlet grates and trash racks as needed;
- Grade gravel access roads on a routine basis, ensuring design cross-slopes are maintained and loose debris is not windrowed along the edge of the road.

The CYCLE Coordinator will distribute the CYCLE tasks regularly. If an emergency condition exists; repairs, servicing, and replacement of the erosion control measures should be completed immediately. The facility should maintain sufficient quantities of certain erosion and sedimentation control materials on-site; to include, but not be limited to silt fence, hay bales, and erosion control mix to initiate emergency repairs and install emergency measures.

4.2 INSPECTIONS

4.2.1 Inspecting Facility During/After a Storm Event

Drive throughout the facility with particular emphasis on a travel route that will allow observation of the stormwater conveyance system and the sedimentation and infiltration basins, as well as recent haul routes and any recent construction projects. Your route will not always be the same. Especially during rain, your observations should focus on runoff patterns and surface water quality.

If turbidity is observed, you should attempt to follow the runoff upstream far enough to identify the source. Note the source and see if corrective action can be taken. It may be either a point source (attributed to a definite erosion problem) or a non-point source where the source is less easily identified. Examples of a point source would be an eroding ditch. (Non-turbid water enters the ditch and exits the channel with high turbidity due to erosion). A non-point source might be a gravel roadway that is currently being used. (Non-turbid water enters the area but a considerable distance downstream it is turbid.) An exact source cannot be identified but it is apparent that it is due to small amounts of runoff with some turbidity over the entire length of the road.

Mill Stream and its primary tributaries should be observed to the extent practicable. The Crossroads facility contains many wetlands and receives runoff from off-site areas. It is possible that you might observe turbidity in drainageways that is not the result of activities at Crossroads, but come from an upstream source or wildlife activity in the wetlands. (The activity of beavers in the wetlands is an example). Use the same procedure to identify the source as you use for on-site activities and report it to the Operations Supervisor.

4.2.2 Inspecting Sedimentation Basins During a Storm Event

During a major storm event operations personnel need to closely monitor the basins. The term "major storm event" is defined as one that will yield large runoff volumes. Basin operations are discussed in Subsection 3.2. The daily (24-hour) rainfall amounts listed in the following table would typically be expected to yield high runoff volumes. Other factors that should be considered include amount of water retained in the basins at the start of the storm; ice conditions in the basins; season, snow pack, and temperature conditions.

GROUND CONDITION	24-HOUR RAINFALL CLASSIFIED AS A MAJOR RAINFALL (INCHES)
Dry (near drought)	1½
Normal	¾
Wet (periods of rain have occurred during the past 3 days or during spring runoff)	½
Frozen (without snow cover or with saturated snow)	½
Frozen (with dry snow cover)	¾

4.2.3 Inspection of Recently Completed Operational Construction Projects

Leave silt fence in place until vegetation is established. Check surface materials on a routine basis. Check the site during and after rainfalls that occur just after construction to see if the site is secure and not eroding. If erosion is observed, repair the damage immediately. If there are concerns that erosion may occur, review with Operations Supervisor.

5.0 TRAINING AND EMPLOYEE/NEW CONTRACTOR ORIENTATION

5.1 WMDSM PERSONNEL

Crossroads personnel should receive formal documented training on this ECP, as well as annual refresher training. It is intended that this training be covered as part of the NPDES MSGP (SWPPP) training program. The Operations Supervisor shall be responsible for all training requirements.

5.2 OUTSIDE CONTRACTORS AND CONSULTANTS

All outside contractors and consultants that come onto the site and that are completing, designing, or overseeing work that results in the disturbance of soil at the Crossroads site shall be introduced to the ECP prior to the start of any work. Contractors shall be required to obtain a copy of the applicable erosion and sediment control plan and follow all aspects of the plan as it relates to their work at the Crossroads facility. The Operations Supervisor and/or Project Manager shall be responsible for the acclimation of new contractors. All new contractors will be required to review this section of the operations manual prior to completing work that results in soil disturbance. For larger construction projects, a project-specific erosion and sedimentation control plan is typically made part of the contract documents and requires the contractor to complete an acknowledgement form prior to conducting any work.

TABLE 1
GENERAL EROSION CONTROL MEASURES FOR CONSTRUCTION

TEMPORARY MEASURE	PERMANENT MEASURE	APPLICATION	COMMENTS
Mulching		Place temporary mulch on all disturbed areas that cannot be seeded typically within 7 days.	Refer to BMP Manual for text about anchoring.
Seeding		Use if long delay (i.e., >21 days)	Seed mix to be pre-approved by Operations Supervisor and/or Project Manager. Stabilize with temporary mulch.
	Seeding and Mulching (Hydroseeding)	Use for permanent vegetation in specified areas.	Seed and mulch should be typically placed by mid-Sept. to establish permanent vegetative cover. Otherwise apply dormant seed. Refer to Technical Specifications, Section 02800 for topsoil and seeding requirements.
	Topsoil Placement	Use as a medium for permanent vegetative cover.	
Silt Fence		Place temporary silt fence to limit unprotected/unchecked runoff lengths to minimize sedimentation caused by erosion of soil surfaces, particularly silt clay.	Install silt fence along downgradient limit of work prior to commencement of construction, and additional as needed as work progresses.
Stone Check Dams	Stone Check Dams	Use in temporary diversions, and permanent swales as needed, to reduce runoff velocities.	Have in place prior to accepting stormwater.
Erosion Control Mix Check Dams		Use in temporary diversions to reduce runoff velocities and trap sediment.	Have in place prior to directing stormwater to diversion/swale.
Inlet Protection		Use to reduce sediment accumulation in permanent stormwater conveyance system.	Provide around catch basins, at a minimum.
Dust Control		Use water to prevent the blowing of dust from exposed gravel access soil surfaces.	Use on site water truck as needed.
Nonwoven/Woven Geotextile Tarps		Use to temporarily protect slopes from erosion, as necessary.	Use on new fill areas as appropriate. Material to be lightweight. Anchor as necessary.
	Riprap Stilling Basin or Plunge Pool	Construct and stabilize at outlets of pipes and emergency spillways. Use where significant energy dissipation is needed.	Rehabilitate any/all areas disturbed by the work. Remove accumulated sediment as needed and at the completion of the work.
	Riprap Apron	Construct at outlets of pipes and swales. Use to slow and spread flow.	Remove accumulated sediment as needed.
	Grass-Lined Swale	Construct and stabilize with loam and seed. Use erosion control mat for temporary protection.	Rehabilitate any/all areas disturbed by the work. Remove accumulated sediment as needed.
Temporary Swale/Diversion		Construct as needed to divert/convey stormwater runoff to temporary sump(s) within work area.	Check dams should be in place prior to directing stormwater through diversion.
Temporary Sump		Use to temporarily contain runoff within work area.	
	Sedimentation Basins (Erosion Control Structures)	Construct in accordance with project design drawings and specifications.	Remove accumulated sediment and replenish filter sand as needed. Ensure all elements are functioning as intended.

ENVIRONMENTAL PROTECTION

WASTE MANAGEMENT
STORMWATER POLLUTION PREVENTION PLAN

APRIL 2014

PREPARED BY:

St.Germain ▪ Collins

Stormwater Pollution Prevention Plan

for:

Crossroads Landfill
357 Mercer Road
Norridgewock, Somerset County, Maine 04957
207-634-2714

SWPPP Contact(s):

Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
Jeffrey McGown
357 Mercer Road
Norridgewock, Maine 04957
207-634-2714
jmcgown@wm.com

SWPPP Preparation Date:

4 / 18 / 2014

Stormwater Permit No. MER05B470
Issuance Date: April 26, 2011
Expiration Date: April 25, 2016

Contents

Table: Summary of Key Stormwater Permit Requirements: Crossroads Landfill

What	Purpose	Frequency	When	Form Used	Submit To
Active Landfill Site Inspection	*Confirm sediment and erosion control measures are operating properly.*	*Weekly*	*Weekly*	*Weekly Active Landfill Inspection Report*	*In stormwater file, filed by week and year.*
Stabilized Site Inspection	*Confirm sediment and erosion control measures are operating properly.*	*Monthly*	*Monthly (Jan – Dec)*	*Monthly Stabilized Site Inspection Report*	*In stormwater file, filed by month and year.*
Dry Weather Non-Stormwater Discharge Inspection	*Confirm that no unpermitted illicit discharges exist (non-stormwater such as sewage, or leachate, and vehicle/equipment washwater).*	*Annual*	*Q3: Jul – Sep*	*Non-Stormwater Discharge Assessment & Certification Form*	*In stormwater file, filed by year.*
Visual Stormwater Inspection (See Stormwater Sampling Plan, Appendix H)	*Ensure that stormwater BMPs are adequate to prevent stormwater pollution.*	*Quarterly*	*Q1: Jan – Mar* *Q2: Apr – Jun* *Q3: Jul – Sep* *Q4: Oct – Dec*	*Quarterly Visual Assessment Form*	*In stormwater file, filed by quarter and year.*
Comprehensive Site Compliance Evaluation (includes inactive landfill site inspection)	*Ensure that stormwater BMPs and leachate collection and storage systems are adequate to prevent stormwater pollution and that the SWPPP is accurate and up-to-date.*	*Quarterly*	*Q1: Jan – Mar* *Q2: Apr – Jun* *Q3: Jul – Sep* *Q4: Oct – Dec* *(60 days between inspections – one must be within 24 hrs of a qualifying storm event)*	*Quarterly Inactive Landfill Site Inspection and Comprehensive Site Compliance Evaluation Report*	*In stormwater file, filed by quarter and year.*

Table: Summary of Key Stormwater Permit Requirements: Crossroads Landfill (continued)

What	Purpose	Frequency	When	Form Used	Submit To
Corrective Action Report (CAR)	*Document deficiencies noted in BMPs during Comprehensive Site Compliance Evaluation.*	*As needed*	*Upon noted deficiency, document in Comprehensive Site Compliance Evaluation Report*	*Corrective Action Report*	*In stormwater file; filed by quarter and year.* *If BMP deficiency noted is structural, notify the Maine Department of Environmental Protection, Regional Inspector, within 14 days.*
Numeric Monitoring[1] *(active landfill only)*	*Report sample results to Maine Department of Environmental Protection within the permit-specified time frame.*	*Quarterly (even if no sample was collected)*	*Q1: Jan – Mar* *Q2: Apr – Jun* *Q3: Jul – Sep* *Q4: Oct –Dec*	*Discharge Monitoring Report (DMR)*	*In stormwater file, filed by quarter and year and to the Industrial Stormwater Coordinator Maine Department of Environmental Protection, within 15 days following monitoring period.*
SWPPP Review	*Review the SWPPP to verify it reflects current site conditions.*	*Annually*	*Q1: Jan – Mar*	*SWPPP Review Log*	*Within SWPPP.*
SWPPP Training	*Provide training on SWPPP.*	*Annually*	*Q1: Jan – Mar*	*SWPPP Employee Training Form*	*In stormwater file, filed by year.*
Permit Renewal Application	*Renew permit per applicable condition.*	*Every Five Years*	*April 2016*	*Notice of Intent (NOI)*	*Maine Department of Environmental Protection (MDEP).*

[1] Not applicable because contaminated stormwater is not discharged from the landfill.

Stormwater Pollution Prevention Plan Certification

I certify, under penalty of law, that this document and all appendices and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, 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: Jeff McGown

Title: District Manager

Signature:

Date: 4.24.14

Certificate of Authority

WASTE MANAGEMENT

CERTIFICATE OF AUTHORITY

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.

I, Gail M. Lynch, Assistant Secretary of Waste Management Disposal Services of Maine, Inc., a Maine corporation (the "Corporation"), do hereby certify that the following resolution was adopted by the Board of Directors of the Corporation and that such resolution has not been amended, modified or rescinded and is in full force and effect as of the date hereof:

Resolved, that any District Manager of the Corporation or any officer of this Corporation, and each of them are hereby authorized, following compliance with appropriate corporate policies and procedures, to prepare, execute and submit, on behalf of the Corporation, any and all documents required to be submitted by the Corporation in connection with the federal, state, or local Multi-Sector Stormwater Discharge Permits, including but not limited to, Notices of Intent, Notices of Termination, No Exposure Certifications, Inspections, and Reports and Stormwater Pollution Prevention Plans, for the time period beginning January 1, 2014 and ending on December 31, 2018.

Dated this 1st day of January, 2014

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.

Gail M Lyn

Gail M. Lynch, Assistant Secretary

SWPPP Review Log

The SWPPP is a "living" document and must be reviewed on a regular basis, at least annually, and updated to address changes in site conditions (e.g., operational activities, modification and/or addition of new BMPs) and new or revised government regulations.

This log should be used to document that the plan is reviewed on a regular basis, and to document corrections, revisions, or updates to the plan as they occur.

SWPPP Review Log

Date	Reviewer(s) Name	Revision Made to Plan
July 2011		Original Plan
December 2012	Scott Collins, St.Germain Collins	Update Figure 2
August 2013	Scott Collins, St.Germain Collins & John Chessa, WMDSM	Add tanks, update text and Figure 2
April 2014	Scott Collins, St.Germain Collins	Add additional description of tire processing activity

SECTION 1: FACILITY DESCRIPTION AND CONTACT INFORMATION

1.1 Facility Information

Facility Information

Name of Facility: Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill

Street: 357 Mercer Road

City: Norridgewock State: ME ZIP Code: 04957

County: Somerset

Latitude/Longitude (if required)

Latitude: 44°42'45.17"N Longitude: 70°50'.56"W

Is the facility located in Indian Country? ☐ Yes ☒ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable." not applicable

Estimated area of industrial activity at site exposed to stormwater: approximately 500 (acres)

Discharge Information

Does this facility discharge stormwater into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☒ No

If yes, name of MS4 operator: ________

Name(s) of water(s) that receive stormwater from your facility Mill Stream and unnamed wetlands

Are any of your discharges directly into any segment of an "impaired" water? ☐ Yes ☒ No

If Yes, identify name of the impaired water (and segment, if applicable): ________

Identify the pollutant(s) causing the impairment: ________

For pollutants identified, which do you have reason to believe will be present in your discharge? ________

For pollutants identified, which have a completed Total Maximum Daily Load (TMDL)? ________

Are any of your stormwater discharges subject to effluent guidelines? ☐ Yes ☒ No

If Yes, which guidelines apply? ________

1.2 SWPPP Contact Information

SWPPP Contact:

Name:	Jeffrey McGown
Telephone number:	207-634-2714
24-Hour telephone number:	800-562-7779
Email address:	jmcgown@wm.com
Fax number:	207-634-4519

1.3 Stormwater Pollution Prevention Team

The stormwater pollution prevention team is responsible for assisting the District Manager in developing and revising the facility's SWPPP, implementing and maintaining control measures/BMPs, and taking corrective actions where required. Each member of the stormwater pollution prevention team must have ready access to either an electronic or paper copy of applicable portions of the Permit and the SWPPP.

Staff Title	Individual Responsibilities
District Manager	Coordination of facility activities, BMP implementation, erosion and sediment controls, training, monitoring, facility inspection, and reporting.
Operations Manager	BMP implementation, training, equipment maintenance, storage and disposal of maintenance supplies, spill prevention and response, compliance evaluation including the comprehensive site compliance report, stormwater sampling, and program support.
Maintenance Manager	BMP implementation, training, equipment maintenance, storage and disposal of maintenance supplies, spill prevention and response, and program support.
Qualified WMDSM Employee or Consultant	Perform quarterly stormwater sampling (visual only) and reporting, and facility inspections/reporting.

1.4 Activities at the Facility

The landfill is a commercial and residential solid waste and recycling facility. Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (Crossroads Landfill) has operated the landfill at this location since 1990. The Standard Industrial Codes (SICs) for the facility is 4953 Solid Waste Landfill and 4212 Motor Freight Transportation and Warehousing.

In addition to the landfill, the facility includes an administrative office (Main Office), a scale house, Maintenance Facility, Material Recovery Facility, Tire Processing Facility, Container Storage Area, field offices, residential transfer station, wood waste recycling operation, and a Landfill Gas to Energy (LFGTE) Plant.

Additional operations are summarized below:

- Vehicle/Equipment: Vehicles and equipment are parked in designated areas and/or spaces on paved and graveled areas. These locations are depicted on the Site Map.
- Vehicle/Equipment Washing: Vehicle and equipment washing is performed regularly in a dedicated area. Wash water is collected in a holding tank and discharged to the leachate collection system.
- Vehicle/Equipment Maintenance: Routine vehicle and equipment maintenance is performed regularly. Maintenance is performed inside the Maintenance Facility or within the secure active landfill.
- Vehicle/Equipment Fueling: Fueling of landfill equipment is done by WMDSM operators and mechanics from a dedicated above-ground fuel storage tank located within the active secure landfill. The Fueling Area consists of two above-ground fuel storage tanks located southeast of the Maintenance Facility and is used for fueling site vehicles and waste hauling vehicles.
- Solid Waste Handling: The facility is authorized to accept at the landfill municipal solid waste, special waste (i.e., petroleum contaminated soils, ash, sludge, asbestos) and construction and demolition (C&D) debris.
- Chipping: The facility grinds green wood (i.e., brush and tree parts) and C & D wood for use as alternate daily cover within the active landfill and/or it is transported off-site for fuel purposes. Treated wood is chipped within the secure active landfill for use as alternate daily cover.
- Earth Handling: The site uses clay for low-permeability layers within landfill cell and final cap construction.
- Leachate Handling: Leachate generated at the site is collected and transported off-site for treatment.
- Hazardous Material Storage: Hazardous materials are stored on-site in flammable cabinets or appropriate containers or tanks. These materials are used in vehicle and equipment maintenance and servicing activities in the Maintenance Facility and to calibrate landfill gas monitoring equipment located in the Main Office.
- Tire Processing Facility: The facility is operated by an independent contractor to produce tire shreds to be shipped offsite for reuse. Runoff from the processing and storage areas is routed to erosion control structures. The facility maintains its own Operations Manual.

The majority of the facilities and operations associated with landfill and recycling operations are located in the central and southeastern portions of the site.

1.5 Site Location Map

A copy of the Site Location Map for this facility is in Appendix A.

Crossroads Landfill includes approximately 817 acres of land located in Norridgewock, Maine. The site is located at 357 Mercer Road in a rural area approximately 1.5 miles southwest of junction Route 2 and Route 139. The site is bordered by an airport to the northwest and by primarily undeveloped and/or agricultural land.

1.6 Site Plan

A copy of the Site Plan for this facility is provided in Appendix B.

1.7 Notice of Intent

A copy of the Notice of Intent (NOI) and DEP Acknowledgement Letter, and the 2011 MSGP are provided in Appendix C and D, respectively.

SECTION 2: POTENTIAL POLLUTANT SOURCES

2.1 Industrial Activity and Associated Pollutants

The facility activities and their associated pollutants are summarized in a table provided in Appendix E.

2.2 Spills and Leaks

Areas of Site Where Potential Spills/Leaks Could Occur

Drainage Area	Location	Outfalls
DA-1	Secure Landfill (Active)	1, 2, 3, 4, 5
DA-2	Maintenance Facility, Fueling Area, LFGTE Plant, and MRF	6
DA-3	Paved Area West Side of MRF	7
DA-4	Western Side of Phase 11 Non-active Landfill	8
DA-5	Eastern Side of Phase 11 Non-active Landfill	9
DA-6	Phase 12 Secure Landfill	10
DA-7	Tire Processing Facility	11
DA-8	Tire Processing Facility	12
DA-9	Leachate Storage Tank Facility and Containment Area	None (Pumped to DA-10)
DA-10	Remainder of Site	13

Description of Past Spills/Leaks

The following is a list of spills and leaks that occurred at the facility during the three year period prior to the latest revision of this SWPPP for areas exposed to precipitation or which drain to a stormwater conveyance. These spills are also shown on the Site Plan.

- 2/25/2009: <2 gallon hydraulic oil spill at Airport Road Transfer Station.
- 7/17/2009: 1-2 gallon hydraulic oil spill at Airport Road Transfer Station.
- 11/19/2010: 20 gallon hydraulic oil spill at Container Storage Area near Phase 11 landfill.
- 3/22/2011: 1-2 gallon diesel spill on access road, approximately 250 feet from outbound scale.
- 1/17/2012: 30 gallon used oil spill at LFGTE Plant.
- 8/8/2012: 5 gallon motor oil spill on paved road between landfill and Airport Road Transfer Station.
- 9/13/2012: <10 gallon diesel fuel spill from truck on landfill entrance road.
- 1/31/2013: 5 to 15 gallons of used lubrication oil within roll-off container at Container Storage Area near Phase 11.

Spills are documented on Spill Information Worksheets. These worksheets are maintained in the Main Office.

SECTION 3: STORMWATER CONTROL MEASURES

3.1 Minimize Exposure

Measures used at Crossroads Landfill to minimize exposure include:

- Fertilizer is stored indoors or in a covered area and is applied during dry weather conditions, typically by a subcontractor.
- Inactive cells are temporarily capped with synthetic materials.
- Landfill cells are permanently covered with synthetic materials as soon as practicable as permitted grades are achieved.
- Exposed portions of the landfill are minimized, as much as practicable.
- Herbicides and pesticides are not used.
- ASTs used to store oil for operational purposes are located indoors, in covered secondary containment or are double-wall.
- Storage containers are of sound integrity and stockpiles are permanently or semi-permanently covered.
- Recyclable materials are generally stored in enclosed or covered areas.
- Maintenance products are stored indoors or under cover.
- Maintenance activities are typically conducted in an enclosed area (i.e., Maintenance Garage) or within the active landfill.
- Stormwater runoff does not contact stockpiled materials (other than Tire Derived Fuel approved for stockpiling by the MDEP), processed materials, and any non-recyclable waste.
- Wood processed at the Wood Waste Processing Facility is untreated (i.e., not chemically treated).
- Treated wood is processed within the active landfill.
- Vehicles are generally parked on paved surfaces. Leaky vehicles are parked inside the maintenance garage or contained with drip pans or absorbent materials until repairs are made.

- Vehicles are washed inside the maintenance garage and wash water is collected in a trench floor drain and stored in an underground holding tank.

3.2 Good Housekeeping

Good housekeeping is necessary to maintain a clean and orderly environment at the Crossroads Landfill. Housekeeping is often the most effective first step towards controlling stormwater contamination. Examples of good housekeeping practices include:

- Proper storage of petroleum products and other hazardous substances.
- Prompt attention to leaks and spills of contaminants (liquid or solid) from site operations that may occur on any exposed soil, vegetation, or paved area.
- Prevention of accumulation of liquid or solid chemicals on the ground near storage areas.
- Neat and orderly storage of waste materials, aggregates, and chemicals.
- Maintaining a clean facility.
- Removing unneeded products and materials from the site.
- Sweeping paved areas of the site on a regular basis.
- Cleaning vehicles and equipment regularly.
- Emptying toters, dropboxes, and other waste containers prior to storage, and storing them covered if equipped with lid to prevent accumulation of storm water.
- Parking vehicles and equipment in assigned spaces, encouraging personnel to identify and correct leaks as they occur.
- Covering materials and equipment stored outside that may pollute stormwater.
- Maintaining containers used for outdoor storage of materials to prevent leaking.
- Maintaining all elements of leachate collection and treatment systems to prevent exposure of leachate to stormwater.
- Maintaining the integrity and effectiveness of any intermediate or final cover.

3.3 Preventative Maintenance

BMPs for Maintenance of Vehicles and Equipment:

Vehicles, powered industrial trucks, and site equipment are subject to a scheduled program of preventive maintenance. Commercial motor vehicles are inspected before and after each use in order to readily identify maintenance needs in addition to normally scheduled activities. Powered industrial truck and site equipment is inspected at least once each use in order to identify maintenance needs in addition to normally scheduled activities. The following BMPs are used at the Crossroads Landfill when vehicle and equipment maintenance activities are performed:

- Maintain an organized inventory of materials used in the maintenance shop.
- Dispose or recycle greasy rags, oil filters, air filters, batteries, and spent fluids properly.
- Label and track the recycling of waste material (e.g., used oil, spent fluids, batteries).
- Drain filters (oil, diesel, gasoline) and other parts before disposal or recycling.
- Drain and contain fluids from damaged vehicles if stored on site for prolonged periods of time.
- Use dry cleanup methods for spills and leaks.
- Store spent batteries in a non-leaking secondary container.
- Utilize drip pans or other types of controls for known leaking vehicles and equipment.
- Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop.
- Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.
- Inspect the maintenance area regularly for proper implementation of control measures.
- Routinely sweep up dust and debris from maintenance activities and dispose of properly.
- Ensure employees are trained on proper waste control and disposal procedures.

BMPs for Maintenance of Stormwater Controls

Parking Areas/Paved Access Roads:	Pavement areas will be swept on a quarterly basis.
Catch Basins:	Catch basins will be inspected quarterly for sediment accumulation in the sumps, and floating debris. The catch basins will be cleaned as necessary based on the results of the inspections.
Erosion Control Structures (ECS):	The ECS (detention/infiltration basins) will be inspected quarterly for floating debris and sedimentation accumulation. The ECS will be cleaned as necessary based on the results of the inspections.
Riprap Inlet/Outlet Structures:	The rip rap inlet/outlet structures will be inspected quarterly for debris sedimentation accumulation. The inlet/outlet structures will be cleaned as necessary based on the results of the inspections.
Vegetated Swales:	Vegetated swales will be inspected quarterly for debris and sedimentation accumulation. The vegetated swales will be cleaned as necessary based on the results of the annual inspections.
Leachate Collection Systems:	The leachate collection systems will be inspected monthly to confirm that stormwater, falling snow and snow melt within active and inactive open areas of the landfill is directed to the leachate collection system.
Wooded Buffers:	The wooded buffers will be inspected quarterly for windblown debris and soil erosion. The eroded areas will be repaired immediately.

3.4 Spill Prevention and Response

Crossroads Landfill maintains an Oil Spill Prevention, Control & Countermeasure (SPCC) Plan for this facility. Oil spill prevention and response procedures are described in the SPCC Plan. A copy of the SPCC Plan is maintained at the Crossroads Landfill. Crossroads maintains a Leachate Management Plan, compiled as part of the facilities Operations Manual. Leachate spill prevention and response procedures are described in the Leachate Management Plan.

3.5 Erosion and Sediment Controls

Areas subject to erosion at Crossroads Landfill include drainage swales, slopes (active and inactive landfill areas), unpaved roads, outdoor storage areas and soil borrow areas.

Areas subject to erosion are included in inspection events, and the proximate storm water catch basins will be visually inspected for accumulated sediment and maintained as required. If an area of soil erosion or other condition is discovered that may result in significant releases of sediment, action to eliminate soil erosion or otherwise prevent a significant release of sediment to surface water will be taken. Additional stabilization measures may include: use of riprap, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and/or preservation of mature vegetation.

Specific areas subject to erosion and BMPs adopted for the Crossroads Landfill facility are identified below:

- Active Landfill Areas: BMPs include temporary stabilization (i.e., seeding, mulching, and/or geotextile cover).
- Inactive Landfill Areas: BMPs include temporary stabilization (i.e., seeding, mulching, and/or geotextile cover) and collection and routing of surface water runoff in inactive landfill area through erosion control structures.
- Outdoor Storage Areas: BMPs include sediment traps, vegetated swales & strips, catch basins, sand filters, and silt fences to facilitate settling or filtering of pollutants.
- Waste Hauling Roads: BMPs include stabilizing unpaved haul roads with gravel or stone and watering unpaved haul roads as necessary to control dust.
- Borrow Areas: BMPs include erosion control structures, hay bales and silt fence.
- MSE Berms: BMPs include temporary stabilization (i.e., seeding, mulching, and/or geotextile cover).

3.6 Management of Runoff

Measures used at Crossroads Landfill to manage storm water runoff and reduce pollutants in stormwater discharge from the site include the following:

- Management of stormwater in active landfill areas as leachate.
- Diversion of runoff from interim geomembrane covered areas.
- ECS (detention/infiltration basins), with filter berms/beds and multi-stage outlets.
- Riprap inlet/outlet structures.
- Silt fences and hay bales.
- Vegetative swales.
- Grading (slopes and roadways).
- Wooded buffers.

3.7 Salt Storage Piles or Piles Containing Salt

Crossroads Landfill does not have salt storage piles or piles containing salt, therefore this section does not apply to this facility.

3.8 MSGP Sector-Specific Non-Numeric Effluent Limits

As previously described in this SWPPP, the following methods are used to meet the non-numeric technology based effluent limits at the Crossroads Landfill:

- Minimize exposure of material and product storage areas to stormwater by locating activities and materials inside or by protecting them with storm resistant coverings.
- Perform good housekeeping practices and keep exposed areas that are potential sources of pollutants clean and orderly
- Inspect, test, maintain and repair equipment and vehicles, and BMPs to prevent situations that may result in leaks, spills or other releases of pollutants.
- Describe potential pollutant sources and exposed material (see Appendix E)
- Provide temporary stabilization of inactive portions of stockpiled materials consisting of daily, intermediate and final cover.
- Weekly inspections of active landfill areas, monthly inspections of stabilized areas, and quarterly inspections of inactive landfill areas.
- Inspection and maintenance of containers used for outdoor storage of materials, and inspection and maintenance of leachate collection & treatment system.
- Maintain material storage piles to designated areas by structural means or by daily pile maintenance.
- Maintain tracking system for documenting types of special waste disposed of in each area of the landfill.
- Annual Non-Stormwater Discharge Assessment test certification conducted for presence of leachate and vehicle/equipment wash water.

3.9 Employee Training

Training of appropriate employees and annual reinforcement on the importance of good stormwater management is crucial to minimizing the chance of unacceptable discharges. Without a raised awareness

BMPs aren't implemented (or implemented correctly), maintenance isn't performed (or performed to minimum standards), and opportunities for improvement are missed.

Appropriate employees receive initial and refresher training. At a minimum, training includes an overview of what is in the SWPPP and how employees make a difference in complying with the SWPPP and preventing contamination of stormwater. The training addresses inspections, spill prevention and response procedures, good housekeeping, and material management practices. Training records are maintained for a minimum of 3 years. Appendix F contains a SWPPP Employee Training Form and an Environmental Protection Training Record.

3.10 Non-Stormwater Discharges

The MSGP prohibits the discharge of non-storm water discharges to surface water with the following exceptions:

- Fire fighting activities;
- Fire hydrant flushings;
- Potable water sources (including waterline flushing);
- Uncontaminated air conditioning or compressor condensate;
- Irrigation drainage;
- Landscape watering (provided pesticides, herbicides, and fertilizers have been applied in accordance with the manufacturer's instructions);
- Pavement wash water where no detergents are used and no spill or leaks of toxic or hazardous materials have occurred (unless spilled material has been removed);
- Routine external building washdown which do not use detergents;
- Uncontaminated groundwater or spring water;
- Foundation or footing drains where flows are not contaminated with process materials such as solvents;
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility but NOT intentional discharges from the cooling tower (i.e. "piped cooling tower blowdown or drains)'
- Uncontaminated utility vault dewatering;
- Dechlorinated water line testing water; and

- Hydrostatic test water that does not contain any treatment chemicals and is not contaminated with process chemicals.

Crossroads Landfill has identified two (Main Office Building and MRF) foundation drain non-storm water discharges. These discharges, which are shown on the Site Plan, are authorized by the MSGP.

An assessment and certification is conducted to identify if any unpermitted illicit non-stormwater discharge is present at the outfalls, such as domestic wastewater, non-contact cooling water, process wastewater, vehicle/equipment wash water, or leachate. This assessment is documented and certified on the Non-Stormwater Discharge Assessment & Certification Form included in Appendix G.

As certified in the Non-Stormwater Discharge Assessment & Certification Form, no unacceptable non-storm water discharges have been identified at the Facility. Non-Stormwater discharge assessments are conducted annually at the Crossroads Landfill in the 3rd quarter.

3.11 Other Controls

Other control measures implemented include but are not limited to the following:

- Litter control
- Litter fences

SECTION 4: SCHEDULES AND PROCEDURES FOR SAMPLING

The Stormwater Sampling Plan included in Appendix H, describes stormwater monitoring schedule and objectives, methods and procedures for stormwater sample collection and analyses, reporting and recordkeeping.

SECTION 5: INSPECTIONS

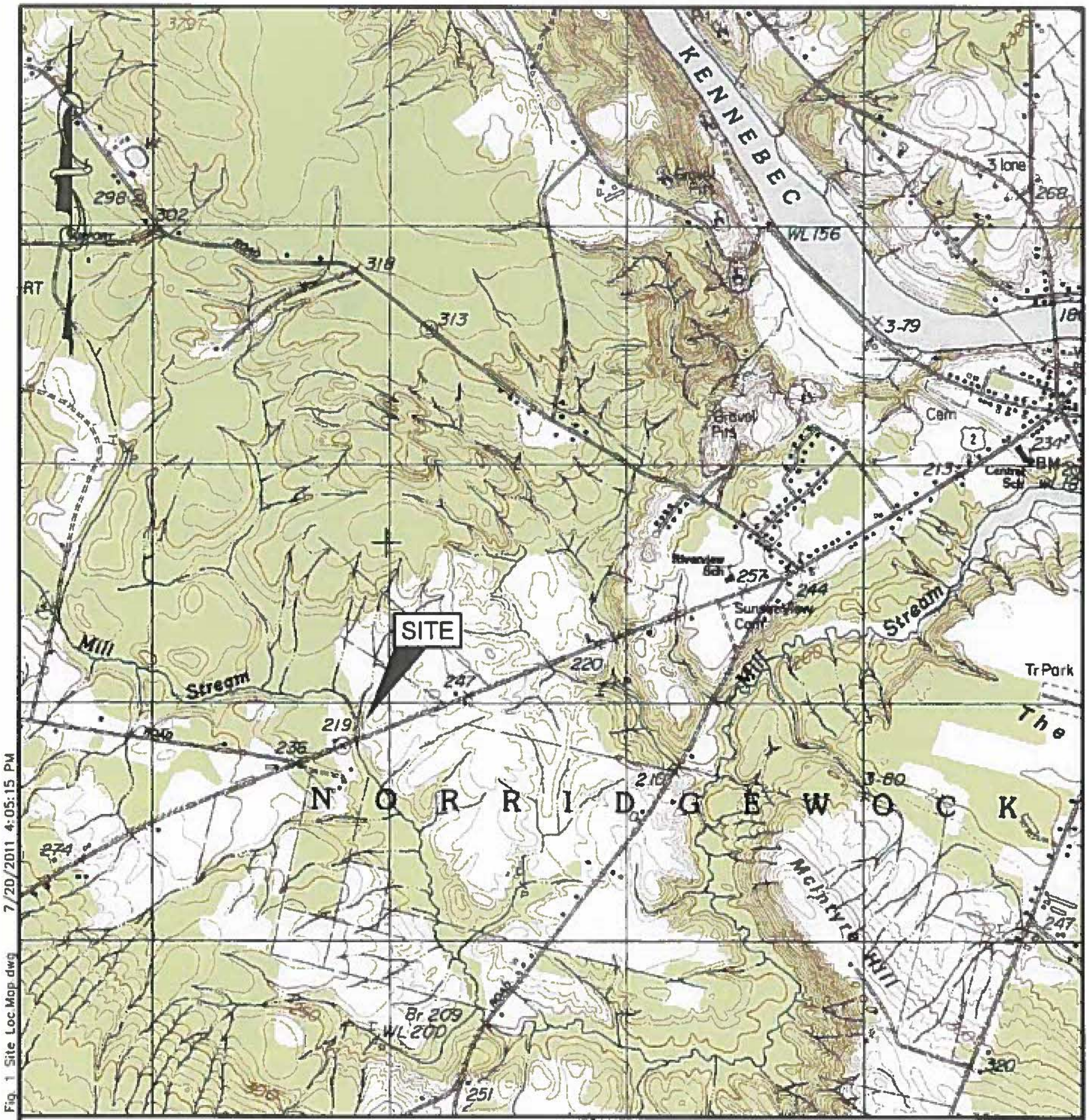
The inspections must include an evaluation of existing stormwater BMPs. The frequency of the inspections must be identified in the SWPPP. Any deficiencies noted during the inspection must be recorded on a Corrective Action Report (CAR) and corrected as soon as practicable before the next anticipated rain event. The SWPPP or an on-site SWPPP file must include documentation of the results of the inspections, the corrective actions conducted in response to deficiencies, and opportunities for improvement that are identified. CARs for structural BMP deficiencies must be submitted to the Department of Environmental Protection, Stormwater Coordinator.

TABLE: INSPECTION REQUIREMENTS

Inspection Task	Frequency	Monitoring/ Inspection Periods(s)	Parameters/Characteristics To Be Inspected For	Document Activity/ Findings With	Monitoring To Be Performed By
Active Landfill Site Inspection	Weekly	Weekly	Documentation must include: weather information and a description of any discharges occurring at the time of inspection; any previously unidentified discharges of pollutants from the site; any control measures needing maintenance or repairs; any failed control measures that need replacement; any incidents of noncompliance observed; and, any additional control measures needed to comply with the permit requirements.	Weekly Active Landfill Inspection Report	Qualified personnel
Stabilized Site Inspection	Monthly	Monthly (Jan-Dec)		Monthly Stabilized Site Inspection Report	Qualified personnel
Dry Weather Non-Stormwater Discharge Inspection	Annual	Q3: Jul – Sep	Unpermitted illicit stormwater discharges.	Non-Stormwater Discharge Assessment & Certification Form	Qualified personnel
Visual Stormwater Discharge Assessment	Quarterly	Q1: Jan – Mar Q2: Apr – Jun Q3: Jul – Sep Q4: Oct – Dec	Color - Odor - Clarity - Floating solids Settled Solids - Suspended Solids Foam - Oil sheen; and Other obvious indicators of stormwater pollution	Quarterly Visual Assessment Form	Qualified personnel
Comprehensive Site Compliance Evaluation (includes quarterly inactive landfill site inspection)	Quarterly	Q1: Jan – Mar Q2: Apr – Jun Q3: Jul – Sep Q4: Oct – Dec	Inspection can be done with Visual Assessment and must note name/position of personnel performing inspection, date, and major observations which include discharges of pollutants, BMP locations & conditions, failure or repair of BMPs and new BMPs recommended.	Quarterly Inactive Landfill Site Inspection and Comprehensive Site Compliance Evaluation Report	Qualified personnel

Copies of all inspection forms/reports are provided in Appendix G.

Appendix A – Site Location Map



REFERENCE:
USGS SERIES 7.5 TOPOGRAPHIC MAP, NORRIDGEWOCK QUADRANGLE, OBTAINED FROM USGS.

2000 0 1000 2000 4000
SCALE IN FEET
1"=2000'

SITE LOCATION MAP

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

ENVIRONMENTAL CONSULTING GROUP
St.Germain·Collins

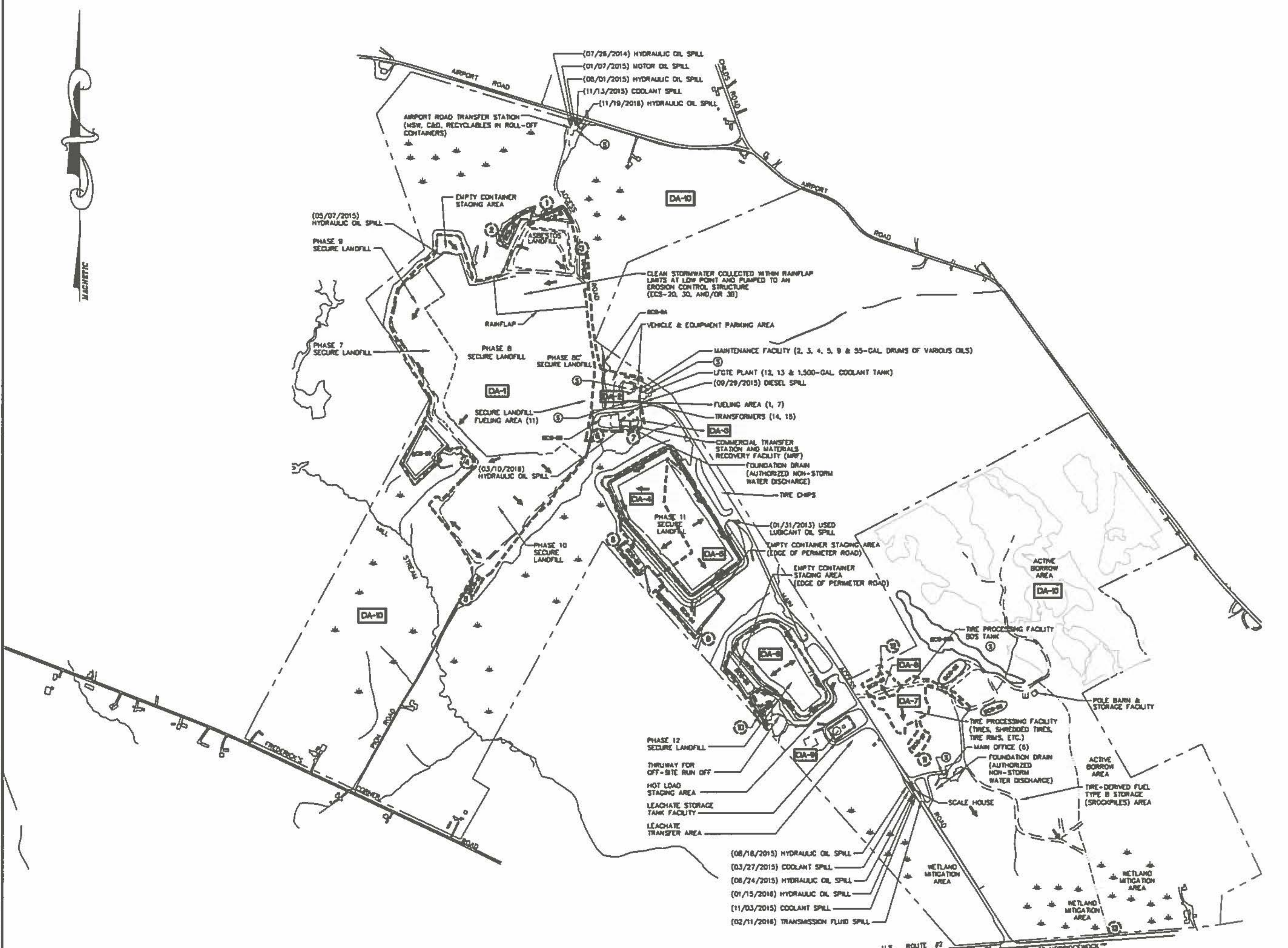
FIGURE 1

DATE: 05/26/2011 | SCALE: 1"=2000' | PROJECT NO. 2468.1 | FILE: 2468.1 Fig. 1 Site Loc Map

846 MAIN ST., SUITE 3, WESTBROOK, ME 04092 TEL: 207-591-7000 WWW.STGERMAINCOLLINS.COM

M:\Dwgs\2468 WM Crossroads\2468.1\dwgs\2468.1 Fig. 1 Site Loc Map.dwg 7/20/2011 4:05:15 PM

Appendix B – Site Plan



LEGEND:

▬ ▬ ▬ ▬	DRAINAGE AREA BOUNDARY
DA-6	DRAINAGE AREA NUMBER
⑬	OUTFALL LOCATION AND NUMBER
➡	GENERAL DIRECTION OF STORM WATER FLOW
— - - —	PROPERTY LINE
═══	PAVED ROAD
- - - -	GRAVEL ROAD
▭	STRUCTURE
ECS-##	EROSION CONTROL STRUCTURE
⁂	WET AREAS
Ⓢ	SPILL RESPONSE EQUIPMENT

REFERENCE:

1. PLAN TITLED "STORMWATER POLLUTION PREVENTION PLAN, DRAINAGE PLAN" BY GZA GEOENVIRONMENTAL, INC. ENGINEERS & SCIENTISTS PREPARED FOR WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. NORRIDGEWOCK, MAINE 04957. DATED JANUARY 2006.

NOTES:

1) DRAINAGE AREAS AND PATHWAYS SHOWN ON THIS PLAN HAVE BEEN DRAWN BASED ON TOPOGRAPHY AND SITE FEATURES PRESENT AT THE TIME OF ST GERMAIN COLLINS JUNE 2011 SITE VISIT

2) LOCATIONS OF CERTAIN SITE FEATURES SHOWN ON THIS PLAN WERE ESTIMATED VISUALLY BY GZA PERSONNEL DURING THE NOVEMBER 2005 SITE VISIT AND SHOULD BE CONSIDERED APPROXIMATE.

3) SITE COMPRISES APPROXIMATELY 817 ACRES.

4) POTENTIAL POLLUTANT SOURCE AREAS ARE SHOWN ON THIS PLAN AND DESCRIBED IN MORE DETAIL IN APPENDIX E OF SWPPP.

5) THIS SITE PLAN SHOULD BE REVIEWED AND REVISED, AS NECESSARY, ON AN ANNUAL BASIS.

500 0 250 500 1000
SCALE IN FEET
1"=500'

OIL STORAGE TANK SUMMARY

TANK NO.	LOCATION	YEAR INSTALLED	CAPACITY (GALLONS)	CONTENTS	CONSTRUCTION	OVERFILL PROTECTION
1	FUELING AREA	2006	12,000	DIESEL	STEEL	LEVEL GAUGE, HIGH LEVEL ALARM, AUTOMATIC FLOW-SHUTOFF
2	MAINTENANCE FACILITY	1998	500	ENGINE OIL	STEEL	LEVEL GAUGE, VENT WHISTLE
3	MAINTENANCE FACILITY	1998	500	HYDRAULIC OIL	STEEL	LEVEL GAUGE, VENT WHISTLE
4	MAINTENANCE FACILITY	1997	500	USED OIL	STEEL	LEVEL GAUGE
5	MAINTENANCE FACILITY	1992	275	USED OIL	STEEL	LEVEL GAUGE
6	MAIN OFFICE	1988	275	FUEL OIL	STEEL	LEVEL GAUGE, VENT, WHISTLE
7	FUELING AREA	2006	2,000	GASOLINE	STEEL	LEVEL GAUGE, HIGH LEVEL ALARM, AUTOMATIC FLOW-SHUTOFF
8	MAINTENANCE FACILITY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	MAINTENANCE FACILITY	2013	500	USED OIL	STEEL	LEVEL GAUGE
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	SECURE LANDFILL FUELING AREA	2013	3,000	DIESEL	STEEL	LEVEL GAUGE, VENT WHISTLE
12	LFGTE PLANT	2009	1,500	LUBRICATION OIL	STEEL	LEVEL GAUGE, HIGH LEVEL ALARM
13	LFGTE PLANT	2009	1,500	USED OIL	STEEL	LEVEL GAUGE, HIGH LEVEL ALARM
BOS TANK	TIRE PROCESSING FACILITY	2013	900	DIESEL	STEEL	LEVEL GAUGE, VENT WHISTLE

REV	DATE	REVISION DESCRIPTION	DRAWN	CHKD
7	11/29/2016	ADDED 2016 SPILLS	DB	SDC
6	12/08/2015	ADDED 2014 AND 2015 SPILLS	DB	SDC
5	11/16/2015	REMOVE TWO TANKS	DB	SDC
4	04/25/2014	ADD TIRE CHIP STORAGE AREA (PHASE11) AND HOT LOAD STAGING AREA	PJD	SDC
3.	05/10/2013	ADD NEW TANKS AND RECENT SPILLS	WLE	SDC
2.	10/26/2012	ANNUAL SWPPP REVIEW	WLE	SDC
1	07/22/2011	SWPPP AND SPCC PLAN	FCL	SDC

DATE: 12/07/2010 | SCALE: 1"=500' | PROJECT NO.: 2468.4 | FILE: 2468.4 Site

SITE PLAN

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

WASTE MANAGEMENT DISPOSAL SERVICES
OF MAINE, INC. - CROSSROADS LANDFILL
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957

St. Germain • Collins

FIGURE 2

846 MAIN ST., WESTBROOK, ME 04092 TEL 207-591-7000 WWW.STGERMAINCOLLINS.COM

C:\Users\DCS2017\Dropbox\DCS-Projects\St. Germain\2468 WM Crossroads\dwg\2468.4 Site.dwg 12/21/2016 8:14:44 AM

Appendix C – Notice of Intent & DEP Acknowledgement Letter

Submission of this Notice of Intent (NOI) constitutes the expressed intent of the entity in Section A to be authorized to discharge stormwater to waters of the State, from the facility/site identified in Section B, under Maine's Stormwater Multi-Sector General Permit (MSGP). This also certifies that the responsible official understands and meets the eligibility conditions of Part I 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. **In order to be granted coverage, any incorrect information on this form must be updated and sent to the Maine Dept. of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017. If you have not paid your Fall 2010 invoice be sure to include a check for $300 made payable to "Treasurer, State of Maine". Please read the instructions on the back prior to completing the NOI form. EVEN IF THERE ARE NO CHANGES – this form must be signed, dated and returned.**

Permit ID: MER05B470

A. Company Information – Legal Name & Billing Address

Permit Owner Legal Name	WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC	ME State Charter Number (if business):	19840911 D
Billing Address City/Town/State/Zip	PO BOX 629 NORRIDGEWOCK, ME 04957-0629		
Daytime phone: (with area code)	207-634-2714		
E-mail:	jmcgown@wm.com		

The 4-digit Standard Industrial Classification (SIC) Code(s) or the 2-letter Activity Code(s) that best represent the industrial activity at the facility and major co-located activities.	SIC# or Activity Code	4953	Additional SIC# or Activity Code	~~5093~~ 4212

B. Facility/Site Physical Location

Facility/Site Name	CROSSROADS LANDFILL				
Physical Address	357 MERCER RD ~~CROSSROADS LANDFILL~~				
Town	NORRIDGE WOCK	State	ME	Zip Code:	04957
Daytime phone: With area code	207-634-2714				
Title, Right, or Interest to this site location:	Yes	✓	No		
Email:	jmcgown@wm.com				

C. Contact Person Information for this NOI

Permit Contact Person	JEFFREY MCGOWN				
Title	DISTRICT MANAGER				
Contact Address	~~2000 FOREST AVE~~ 357 MERCER ROAD				
Town	NORRIDGEWOCK ~~PORTLAND~~	State	ME	Zip Code	04957 ~~04103~~
Daytime phone:	207-634-2714				
Email:	jmcgown@wm.com				

Facility Latitude: (if known)	44' 42" 45.17°	Facility Longitude:	-70' 50" 56.01°

Names(s) of the receiving waters: MILL STREAM	The facility discharges stormwater to a municipal separate stormwater sewer system (MS4). ☐ Yes ☑ No
Is the water considered impaired? ☐ Yes ☑ No If yes, list category:	If Yes, name(s) of MS4 operator:

D. Permit Information

Applicable sector(s) of industrial activity, as designated in Part I (B)(i) and Part I(B)(2) of the MSGP, that include associated discharges that you seek to have covered under this permit	LNP

E. 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. 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 B.

Printed Name: JEFFREY MCGOWN

Title:	DISTRICT MANAGER	**Date:**	5/11/2011
Signature:			

OFFICE USE ONLY

In Good Standing ☐ Yes ☐ No		Permit ID	MER05B470	Acct. # 014-06A-1751-142

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA AHO
ACTING COMMISSIONER

July 11, 2011

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE INC
PO BOX 629
NORRIDGEWOCK, ME 04957-0629

RE: Multi-Sector General Permit (Stormwater Discharge Associated with Industrial Activity)

Dear Jeffrey Mcgown:

The Maine Department of Environmental Protection ("DEP") is in receipt of your 2011 NOI renewal, and has processed your Notice of Intent ("NOI") application for WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE INC. You are authorized to discharge stormwater associated with Multi-Sector activity pursuant to the terms and conditions imposed by DEP's *Multi-Sector General Permit for Stormwater Discharge Associated with Industrial Activity*. The facility permit number is MER05B470 at 357 MERCER RD, NORRIDGEWOCK, ME. Please refer to this permit number in all future correspondence regarding this general permit. The active date of permit coverage is April 26, 2011. The 2011 *Multi-Sector General Permit for Stormwater Discharge Associated with Industrial Activity* is a five-year permit. The Department plans subsequent re-issuance of the 2011 Multi Sector General Permit in the spring of 2016.

DEP's Multi-Sector General Permit containing the terms and conditions which you are now held accountable is available at our website at www.mainedep.com (enter keyword MSGP).

If you have any questions concerning the Multi-Sector General Permit, please contact staff at one of our offices:
Augusta, Main Office - (207) 287-7688
Bangor, Eastern Maine Regional Office - (207) 941-4570
Portland, Southern Maine Regional Office - (207) 822-6300
Presque Isle, Northern Maine Regional Office - (207) 764-0477

Sincerely,

Teco Brown

Teco Brown, Director
Bureau of Land & Water Quality

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207)760-3143

web site: www.maine.gov/dep

Appendix D – 2011 MSGP

STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Maine Pollutant Discharge Elimination System
Multi-Sector General Permit
Stormwater Discharge Associated With Industrial Activity

Bureau of Land and Water Quality
Waste Discharge License # W-008227-5Y-B-R

April 26, 2011

Table of Contents

Part I. GENERAL COVERAGE UNDER THIS PERMIT

A. Permit Coverage. This Multi-Sector General Permit (MSGP), hereinafter described as the General Permit, authorizes the direct discharge or point source discharge of stormwater associated with industrial activity to waters of the State other than groundwater or to a MS4 that discharges to waters of the State, provided that the discharge meets the requirements of this General Permit and applicable provisions of Maine's waste discharge and water classification statutes and rules.

This General Permit is effective April 26, 2011, and authorization to discharge under this General Permit expires April 25, 2016. The Department intends subsequent re-issuance of this Multi-Sector General Permit. This General Permit applies State-wide. This General Permit replaces Maine's MSGP for Industrial Activity issued October 11, 2005.

B. Eligibility. Except for stormwater discharges identified under Part (I)(E) Limitations on Coverage, this permit may cover the following new and existing discharges composed entirely of stormwater.

1. Stormwater discharges associated with industrial activity, as defined in this General Permit, from the "Sectors" of industry activity based on Standard Industrial Classification (SIC) codes or Industrial Activity Codes as described in Table 2, and that are specifically identified by outfall or discharge location in the Stormwater Pollution Prevention Plan (SWPPP). References to "Sectors" in this General Permit (e.g., Sector-specific monitoring requirements,) refer to Sectors of industrial activity listed in Table 2 and Appendices A-AD.

2. Discharges designated by the Department as requiring permit coverage pursuant to 40 CFR 122.26 (a)(1)(v). These discharges are described in Appendix AD of this General Permit.

3. Stormwater discharges associated with industrial activity from facilities with existing effluent guideline limitations for stormwater under 40 CFR Subchapter N. The following activities are eligible for coverage under this General Permit:

   a. Runoff from material storage piles at cement manufacturing facilities [40 CFR Part 411 Subpart C (established February 23, 1977)];
   b. Contaminated runoff from phosphate fertilizer manufacturing facilities [40 CFR Part 418 Subpart A (established April 8, 1974)];
   c. Coal pile runoff at steam electric generating facilities [40 CFR Part 423 (established November 19, 1982)];
   d. Discharges from spray down or intentional wetting of logs at wet deck areas [40 CFR Part 429 Subpart I (established January 26, 1981)]; provided additional BMPs, such as a water use

management plan approved by the Department, is implemented for those facilities discharging to Class AA, A, GPA and to waters having a drainage area of less than 10 square miles as defined by Maine's Water Classification Program, 38 M.R.S.A. §§ 464(4), 465, and 465-A;

e. Mine dewatering discharges at crushed stone mines [40 CFR Part 436, Subpart B];

f. Mine dewatering discharges at construction sand and gravel mines [40 CFR Part 436, Subpart C];

g. Mine dewatering discharges at industrial sand mines [40 CFR Part 436, Subpart D];

h. Runoff from asphalt emulsion facilities [40 CFR Part 443, Subpart A (established July 24, 1975)]; and

i. Runoff from landfills [40 CFR Part 445, Subpart A and B (established February 2, 2000)].

C. Multiple Sector-Specific Industrial Activities. If a facility is engaged in more than one Sector-specific industrial activity as described in Table 2 and Appendices A-AD, the facility's owner or operator shall comply with the Sector-specific requirements and conditions applicable to each industrial activity. Sector-specific requirements are applied only to those areas of the facility where each industrial activity occurs. Sector-specific monitoring requirements and effluent limitations are applied outfall by outfall.

Where stormwater from multiple industrial activities mixes and is discharged in a single outfall, the monitoring requirements and effluent limitations are additional. The facility's owner or operator is required to monitor the discharge for all requirements of all applicable Sectors of industrial activity which occur in the outfall's drainage area. Where more than one effluent limitation for a specific parameter applies to a discharge, compliance with the more restrictive limitation is required

If the facility's owner or operator complies with all requirements applicable to each Sector-specific industrial activity, the discharges from these multiple Sector-specific activities are authorized under this General Permit.

D. Allowable Non-Stormwater Discharges. This permit authorizes the following non-stormwater discharges provided that they do not cause or contribute to a violation of water quality standards as determined by the Department. Appropriate BMPs for these discharges must be addressed in the SWPPP to ensure limited impact on receiving waterbodies.

1. Discharges from fire fighting activities;
2. External building wash-down that does not use detergents;
3. Lawn watering;
4. Uncontaminated groundwater;
5. Uncontaminated springs;
6. Air conditioning condensate;

7. Irrigation drainage;
8. Uncontaminated foundation or footing drains where flows are not contaminated with process materials such as solvents, or in contact with soils where spills or leaks of toxic or hazardous materials have occurred;
9. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of a facility, but not intentional discharges from a cooling tower (e.g., "piped" cooling tower blow-down or drains);
10. Uncontaminated utility vault dewatering; and
11. Hydrostatic test water that does not contain any treatment chemicals and is not contaminated with process chemicals.

If any of the above non-stormwater discharges are present and may reasonably be expected to mix with stormwater discharges from an industrial activity, these conditions must be specifically identified and addressed in the facility's SWPPP.

E. Limitations on Coverage: The following stormwater discharges are not authorized by this permit. If any of the following discharges or types of discharges mixes with an authorized stormwater discharge associated with industrial activity, the entire discharge is not eligible for coverage under this General Permit and not authorized by this General Permit.

1. Stormwater discharges associated with industrial activity that is mixed with other discharges, unless the other discharge is authorized by a different Maine Pollutant Discharge Elimination System (MEPDES) permit; or the other discharge is identified in Part I(B)(3) of this permit;

2. Stormwater discharges associated with industrial activity which require an individual waste discharge permit or require coverage under an alternative general permit. The Department may require any person with a discharge authorized by this General Permit to apply for and obtain an individual permit. Any interested person may petition the Department to take action under this paragraph. Examples of when an individual waste discharge permit may be required are specified in rule;

3. A waste discharge permit may be required for activities such as combined sewer overflows (CSO(s)), spray irrigation, process water treatment systems, metallic mine drainage, and other discharges not covered by this General Permit;

4. Stormwater discharges which the Department has found to be, or may reasonably be expected to be, contributing to a violation of a water quality standard or is a significant contributor of pollutants. This limitation on coverage does not apply if the permittee demonstrates participation and compliance with the implementation of a Department Approved Watershed Management Plan to restore water quality to the impaired waterbody. Proof of participation in the implementation of a Watershed Management Plan is required with the Notice of Intent (NOI) submittal.

NOTE: Part IX(H) of this General Permit, defines a Department Approved Watershed Management Plan as it pertains to the requirements of this General Permit.

5. Stormwater discharges associated with industrial activity from facilities where any MEPDES permit has been denied or is in the process of being denied, terminated, or revoked by the Department (other than in a replacement permit issuance process), except that the Department may allow coverage under this General Permit if ownership or operation of the facility has changed to a different owner or operator and new circumstances at the facility justify allowing coverage;

6. Stormwater discharges associated with construction activity disturbing one (1) acre or more, and where stormwater runoff discharges to the waters of the State, unless in conjunction with mining activities;

7. New stormwater discharges that do not meet the applicable stormwater standards for stormwater quality as set forth in 06-096 CMR 500 Stormwater Management. Changes in or expansion of a facility covered by this General Permit which result in one (1) acre or more of disturbed area or five (5) acres or more of developed area will require that the facility meet the applicable stormwater standards of 06-096 CMR 500;

8. Stormwater discharges associated with industrial activity that may adversely affect a listed or a proposed to be listed, endangered or threatened species or its critical habitat; and

F. Authorization. Coverage under this General Permit, or an individual waste discharge permit or alternative general permit, is required if a facility has a stormwater discharge associated with an industrial activity. An owner or operator of a stormwater discharge associated with industrial activity seeking coverage under this General Permit shall submit a NOI form to the Department by one of the following accepted methods: e-mail, US Postal Service (USPS), or by hand delivery, in accordance with the requirements of Part IV of this General Permit. Upon review of the NOI, the Department may accept or reject the authorization to discharge pursuant to the terms and conditions of this General Permit. If the NOI is denied, the owner or operator shall resubmit any Department–requested information or submit an application for an individual or an alternative general permit. The Department may deny coverage under this permit at any time and require submittal of an application for an individual or an alternative general permit.

1. Granting Authorization to Existing Facilities. A permittee discharging stormwater associated with industrial activity authorized under Maine's October 11, 2005, MSGP shall submit a completed NOI by no later than May 25, 2011. Unless notified by the Department to the contrary, a person who submits a NOI is authorized to discharge under the terms and conditions of this General Permit. A permittee shall modify the facility's SWPPP to comply with the terms and conditions of this General Permit.

2. Granting Authorization to New Facilities. A stormwater discharge associated with industrial activity not authorized under Maine's October 11, 2005, MSGP shall submit a completed NOI no later than thirty (30) days after written notification by the Department. Unless notified by the Department to the contrary, a person who submits a NOI is authorized to discharge under the terms and conditions of this General Permit.

G. Public Posting of NOIs. The Department shall post a list of all NOIs at: http://www.maine.gov/dep/blwq/docstand/stormwater/multisector/lists.htm.

H. No Exposure Certification. Existing facilities that certified "no exposure" under Maine's October 11, 2005, MSGP shall submit a new Maine Multi-Sector No Exposure Certification if still applicable on Department form DEPLW0968 for the Department's review and approval by no later than May 17, 2011. A facility qualifies for "no exposure" when all industrial activities and materials are protected by a storm resistant shelter designed to prevent exposure to stormwater, and the discharge satisfies the conditions at 40 CFR §122.26(g) and Appendix AE of this General Permit. Terminating a No Exposure Certification is addressed in Appendix AE.

I. New Ownership of a Permitted Facility. If ownership of facility authorized under this General Permit changes, the new owner or operator shall submit a new NOI to gain authorization to discharge under this General Permit.

J. Termination of Coverage. An owner or operator of a facility shall notify the Department, on Department form DEPLW0967, when the discharge(s) of stormwater associated with industrial activity no longer occurs at the facility, or if ownership of the facility or industrial activity changes. Upon verification of the status of the facility by the Department, coverage under this General Permit is then terminated. If a facility has a corporate name change but no change in owner, operator or activity, the facility must notify the Department of the name change but is not required to file a notice of termination (NOT).

K. Authority for General Permit. A permit is required for the direct or indirect discharge of pollutants to the waters of the State. A general permit may be issued for point source stormwater discharges. A discharger of stormwater associated with industrial activity who fails to obtain coverage under this General Permit, an individual MEPDES permit or an alternative general permit and discharges stormwater to waters of the State or to a Municipal Separate Storm Sewer System (MS4) is in violation of Maine's waste discharge and water quality laws and the Clean Water Act, and is subject to penalties under 38 M.R.S.A. § 349 and Section 309 of the Clean Water Act. A permittee under this General Permit who violates the terms and conditions of this General Permit is subject to enforcement by the Department for violation of this General Permit. Nothing in this General Permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules.

Part II. LIMITATIONS ON DISCHARGES TO IMPAIRED WATERS

A. New Discharges to Impaired Waters. A *new* discharge or discharger is not eligible for coverage under this General Permit to discharge to an "impaired water" as defined in Part IX(M) unless:

1. All exposure of the pollutant(s) for which the waterbody is impaired is prevented, and procedures to prevent exposure are documented and retained on site with the SWPPP; or

2. Documentation proving that the pollutant(s) for which the waterbody is impaired is not present in the facility's discharge(s), or treatment of the pollutant is provided for in compliance with 06-096 CMR 500, and these findings are retained in the facility's SWPPP.

B. Existing Discharges to Impaired Waters. Discharges to impaired waters authorized under the 2005 MSGP must file a NOI under this General Permit and comply with Part VI(D) and (E) for monitoring and corrective actions. If a TMDL or the 303d list is modified after the effective date of this General Permit, the Department will notify the permittee of the change(s) and any additional monitoring requirements. The 303d and TMDL lists are available at: http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm

C. Watershed Management Plan Compliance. Participation in and compliance with the implementation of a Department Approved Watershed Management Plan as defined for this General Permit, that has a means of funding that is in effect meets the requirements of Part II of this General Permit. A copy of the agreement stating participation of the permittee in the Watershed Management Plan is required upon submittal of the NOI or upon the Department's approval of the Watershed Management Plan. If a Watershed Management Plan is approved after a NOI is filed with the Department, a permittee must submit to the Department a copy of the agreement documenting participation in the implementation of the Watershed Management Plan to meet the impaired waters monitoring requirements under this General Permit.

Part III. PERMIT CONDITIONS

A. Stormwater Pollution Prevention Plan (SWPPP). Development of a SWPPP, as described in Part V of this General Permit, is required before submitting a NOI for authorization to discharge stormwater associated with industrial activity under this General Permit. If a facility has been implementing a SWPPP under Maine's 2005 MSGP, the owner or operator shall review and update the SWPPP to implement all provisions of this General Permit prior to submitting a NOI. A copy of the SWPPP must be kept on site at all times to maintain permit coverage and to remain compliant with the MSGP.

B. Monitoring Requirements. The owner or operator of the stormwater discharge associated with industrial activity shall comply with the monitoring requirements and Sector-specific numeric limitations of Parts VI and VII of this General Permit.

C. Numeric Effluent Limitations Based on Effluent Guidelines. Discharges from regulated activities subject to the effluent guidelines listed in Table 1 below are eligible for coverage under this General Permit provided the facility's activity(ies) match the listed activity or SIC code(s) and meet effluent limitation guidelines established in federal regulations and Part VII of this General Permit. A regulated activity must meet the effluent limits and comply with the Sector requirements as noted in their corresponding Sector-specific Appendix.

Table 1: Effluent Guidelines Applicable To Eligible Discharges For General Permit Coverage

Regulated Activity	New Source performance standards included in effluent guidelines	Sectors affected	SIC or Activity Codes
Runoff from material storage piles at cement manufacturing facilities (40 CFR Part 411 Subpart C [established February 23, 1977])	Yes	E	3241
Contaminated runoff from phosphate fertilizer manufacturing facilities (40 CFR Part 418 Subpart A [established April 8, 1974])	Yes	C	2874
Coal pile runoff at steam electric generating facilities (40 CFR Part 423 [established November 19, 1982])	Yes	O	SE
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas (40 CFR Part 429, Subpart 1 [established January 26, 1981])	Yes	A	2411
Mine dewatering discharges at crushed stone mines (40 CFR part 436, Subpart B)	No	J	1422-1429
Mine dewatering discharges at construction sand and gravel mines (40 CFR part 436, Subpart C)	No	J	1442
Mine dewatering discharges at industrial sand mines (40 CFR part 436, Subpart D)	No	J	1446
Runoff from asphalt emulsion facilities (40 CFR part 443, Subpart A [established July 24, 1975])	Yes	D	2951, 2952
Runoff from landfills (40 CFR Part 445, Subpart A and B [established February 2, 2000])	Yes	K & L	HZ, LF

D. Reporting. The minimum reporting requirements and deadlines for this General Permit are listed in this section.

1. Annual Report. If the Department's Industrial Stormwater inspector finds deficiencies in the development or implementation of any portion of the SWPPP, (including but not limited to a SWPPP that fails to identify an industrial activity, a discharge, or the permittee fails to conduct required

monitoring or implement a BMP set forth in the SWPPP) the permittee shall submit an updated SWPPP within thirty (30) days of written notice, and submit annual reports for the next three consecutive permit years, including subsequent permit reissuance. Annual reports must be submitted on Department form DEPLW1201 for the Department's review and approval. This annual report must summarize the function of all BMPs, results of visual, benchmark, numeric and impaired waters monitoring, location of significant spills, quarterly site inspections, annual non-stormwater discharge certification results, and all implemented or planned corrective actions. The annual report must be submitted to the Department by May 9th of each permit year. An electronic version of this form is available at:
http://www.maine.gov/dep/blwq/docstand/stormwater/multisector.htm#form

2. Numeric Effluent Limitation Monitoring. Sectors C, D, E, K, L & O are subject to quarterly monitoring requirements. Numeric Monitoring schedules for Sectors A, B, & J are activity dependent and are outlined in each Sector. All monitoring results must be recorded in the SWPPP. If the average of the two quarterly monitoring samples exceeds the numeric limit for any parameter, the permittee shall submit the results to the Department within 14 days of receiving the results. Additional numeric monitoring and reporting requirements are outlined in Part VI(F).

3. Impaired Waters and Benchmark Monitoring. Impaired Waters and Benchmark Monitoring requirements are outlined in Part VI(D), (E) and (G) respectively. A summary of these results must be maintained in the SWPPP. Benchmark Monitoring is required for Sectors A, B & N. Each Sector may be subject to separate or additional monitoring requirements.

4. Visual Monitoring of Stormwater Discharges. All facilities must perform visual monitoring of stormwater discharges in accordance with Part VI of this General Permit, and maintain visual monitoring data in the SWPPP.

E. Retention of Records. In addition to the requirements of Part VIII(L)(2) of this General Permit, the permittee shall retain copies of the SWPPP, all reports and certifications 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 of at least three (3) years from the date that the facility's coverage under this General Permit expires or is terminated. The Department may extend the time of record retention at any time.

F. Accessibility. The permittee shall make a copy of the SWPPP, including all monitoring, reporting, and Notice of Intent available to the public, if requested to do so in writing.

Part IV. NOTICE OF INTENT REQUIREMENTS

A. Notice of Intent (NOI). By submitting a NOI, the applicant agrees to comply with the terms and conditions of this General Permit. A NOI must be submitted to the Department with the appropriate fee. Failure to submit proper payment will result in rejection of the NOI as incomplete.

B. Processing of NOI. Prior to authorization of a stormwater discharge associated with industrial activity, a NOI must be reviewed and approved by the Department. The NOI is deemed approved thirty (30) calendar days after the Department receives the notification, unless the Department approves or denies the NOI prior to that date. If the applicant does not receive correspondence from the Department within the thirty (30) day period after the NOI submission, the applicant is authorized to carry out the activity. For existing permittees coverage under the 2005 MSGP is administratively continued, until coverage is granted under this General Permit, an alternative general permit, an individual permit or if coverage is otherwise terminated.

C. NOI Submission. A person shall file the NOI on Department form DEPLW0953. A person shall sign the NOI in accordance with Part VIII(E). The NOI must contain all information listed in the General Permit. The NOI must be sent to the address indicated on the NOI form. A copy the initial NOI form shall be provided by the applicant to municipal office, town, or city, or the county commissioner in the case of an unorganized territory in which the discharge will occur at the time it is submitted to the department. Permittees covered under Maine's 2005 MSGP have the option of submitting a NOI electronically to the Department, these NOI renewals may be submitted electronically to 2011renewal.DEP@maine.gov.

D. NOI Contents.

1. Site identification number (beginning with MER05) assigned to facility under Maine's 2005 General Permit, if any;
2. The facility's legal business name and charter number if applicable (State of Maine) to determine Title, Right and Interest in the property/business; owner's or operator's/contact's name, address, telephone number;
3. Facility/Site information including facility name, address and location, including the latitude and longitude of the facility if known;
4. The name of the receiving water(s), (if known), or if the discharge is through a municipal separate storm sewer system (MS4), the name of the owner or operator of the MS4 and the ultimate receiving water(s), if known;
5. The SIC or Activity Code(s) that best represents the industrial activity conducted at the facility;
6. An identification of the applicable Sector(s); and

7. Additional information required by the Department as part of the NOI, to determine whether or not to authorize the discharge under this General Permit.

E. Where to Submit. A completed and signed NOI, in accordance with Part VIII(E), must be submitted with the appropriate fee to:

Maine Department of Environmental Protection
Municipal and Industrial Stormwater Coordinator
17 State House Station
Augusta ME 04333-0017

F. Deficient NOI. If any portion of the NOI does not meet one or more of the minimum requirements of this part, the applicant will be notified of the deficiency within the 30-day review period. It is the responsibility of the applicant to make all required changes and resubmit the NOI. The review period will begin when the revised NOI is received by the Department.

Part V. STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS

A. Stormwater Pollution Prevention Plan (SWPPP) Preparation. Each facility seeking coverage under this General Permit must prepare a SWPPP as described in Part III(A) prior to submitting a NOI for permit coverage. The SWPPP must be prepared in accordance with good engineering practices and identify potential pollutant sources which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity from the facility. The SWPPP must describe and ensure the implementation and maintenance of Best Management Practices (BMPs) and Control Measures as identified in this Part. Implementation of the SWPPP must reduce or eliminate polluted stormwater discharges associated with industrial activity, and assure compliance with this General Permit.

B. Control Measures. The permittee shall select, design, install and implement control measures (including BMPs) to address potential pollutant sources and any discharge(s) associated with industrial activity. Control measures must be evaluated in conjunction with monitoring to meet the terms and conditions of this General Permit. The selection of these control measures must be in accordance with good engineering practices, and the requirements of each Sector. (See Appendix A–AD.) The SWPPP must fully describe these control measures, including their implementation and maintenance schedules.

C. Non-Numeric Technology Based Effluent Limits. When developing control measures the following must be performed as applicable using the best practicable technology, best available technology, best control technology (BPT/BAT/BCT). The below listed Best Management Practices are considered limits of this General Permit which must be met for compliance. Additional Non-Numeric Technology Based Effluent Limits may also be required as noted in the Sector specific requirements in Appendices A–AD. The methods utilized to meet these limits must be documented in the SWPPP:

1. The permittee shall minimize exposure of the manufacturing process, and material or product storage areas to stormwater (where practicable) by locating industrial activities and materials inside or by protecting them with storm resistant coverings. By eliminating the exposure of the manufacturing process, and material or product storage areas as required by Appendix AE, the facility may qualify for No Exposure Certification. The Department also encourages methods and designs which minimize or mitigate impervious area and reduce runoff.

2. The permittee shall perform good housekeeping procedures, and keep all exposed areas that are potential sources of pollutants clean and orderly. Implement at regular intervals, measures such as sweeping impervious areas, proper labeling of containers, and the storage of liquids within proper secondary containment.

3. The permittee shall regularly inspect, test, maintain and repair all industrial equipment, systems and BMPs to prevent situations that may result in leaks, spills or other releases of pollutants. If the permittee or Department inspector finds that a structural control measure(s) must be repaired or modified to ensure proper function, the permittee shall make the required repairs or modifications as quickly as possible, but no later than twelve (12) weeks from discovery unless otherwise authorized by the Department. Temporary control measures must be in place during this time to reduce or prevent discharges of pollutants. If a non-structural control measure is found to be deficient, the correction of the deficiency for that control measure must be initiated within five (5) days and completed no later than thirty (30) days from discovery. (See Part V(E).)

D. SWPPP Contents. The SWPPP must contain the following components:

1. Pollution Prevention Team. The SWPPP must identify the individual(s) (by name or title) whom comprise the facility's stormwater Pollution Prevention Team. The 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. Site Description. The SWPPP must include a narrative site description of the activities conducted at the site.

3. Site Map. The site map must include:

    a. Approximate drainage boundaries including directions of stormwater flow and outfall locations (use arrows to show flow path);

    b. Boundary of impervious surfaces;

c. Locations of all existing structural BMPs to reduce pollutants in stormwater runoff;

d. Locations of all surface waters including wetlands and streams;

e. Locations of potential pollutant sources identified under Part V(D)(4) below;

f. Locations where major spills or leaks identified under Part V(D)(5) have occurred within the past three years. For the purpose of the site map, mark only areas of frequent spills (greater than three occurrences per year) or large spills (greater than 10 gallons). ALL locations of fuel spills must be documented within the SWPPP;

g. Locations of the following activities exposed to stormwater: fueling stations, vehicle and equipment maintenance, storage and cleaning areas; loading or unloading areas; locations used for the treatment, storage or disposal of wastes; liquid storage tanks; material processing, transfer or storage areas; access roads, rail cars or tracks;

h. Locations of stormwater conveyance systems including swales, ditches, culverts, subsurface stormwater infrastructure, outfalls, including boat ramps, and an approximate outline of the area draining to each outfall;

i. Location and description of non-stormwater discharges (e.g., wastewater licensed outfall);

j. Location and source of run-on from adjacent property that contains either significant quantities of pollutants or volume to the facility; and

k. The name of the nearest receiving water(s), including intermittent streams and wetland(s) that may receive discharges from the facility. An unnamed stream or wetland must be designated as such. The status of the receiving water in terms of water quality classification must also be noted. Contact a regional Stormwater Inspector for assistance if you are not aware of the classification status of the water body to which the facility discharges.

4. Summary of Potential Pollutant Sources. The permittee shall identify each separate area where industrial materials or activities are exposed, or have the potential to be exposed to stormwater. Industrial materials or activities include, but are not limited to, material handling equipment or activities; industrial machinery; cleaning, fueling and maintenance of vehicles; equipment storage; and, storage of raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading or unloading, transportation, or movement of any raw material, intermediate product, final product or

waste product. If applicable, include an evaluation of how the quality and quantity of the stormwater flowing onto the facility from adjacent properties impacts the stormwater discharges from the permitted facility. For each separate area identified, the description must include:

a. Industrial activities area. A list of the activities (e.g., material storage, loading, access areas, equipment fueling and cleaning, cutting, grinding, or processing). Each drainage area must be described and include a prediction of the direction of flow and an estimate of the types of pollutants which may be present in the stormwater discharge. The flow of stormwater across the site must be clearly depicted on the site map;

b. Pollutants. A list of the associated pollutant(s) or pollutant parameter(s) (e.g., crankcase oil, iron, biochemical oxygen demand, pH, sediment, etc.) for each activity. The pollutant list must include all significant materials that have been handled, treated, stored or disposed of in a manner that may allow exposure to stormwater three (3) years prior to review of or development of the SWPPP; and

c. 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 Maine's Solid Waste Management Rules.

5. Potential for Spills and Leaks. The permittee shall clearly identify areas where potential spills and leaks, may occur, along with the accompanying drainage points, and provide a list of spills and leaks that occurred during the three (3) year period prior to submitting a NOI or latest revision of the SWPPP for any area exposed to precipitation or area which drains to a stormwater conveyance.

Spills and leaks include, but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable under Clean Water Act (CWA) §311 (See 40 CFR 110 and 40 CFR 117.21), section 102 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or 38 M.R.S.A. §§ 543, 550 and 1318-B. Unlicensed discharges of oil and hazardous matter are prohibited (See 38 M.R.S.A. §§ 543 & 1317-A). These discharges must be removed to the Commissioner's satisfaction (See 38 M.R.S.A. §§ 1318-B, 548, 568). Hazardous matter discharges must be reported (See 38 M.R.S.A. §§ 1318-B). Oil and hazardous matter have "safe harbor" incentives for reporting (See 38 M.R.S.A. §§ 550 & 1318).

6. Wastewater/Process Water Containment. The location of all wastewater or process water containment tanks must be clearly noted in the SWPPP

and on the site map. 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 may be 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. (See CMR 06-096 520 for definitions.)

7. Sampling Data. All stormwater sampling data, including visual monitoring results collected during the term of this General Permit must be maintained in the SWPPP.

8. Stormwater Controls. Describe the type and location of existing non-structural and structural BMPs selected for each area where industrial materials or activities are exposed to stormwater. All the areas identified in Part V(D)(4) and (5) must have a BMP(s) identified for the area's discharges. For areas where BMPs are not currently in place, describe appropriate BMPs to control pollutants in stormwater discharges. The SWPPP must include an implementation schedule for all proposed BMPs. Refer to individual Sector(s) for additional requirements or guidelines for new BMP installations. Selection of all BMPs must take into account:

    - The quantity and nature of the pollutants, and their potential to impact the water quality of receiving waters;
    - Opportunities to combine the dual purposes of water quality protection and local flood control benefits (including physical impacts of high flows on streams such as bank erosion, impairment of aquatic habitat, etc.); and
    - Opportunities to offset stormwater and temperature impacts from impervious areas on dry weather flows and low flow situations to streams.

9. BMP Types Considered. (See Part V(C) Non-Numeric Technology Based Effluent Limits.) The permittee shall describe how each BMP is currently implemented, or will be implemented. The following types of structural, and non-structural BMPs must be considered for implementation at the facility. This requirement may have been fulfilled with the area-specific BMPs identified under Part V(D)(8), in which case, the previous description is sufficient. However, many of the following BMPs may be more generalized or non site-specific and therefore not previously

considered. If the permittee, agent or Department stormwater inspector determines that any of these BMPs are not appropriate or are inadequate to reduce or eliminate pollutants, an explanation of this determination along with corrective actions must be documented in the SWPPP. The BMP examples listed below are not intended to be a comprehensive list. The permittee is encouraged to keep abreast of new BMPs or new applications of existing BMPs to find the most cost effective means of permit compliance for the facility. If BMPs are planned at the facility which are not listed previously in the SWPPP (e.g., replacing a chemical with a less toxic alternative, adopting a new or innovative BMP, etc.), include an implementation timeline within this section of the SWPPP.

a. Non-Structural BMPs.

Good Housekeeping: The permittee shall keep all exposed areas free of materials which could contribute pollutants to stormwater discharges by performing good housekeeping measures such as sweeping, and proper material containment. Measures must include compliance with the Non-Numeric Technology Based Effluent limits noted in Part V(C) and the individual Sector requirements in Appendices A-AD.

Minimizing Exposure: Where practicable industrial materials and activities should be protected by a storm resistant shelter to prevent exposure to stormwater, or located in an area that does not discharge to a surface water or a MS4.

Preventive Maintenance: The permittee shall implement a preventive maintenance program which includes the timely inspection and maintenance of stormwater management devices, (e.g., cleaning oil/water separators, catch basins) as well as inspecting, testing, maintaining and repairing facility equipment and systems to avoid breakdowns or failures that may result in discharges of pollutants to surface waters.

Spill Prevention and Response Procedures: The permittee shall describe spill prevention and clean up procedures for spills or leaks. These procedures, and the necessary spill response equipment, must be made available to employees who may cause or encounter a spill or leak. Where appropriate, the permittee shall explain existing or planned material handling procedures, storage requirements, secondary containment, and equipment (e.g., diversion valves) in the SWPPP which are intended to minimize spills or leaks at the facility. Unlicensed discharges of oil and hazardous matter are prohibited (See 38 M.R.S.A. §§ 543 & 1317-A). These discharges must be removed to the Commissioner's satisfaction (See 38 M.R.S.A. §§ 1318-B, 548, 568). Hazardous matter discharges must be reported (See 38 M.R.S.A. §§ 1318-B).

Oil and hazardous matter have "safe harbor" incentives for reporting (See 38 M.R.S.A. §§ 550 & 1318).

- Procedures to properly label all storage containers.
- Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions and procedures for material storage and handling.
- Procedures for quick response to stop leaks, spills and other releases. Employees who may cause, detect or respond to a spill situation shall be properly trained. The training must be documented in the SWPPP.
- Procedures to notify trained facility personnel, emergency response and regulatory agencies in the event of a spill or release. Documentation of spills and releases must be included in the facility SWPPP.

Employee Training: The permittee shall describe the annual stormwater employee training program for the facility. The description must include the topics to be covered, (such as spill response, good housekeeping and material management practices). The permittee shall provide employee training for all employees who work in areas where industrial materials or activities are exposed to stormwater, and for employees who are responsible for implementing activities identified in the SWPPP (e.g., inspectors, spill responders and maintenance staff). The employee training must address the components and goals of the SWPPP.

b. Structural BMPs.

Sediment and Erosion Control: The permittee shall identify areas at the facility which, due to topography, land disturbance or other factors, have a potential for soil erosion. The permittee shall describe and implement structural, vegetative, or stabilization BMPs to manage runoff and limit erosion and sediment transport and the resulting discharge of pollutants.

Stormwater Velocity Control: The permittee shall install stormwater velocity dissipation controls where appropriate.

NOTE: This Permit requires compliance with Maine's Erosion and Sedimentation Control Law. Installation of Structural BMPs may require a separate permit pursuant to the Natural Resources Protection Act, Maine Stormwater Management or the Site Location of Development Act.

Stormwater structural devices: The permittee shall describe the stormwater management practices (permanent structural BMPs other than those which control the generation or source(s) of pollutants) that currently exist or are planned for the facility.

These types of BMPs typically are used to divert, filter, reuse, or otherwise reduce pollutants in stormwater discharges from the site.

10. Other Controls. No solid materials, including floatable debris, may be discharged to waters of the State, except as authorized by a permit issued under section 404 of the Clean Water Act. Off-site vehicle tracking, or blowing, of raw, final, waste materials or sediments, and the generation of dust, must be minimized and documented in the SWPPP.

E. Maintenance. All BMPs identified in the SWPPP must be maintained in effective operating condition. If site inspections identify BMPs that are not operating effectively, maintenance must be performed before the next anticipated storm event, or as necessary, to maintain the continued effectiveness of stormwater controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and implemented as soon as practicable, but not later than twelve (12) weeks from the date of discovery unless authorized by the Department. The maintenance schedule and reason for delay must be documented in the SWPPP. The Department will take into account the size and cost of the project, the need to obtain supplies, construction timeframes, weather, the amount of pollution discharged and the condition of receiving waters in determining if a delay is acceptable. In the case of non-structural BMPs, the effectiveness of the BMP must be maintained by appropriate means (e.g., available spill response supplies, training, etc.). Maintenance and BMP follow up actions must comply with Part V(I)(3) of this General Permit.

F. Allowable Non-Stormwater Discharges. Allowable non-stormwater discharges are listed in Parts I(D) and (E). Except for flows from fire fighting activities, the permittee shall identify all sources of allowable non-stormwater discharge(s) in the SWPPP and include:

- Identification of each allowable non-stormwater source;
- The location where it is likely to be discharged; and
- Descriptions of appropriate BMPs for each source.

If mist blown from cooling towers is listed as an allowable non-stormwater discharge, the permittee shall specifically evaluate the potential for the discharge(s) to be contaminated by chemicals used in the cooling tower and determine that the levels of such chemicals would not cause or contribute to a violation of an applicable water quality standard.

G. Applicable State or Local Plans. The SWPPP must be consistent and updated with applicable state or local stormwater, waste disposal, sanitary sewer or septic system regulations to the extent these apply to the facility and are more stringent than the requirements of this General Permit.

H. Monitoring Frequency and Procedure Documentation. The SWPPP must document the procedures for conducting the three types of analytical monitoring (Benchmark, Numeric, and Impaired Waters) and Visual Monitoring where applicable. These procedures are outlined in Part VI of this General Permit. SWPPP documentation must include the following:

1. Location of sample collection (outfall designation).
2. Sampling parameters and sampling frequency for each parameter including the benchmark or limit associated with that parameter.
3. Monitoring schedule including monitoring exceptions, adverse weather conditions and waivers.

I. Site Compliance Evaluations and Follow-up Corrective Actions. This General Permit requires the completion of quarterly site inspections or Site Compliance Evaluations. The SWPPP must include procedures for conducting and documenting the evaluations as required by this part.

1. Frequency of Inspections. The permittee shall conduct Site Compliance Evaluations a minimum of four (4) times a year, one of which must be conducted within 24 hours of a qualifying storm event. These inspections must be evenly spaced with a minimum of sixty (60) days between inspections. Inspections must be done by qualified personnel as defined by the permittee. Qualified personnel may be either a facility employee or agent provided the inspector can accurately assess facility conditions that may impact stormwater discharges and BMP effectiveness. These inspections may be conducted in conjunction with Part (VI)(B), Quarterly Visual Monitoring, or be conducted separately. If the permittee decides to conduct more frequent inspections, the SWPPP must specify the frequency of inspections.

2. Scope of the Site Compliance Evaluation. The evaluation/inspection must include all areas where industrial materials or activities are exposed to stormwater, as identified in Part V(D)(4), and all associated stormwater conveyances and areas where spills and leaks have occurred within the past three (3) years. Inspectors shall evaluate and document:

   a. Industrial materials, residue, or trash on the ground that could contaminate stormwater;

   b. Leaks or spills from industrial equipment, drums, barrels, tanks or similar containers;

   c. Offsite tracking of industrial materials or sediment where vehicles enter or exit the site;

   d. Tracking, blowing or whirling of raw, final, or waste materials and the evidence of, or the potential for, pollutants to contact stormwater;

   e. Stormwater BMPs identified in the SWPPP must be inspected and evaluated to ensure that they are operating correctly. Inspect stormwater conveyances and outfalls for erosion, integrity and potential pollutants. Where discharge locations or outfalls are inaccessible, nearby downstream locations must be inspected if possible; and

f. The once per year Non-Stormwater Discharge Certification may be incorporated into one of the four Site Compliance Evaluations.

3. Site Compliance Evaluation Follow-up Actions. Based on the results of the Site Compliance Evaluation, the permittee shall:

a. Complete a Site Compliance Evaluation Report. This report summarizes the scope of the inspection as noted in Part V(I)(2) above. The permittee shall prepare a Site Compliance Evaluation Report upon completing the inspection. This report must include the name(s) or position(s) of personnel performing the inspection, the date(s) of the evaluation, and major observations relating to the implementation of the SWPPP. The inspection report(s) must identify any incidents of non-compliance and proposed or implemented follow-up action(s). Where an inspection report does not identify any incidents of non-compliance, the report must contain a certification that the facility is in compliance with the SWPPP and this General Permit. The Department has prepared a guidance checklist that may be used or modified for reporting.

b. Develop a Corrective Action Report (CAR). A Corrective Action Report is a description of actions, BMPs, site modifications or behaviors necessary to meet the terms and conditions of this General Permit. Two types of CARs may be generated.

c. Structural BMP Corrective Action Report. This CAR includes modification(s) or addition(s) and implementation of a structural BMP(s). If a noted deficiency is related to a structural BMP excluding routine maintenance, the permittee shall notify the regional stormwater inspector within fourteen (14) business days by phone, email or USPS. Notwithstanding the timeframes described above, the Department reserves the right to take enforcement actions for unpermitted discharges.

Note: If temporary stabilization measures are needed in emergency situations, a permittee may begin installation provided the addition of the BMP or stabilization measure is not in violation of State or Federal laws. The Department should be contacted with in 24 hours in these situations.

d. Non-Structural BMP Corrective Action Report. This CAR notes the addition or modification of a non-structural BMP(s) which must be developed, implemented and kept with the SWPPP.

e. Content of a Corrective Action Report. All CARs must contain at a minimum the initial inspection date, a summary of the deficiency and corrective action(s) planned or implemented including temporary measures. The date the corrective action(s) was initiated, completed or expected to be completed.

Inspection reports and follow-up CARs must be signed by the permittee in accordance with Part VIII(G).

f. SWPPP Modification and Timeline for Completion of Corrective Actions. Modify the SWPPP as necessary (e.g., to show additional controls on the site map) as required by Part V(D)(3) and revise the description of controls as required by Part V(D)(8) to include additional or modified BMPs to correct problems identified in the Site Compliance Evaluation and Corrective Action Report. The permittee shall complete revisions to the SWPPP within thirty (30) calendar days following the inspection, and initiate changes to non-structural BMPs within five (5) business days. If existing structural BMPs require modification or if additional structural BMPs are necessary, implementation must be completed before the next anticipated storm event to the extent practicable, but not more than twelve (12) weeks after discovery of the deficiency unless otherwise authorized by the Department. Temporary BMPs must be utilized during the design and construction phase of new structural BMPs. These temporary BMPs must be implemented as soon as practicable after the Site Compliance Evaluation is complete. The permittee shall retain a record of actions taken in accordance with Part V(I) of this General Permit as part of the SWPPP for at least three (3) years from the date that permit coverage expires or is terminated.

J. SWPPP Documentation Requirements. The permittee shall keep the following inspection, monitoring and certification records on site with the facility's SWPPP. The complete and up-to-date records which demonstrate full compliance with the conditions of this General Permit include:

1. A copy of the NOI submitted to the Department along with any correspondence exchanged between the permittee and the Department specific to coverage of this General Permit.

2. A copy of the Department's acknowledgement letter assigning the facility Permit ID number, and discharge authorization.

3. A copy of the General Permit, (electronic is acceptable), which can be made available to SWPPP team members.

4. Dates and descriptions of spills, leaks, or other releases that resulted in discharges of pollutants to waters of the State through stormwater or

otherwise; 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.

5. Records of annual employee training, including topics covered, training date(s), and printed names and signatures of participating employees.
6. Documentation of maintenance and repairs of stormwater control measures, including dates of regular maintenance, discovery dates of areas in need of repair or replacement; repair date when control measure(s) returned to full function; and, the justification for any extended maintenance or repair schedules.
7. Documentation of inspections and monitoring data.
8. Description of any deviations from monitoring schedules.
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.
10. Documentation of monitoring exceedances and the facility's response including corrective actions; additional monitoring; documentation indicating the benchmark exceedance was due to natural background pollutant levels; or a finding of no further pollutant reductions were technologically, or economically, practicable, and achievable in light of best industry practice.
11. 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.
12. Documentation of the annual non-stormwater discharge certification.

K. Requirement to Maintain Updated SWPPP. The permittee shall amend the SWPPP within thirty (30) days of completion of any of the following:

1. A change in design, construction, operation, or maintenance at the facility that has a significant effect on the discharge or potential for discharge of pollutants from the facility including the addition or reduction of industrial activity;
2. 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 pollutants from sources identified under Part V(D)(4), or is otherwise not achieving the general objectives of controlling pollutants in discharge(s) from the facility;

3. A release of hazardous substances and oil (see 38 M.R.S.A. § 543, 550 and 1318-B); and

4. A discharge authorized under this General Permit that is determined by Department notification to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard. The SWPPP must document actions necessary to ensure future discharge(s) do not cause or contribute to the violation of a water quality standard.

L. Department Review. Department staff may notify the permittee at any time that a SWPPP does not meet one or more of the minimum requirements of this General Permit.

M. Signature, SWPPP Review and SWPPP Availability. The SWPPP must be signed in accordance with Part VIII(E), and a working copy retained at the facility covered by this General Permit. (See Part III(E) for records retention requirements.) The permittee shall only submit a copy of the SWPPP to the Department upon written notification. Upon the Department's request, the SWPPP must be submitted electronically via e-mail or saved to a compact disc and mailed or hand delivered to the Department.

N. Additional Requirements for SARA Title III Facilities. Potential pollutant sources for which the permittee has reporting requirements under EPCRA 313 must be identified in the summary of potential pollutant sources as per Part V(D)(4). Note this additional requirement only applies to the permittee if the permittee is subject to reporting requirements under EPCRA 313.

O. Salt Storage Pile Requirements. Salt storage pile(s) used for deicing or commercial or industrial purposes located at the facility, must be enclosed or covered to prevent exposure to precipitation, with exception of adding or removing materials from the pile, and for sand/salt storage piles at municipal public works facilities. See 06-096 CMR 574, and 38 M.R.S.A. §413(2-D) for additional requirements.

Part VI. MONITORING REQUIREMENTS

A. Monitoring Requirements and Limitations. The monitoring requirements and numeric limitations applicable to a facility depend on the types of industrial activities conducted. The permittee shall review Parts III (Permit Conditions), VI (Monitoring Requirements) and VII (Sector Specific Requirements) of this General Permit to determine which monitoring requirements and numeric limitations apply to the industrial activity or activities at the facility.

1. Sector-specific monitoring requirements. Sector-specific monitoring requirements and limitations are applied outfall by outfall at facilities with multiple Sector-specific industrial activities. Where stormwater from multiple Sector-specific industrial mixes, the monitoring requirements and limitations are additional.

2. Approved watershed management plans. Participation in the implementation of a Department Approved Watershed Management Plan for discharges to impaired waters fulfills the requirement of Part VI.

B. Quarterly Visual Monitoring. All permittees covered under this General Permit, regardless of the facility's Sector of industrial activity are required to conduct quarterly visual monitoring. Visual monitoring requirements are waived if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual Monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

1. Visual Monitoring Documentation. The permittee shall perform and document a visual examination of a stormwater discharge associated with industrial activity from each outfall (except representative outfalls) on a quarterly basis. The visual examination must be made during daylight hours and normal operations. If no qualifying storm event occurs during an inspection cycle, or adverse weather prevents collecting a sample, the permittee shall document this in the SWPPP, and is excused from visual monitoring for that quarter. Visual monitoring must be performed during the next qualifying storm event. The permittee shall sign and certify the documentation in accordance with Part VIII (E). The visual monitoring event must be performed and documented according to procedures outlined in document DEPLW0768, Visual Monitoring of Stormwater Discharges Associated with Industrial Activity, available at:
http://www.maine.gov/dep/blwq/docstand/stormwater/multisector.htm#form

2. Qualifying storm event and visual examination procedures. A qualifying storm event is either precipitation, ice or snow melt that produces a measureable discharge at an outfall that occurs at least 72 hours from a previous qualifying storm event. A grab Sample must be collected within the first 60 minutes, but not more than 2.25 hours from the time stormwater begins to discharge from an outfall. The examination must document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollution. The sample examination must be conducted in a well lit area. Laboratory analytical testing is not required for visual samples. The 72-hour storm interval is waived if the permittee can document that less than a 72-hour interval is representative for local storm events during the sampling period. The same individual should perform visual monitoring for the entire permit term.

C. Coal Pile Runoff Monitoring (Piles greater than 30 cubic yards). Monitoring must be conducted quarterly during a qualifying storm event. Discharges from coal piles are subject to numeric limits for total suspended solids (TSS) not to exceed 50mg/L and pH 6.0-9.0 s.u. See Part VI(F) for additional requirements if TSS or pH exceeds the numeric the limit.

1. The permittee shall comply with the limitations and monitoring requirements as referenced in Part I(B)(3)(c) for all discharges containing coal pile runoff, regardless of the facility's Sector of industrial activity.

2. The permittee shall not dilute coal pile runoff with stormwater or other flows in order to meet this limitation.

3. The permittee shall collect a grab sample at the point of discharge and analyze the sample(s) for pH and TSS. Sampling results must be retained and reported in accordance with Part III(D).

D. Impaired Waters Monitoring and Corrective Actions.

1. Monitoring for existing discharges to impaired waters without an EPA approved or established Total Maximum Daily Load (TMDL). Upon submittal of a NOI, the permittee is required to indicate if the discharge will be to an impaired waterbody as listed on the 303d list and defined in this General Permit. If the Department determines that the facility is contributing to the impaired status, or additional data is needed to determine if the stormwater discharge is contributing to the waterbody's impairment, the permittee shall follow the monitoring requirements below. The Department will notify the permittee in writing of any additional monitoring requirements under this part. If the permittee does not receive notice from the Department to commence monitoring, no additional monitoring is required under this section.

   If notified by the Department, the permittee shall monitor during a qualifying storm event. Monitoring must be conducted quarterly at each outfall (except for representative outfalls) according to the instructions in Part VI(E)(1-5) below. The permittee shall calculate the average of each parameter from the quarterly samples to determine the average monitoring value for each parameter.

   a. Monitoring may be reduced to twice per calendar year if the average of the first year's monitoring values indicate that the pollutant(s) for which the water body is impaired is not detected above natural background pollutant levels. Natural background pollutant levels include those substances that naturally occur in soil and groundwater, but do not include legacy or historical pollutants from earlier site activities or pollutants from neighboring sources which are not naturally occurring. In permit years three and four, the monitoring may be reduced to once per year if the average monitoring value for each parameter did not exceed natural background levels in permit year two (2) from the permittee's stormwater discharge.

b. If the pollutant of concern is detected, but at levels consistent with natural background pollutant levels, the permittee shall keep the following documentation of this discharge with the facility's SWPPP.

i) An explanation of why the presence of the pollutant causing the impairment is detected at the outfall;

ii) An explanation why the pollutant is not related to the activities at the facility; and

iii) Data or studies which link the presence of the pollutant causing the impairment to what can be considered natural background sources in the watershed.

c. If the presence of the pollutant causing the impairment is shown to be related to the facility and not due to natural background pollutant levels, the permittee shall determine the source of the pollutant. The permittee shall develop and implement a corrective action plan to reduce or eliminate the presence of the pollutant(s) in the stormwater discharge. This plan must be incorporated into the facility's SWPPP, and submitted to the Department within the first quarter of the second permit year, or the first quarter of the second year after submittal of the NOI. Sampling for the pollutant(s) must continue quarterly until the pollutant is no longer present or a determination on the discharge is made by the Department.

2. Monitoring and corrective actions for discharges to impaired waters ***with*** an EPA approved or established TMDL. No additional monitoring is required unless specified in the TMDL or requested by the Department.

If monitoring is required by the Department, and the results indicate the pollutant(s) that the TMDL addresses is present in the stormwater discharge in a quantity above the allowable allocation, the permittee shall develop and implement BMPs to meet the requirements of the TMDL. A corrective action plan must be developed and incorporated into the facility's SWPPP.

E. Monitoring Procedures for Discharges to Impaired Waters. The following applies only to facilities that have received notice from the Department that impaired waters monitoring is required. The notice will include the Department's decision, and reason for additional monitoring.

1. If a facility discharges to an impaired waterbody, the permittee shall perform quarterly monitoring at each outfall (except representative outfalls) that discharges to the impaired water for all pollutants for which the waterbody is impaired and for which a standard analytical method exists. (See 40 CFR part 136 for a list of approved methods.)

2. If the pollutants for which the waterbody is impaired are suspended solids, turbidity or sediments, the permittee shall monitor for Total Suspended Solids (TSS).

3. If the pollutant for the impaired waterbody is an indicator or surrogate pollutant, the permittee shall monitor for that indicator or surrogate pollutant.

4. If the impairment is due to impervious cover within the watershed, the facility shall calculate the amount of impervious area(s) discharging to the impaired waterbody and document this in the SWPPP. Additional monitoring and corrective actions may be required by the Department upon review of the results of the calculation, the facility's SWPPP and existing BMPs.

5. No monitoring is required when a waterbody's biological communities are impaired and the Department has not specified an indicator or surrogate as causing the impairment, or when a waterbody's impairment is related to hydrologic modifications. If the biological community is impaired and an indicator or surrogate is noted, the permittee shall monitor for the indicator or surrogate.

F. Numeric Effluent Limitation Monitoring. Sectors A, B[1], C, D, E, J, K, L & O have discharges subject to numeric effluent limitations that are authorized for coverage under this General Permit. The permittee shall collect two quarterly samples, and calculate the average of each parameter from the quarterly samples to determine an average monitoring value for each parameter. If the **average** of the first two quarterly samples for any parameter does not exceed the effluent limitation, the effluent monitoring requirements are fulfilled for the **permit year.** Results that do not exceed the numeric limitation must be recorded in the Facility's SWPPP. If the **average** of the two quarterly samples exceeds the numeric effluent limitation for any parameter, the permittee shall submit results to the Department within 14 days of receiving the monitoring results. Additional monitoring requirements are outlined in each Sector when numeric limitations have been exceeded. Facilities are required to monitor such discharges to evaluate compliance with numerical effluent limits. (See also Part III C, Table 1 and Sector-specific requirements.)

Numeric monitoring for Sectors: C, D, E, K, L, & O must be conducted quarterly during a qualifying storm event as described in Part VI(B)(2). Numeric monitoring for Sectors A, B and J are activity dependent non-stormwater discharges and are outlined in each Sector.

G. Benchmark Monitoring Requirements. Benchmark concentrations are not numeric effluent limitations and exceeding the benchmark is not a permit violation. Benchmark monitoring data is primarily used to determine the

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[1] Sector B is only required to conduct numeric monitoring if conducting wet decking operations.

overall effectiveness of stormwater control measures, and to determine when additional corrective action(s) are required. Sectors A, B & N must perform quarterly benchmark monitoring from each outfall (except representative outfalls) that produces a stormwater discharge associated with an industrial activity.

Benchmark monitoring must be conducted during a qualifying storm event as defined in this General Permit. A grab sample must be collected between 60 minutes but not more than 2.25 hours from the time stormwater begins to discharge from an outfall. A grab sample(s) must be collected during daylight and normal operating hours. Department guidance and assistance is available for proper sampling techniques. Results must be summarized and reported in the Facility's SWPPP. Appropriate corrective actions must be initiated according to Part VI(G)(2) below if there is an exceedance.

Benchmark monitoring is not required if the facility is in compliance with and can demonstrate participation in the implementation of a Department Approved Watershed Management Plan. Benchmark Monitoring is not required from any outfalls subject to Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Benchmark Monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

1. Collect a minimum of four (4) quarterly samples. The permittee shall calculate the average of each parameter from the quarterly samples to determine an average monitoring value for each parameter. If the average of the four (4) monitoring values of the quarterly samples for any parameter does ***not exceed*** the benchmark, the monitoring requirements are fulfilled for that parameter, for the **permit term**. Samples must be analyzed using procedures consistent with methods listed in 40 CFR Part 136. The use of an alternate method or benchmark parameter may be proposed by the permittee to the Department in writing. The Department will approve or deny the use of alternate methods or parameters on a case-by-case basis.
2. After collecting four (4) quarterly samples, if the average of the four (4) monitoring values of the quarterly samples of any parameter ***exceeds*** the benchmark, the permittee shall review the selection, design, and implementation of control measures and complete a corrective action report. Upon making any necessary modifications, the permittee shall continue quarterly monitoring for any parameter that has exceeded its benchmark four additional quarters.
3. If the average monitoring values of the subsequent quarterly samples of any parameter continues to exceed the benchmark, the permittee shall select, install and implement control measures including BMPs to address the selection and design considerations to meet the benchmark; or

4. Make the determination that no further pollutant reductions are technologically available, economically practicable and achievable in light of best industry practice to meet the technology based effluent limits in which case the permittee shall continue monitoring once per year. The rationale for this determination must be documented in the SWPPP.

H. Monitoring Schedule. Visual monitoring, Coal pile monitoring, Impaired waters monitoring, Numeric monitoring for Sectors: C, D, E, K, L, & O and Benchmark monitoring requirements begin the first full quarter following the date of discharge authorization and must be conducted on a quarterly basis. The permittee shall monitor at least once in each of the following three (3) month intervals listed below. Numeric Monitoring schedules for Sectors A, B (for wet decking operations) and J are outlined in each Sector.

January 1 – March 31
April 1- June 30
July 1 – September 30
October 1 – December 31

For example, if the applicant obtains coverage on May 1, 2011; the first monitoring period is July 1- September 30, 2011.

I. Representative Outfalls. "Representative outfalls" means two or more outfalls within a single drainage area that discharge substantially identical effluents, have like industrial activities and significant materials or practices occurring within the outfalls' designated drainage area. If the facility contains representative outfalls, the permittee may test the effluent 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).

J. Monitoring Exceptions. If limited rainfall or frozen conditions prevent the discharge from an outfall, the permittee is excused from monitoring for that monitoring quarter. The altered schedule must be fully documented in the SWPPP.

K. Adverse Weather Conditions. Adverse weather conditions are those which are dangerous or create inaccessibility for personnel and may include such things as local flooding, high winds, electrical storms, drought, excessive rain, frozen conditions and icing. If adverse weather conditions prevent the collection of samples these conditions must be documented in the SWPPP.

Part VII. SECTOR-SPECIFIC REQUIREMENTS FOR INDUSTRIAL ACTIVITY

A. Sector Specific Requirements. The permittee shall comply with additional requirements of this part. Sector-specific requirements are in addition to the "basic" requirements specified in Parts I-VI and the General Permit Requirements in Part VIII of this General Permit. Sector specific requirements may be found in Appendices A-AD. No Exposure requirements may be found in Appendix AE.

Part VIII. GENERAL REQUIREMENTS

A. Duty to Comply. The permittee shall comply with all conditions of this General Permit. Any non-compliance may constitute a violation of Maine's water quality laws, General Laws, and the federal Clean Water Act and opens up the discharger to penalties under 38 M.R.S.A. § 349, and § 309 of the Clean Water Act and is grounds for enforcement action. Enforcement action may include termination of authorization to discharge under the General Permit, and thus requiring that certain actions be taken in order to continue coverage, denial of permit re-authorization, instituting penalties, or other actions deemed applicable by the Department and other federal and local agencies.

1. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act, and 38 M.R.S.A., § 420 or Chapter 530.5 for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the General Permit has not yet been modified to incorporate the requirement.

2. Any person who violates any provision of the laws administered by the Department, including without limitation, a violation of the terms of any order, rule, license, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 M.R.S.A.§ 349.

B. Continuation of the Expired General Permit. An expired General Permit continues in force and effect until a new General Permit is reissued.

C. Duty to Reapply. If the permittee wishes to continue an activity regulated by this General Permit after the expiration and reissuance of this General Permit, the permittee shall apply for and obtain coverage under a new permit.

D. Other applicable conditions. The conditions in 06-096 CMR 523(2) also apply to discharges pursuant to this General Permit and are incorporated herein as if fully set forth. These conditions address areas such as: duty to comply; need to reduce or halt activity not a defense; duty to mitigate; permit actions; property rights; duty to provide information; and, inspection and entry.

E. Signatory Requirements. All Notices of Intent, SWPPPs, reports, certifications or information either submitted to the Department, or that this

General Permit requires to be maintained by the permittee, shall be signed and certified in accordance with 06-096 CMR 521(5).

F. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the CWA. 38 M.R.S.A. § 543, 550, and 1318-B.

G. Release in Excess of Reportable Quantities. If a release in excess of reportable quantities occurs, the permittee shall notify the Department immediately. This permit does not relieve the permittee of the reporting requirements of 40 CFR 117, 40 CFR 302 and 38 M.R.S.A. § 543, 550 and 1318-B. The discharge of hazardous substances in the stormwater discharge(s) from a facility shall be minimized in accordance with the applicable SWPPP for the facility, and in no case, during any 24-hour period, shall the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.

H. Severability. The conditions of this General Permit are severable, and if any provision of this General Permit, or the application of any provision of this General Permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

I. Transfer of Permit. This General Permit is not transferable to any person.

J. State Laws. Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable Maine State law.

K. Proper Operations and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this General Permit and with the requirements of the SWPPP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operations of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the General Permit.

L. Monitoring and Records.

1. Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.

2. The permittee shall retain records of all monitoring information including all calibration, maintenance records and all original strip chart recordings from continuous monitoring instrumentation, copies of all reports required by this General Permit, and records of all data used to complete the NOI for this General Permit, for a period of at least three (3) years from the date that the facility's coverage under this General Permit expires or is terminated. This retention period may be extended by request of the Department at any time.

3. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and,
   f. The results of such analyses.

4. Monitoring must be conducted according to test procedures approved under 40 CFR 136 and applicable Maine regulations, unless other test procedures have been specified in this General Permit.

M. <u>Bypass of Stormwater Control Facilities.</u> Bypass means the intentional diversion of stormwater from any portion of the stormwater collection and treatment system. The permittee may allow any bypass to occur which does not cause effluent benchmark or numeric limitations (as noted by Sector) to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the notice provisions below.

1. Anticipated Bypass. If the permittee knows in advance of the need for a bypass which may exceed benchmark or numeric limitations, he or she shall notify this Department in writing at least ten days prior to the date of the bypass. Such notice shall include the anticipated quantity and the anticipated effect of the bypass.

2. Unanticipated Bypass. Unanticipated bypass of stormwater control structures is prohibited unless one of the conditions in Part VIII(M)(3) of this section is met. The permittee shall submit notice of an unanticipated bypass. Any information regarding the unanticipated bypass shall be provided orally within 24 hours from the time the permittee became aware of the circumstances. A written submission shall also be provided within five (5) days of the time the permittee became aware of the bypass. The written submission shall contain a description of the bypass and its cause; the period of the bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the bypass.

3. Prohibition of Bypass. Bypass is prohibited and enforcement action against the permittee may be taken for the bypass unless:

    a. The bypass was unavoidable to prevent loss of life, personal injury or severe property damage; and

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance.

    c. The Department may approve an anticipated by-pass after considering its adverse effects, if the Department determines that proper notification was made as determined in paragraph VIII(M)(1), and it will meet the two conditions of paragraph VIII(M)(3) above.[2]

N. Upset Conditions.

1. Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based effluent limitations if the requirements of Part VIII(N)(3) of this General Permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

3. Conditions necessary for a demonstration of upset. A permittee whom wishes to establish an affirmative defense of an upset shall demonstrate, through properly signed, current operating logs, or other relevant evidence, that:

    a. An upset occurred and the permittee can identify the specific cause(s) of the upset;
    b. The permitted facility was at the time being properly operated; and
    c. The permittee submitted notice of the upset within 24 hours;[3]

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[2] See 06-096 CMR 523(2)(m)

[3] See 06-096 CMR 523(2)(n)

d. The permittee complied with any remedial measures required[4].

4. The permittee must provide the burden of proof during enforcement proceedings involving occurrence of an upset.

O. Inspection and Entry. Employees and agents of the Department may enter any property at reasonable hours in order to determine compliance.

P. Reopener. This General Permit may be modified or reopened as provided in 38 M.R.S.A. § 414-A (5).

Q. Requiring an Individual Permit or an Alternative General Permit.

1. The Department may require any owner(s) or operator(s) authorized to discharge stormwater under this General Permit to apply for and obtain either an individual MEPDES permit or an alternative general permit. Any interested person may petition the Department to take action under this paragraph.

2. Any owner(s) or operator(s) authorized to discharge stormwater by this General Permit may request to be excluded from coverage of this General Permit by applying for an individual permit. The request may be granted by issuance of an individual permit.

3. If a facility requests or is required to obtain coverage under an individual permit, then authorization to discharge stormwater under this General Permit shall automatically be terminated on the date of issuance of the individual permit. Until such time as an alternative permit is issued, the existing General Permit remains fully in force.

R. Availability of Reports. Except for data determined to be confidential under Part VIII(S) below, all reports prepared in accordance with the terms of this General Permit shall be available for public inspection at the DEP at 28 Tyson Drive, Augusta Maine. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in penalties including the possibility of fine and imprisonment.

S. Confidentiality of Information. Any information submitted to the Department pursuant to these regulations may be claimed as confidential by the submittee. Any such claim must be asserted at the time of the submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, the Department may make the information available to the public without further notice.

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[4] Ibid

A claim of confidentiality will be denied unless the Department determines that the information may be withheld in accordance with 38 M.RS.A. 414 (6), Confidentiality of records, and 38 M.R.S.A. 401 et. seq., Freedom of Access.

T. <u>Right to Appeal.</u> All final license or permit decisions made by the commissioner may be appealed to the Board of Environmental Protection pursuant to Title 38, § 341-D (4) or a judicial appeal may be filed.

U. <u>Notice Required.</u> Prior to discharging under the terms of a General Permit, a person shall file with the Department an initial Notice of Intent (NOI) for coverage on a form provided by the Department for the specific discharge category. A check for the appropriate fee amount must accompany each NOI in order for the application for coverage under the General Permit to be considered complete.

V. <u>Effective Date of Coverage.</u> The Department must notify an applicant for coverage under this General Permit within 30 days of receipt of each complete NOI as to whether or not coverage for the specific discharge is accepted. If the Department does not notify the applicant within 30 days, the NOI is deemed to be accepted and coverage is granted. In the event coverage is not granted, the Department shall notify the applicant of the reasons for not granting coverage. Discharges not acceptable for General Permit coverage may apply for issuance of an individual discharge permit.

W. <u>Continuing Coverage.</u> Coverage under an existing General Permit will be continued upon payment of an applicable annual fee, provided there are no changes in the discharge as described in the NOI. If changes occur or are proposed, the person having filed the NOI shall notify the Department, as specified in the General Permit. Persons wishing to continue coverage are required to so notify the Department.

X. <u>Transfers of Ownership.</u> This General Permit is not transferable. In the event that the ownership of a facility or discharge is transferred to a new owner(s) or operator(s), coverage under this General Permit may be obtained by the new owner by filing a new Notice of Intent form with the Department. The former owner shall also file a Notice of Termination.

Y. <u>General Restrictions.</u> A discharge covered by a General Permit may not:

1. Contain any pollutant, including toxic substances, in quantities or concentrations which may cause or contribute to any adverse impact on the receiving water;
2. Be to a receiving water which is not meeting its classification standard for any characteristic which may be affected by the discharge; or,
3. Impart color, taste, turbidity, radioactivity, settleable materials, floating substances, or other properties that cause the receiving water to be unsuitable for the designated uses ascribed to its classification.

Z. Sampling and Test Procedures. Where a General Permit requires sampling and testing of an effluent of other waste stream, all samples and measurements shall be representative of the volume and nature or the activity being monitored. The sampling, preservation, handling and analytical methods used must conform with Standard Methods for the Examination of Water and Waste Water, American Public Health Association, Washington D.C., latest approved edition or methods referenced in 40 CFR Part 136. However, different but equivalent methods are allowable if they receive prior written approval from the Department.

AA. Monitoring Requirements. The Department may require additional monitoring of an individual discharge as may be reasonably necessary in order to characterize the nature, volume or other attributes of that discharge or its sources.

AB. Removed Substances. Solids, sludges, filter backwash or other pollutants removed or resulting from the treatment of wastewaters must be disposed of in a manner approved by the Department.

Part IX. DEFINITIONS

The following terms have the following meanings as used in this General Permit. These definitions are intended to be consistent with the definitions at 38 MRSA §§ 361-A and 466, 06-096 CMR 520 and 521(9)(b), and 40 CFR §§ 122.2 and 122.26(b).

A Anticipated Bypass. "Anticipated Bypass" means a bypass of stormwater control structure(s) including operational or structural best management practice(s), which is planned or scheduled due to maintenance, repair or other known reason. Provisions must be developed to protect the receiving water from pollutants during an anticipated bypass of a stormwater control.

B Best Available Technology (BAT). "Best Available Technology" or "BAT" means the technology-based standard established by the Clean Water Act as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants. In general, BAT effluent limitations guidelines represent the best existing performance of treatment technologies that are economically achievable.

C Best Control Technology (BCT). "Best Control Technology" or "BCT" means a technology-based standard established by EPA for the discharge from existing conventional pollutants including Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), fecal coliform, pH, oil and grease. The BCT is established in light of a two-part "cost reasonableness" test which compares the cost for an industry to reduce its pollutant discharge with the cost to treat for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond

BPT. EPA must find limits which are reasonable under both tests before establishing them as BCT.

D Best Management Practices (BMPs). "Best Management Practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

E Best Practicable Control Technology (BPT). "Best Practicable Control Technology" or "BPT" means the first level of technology-based standards established by the Clean Water Act to control the discharge of pollutants. BPT effluent limitation guidelines are generally based on the average of best existing performance by plants within an industrial category or subcategory.

F Control Measure. "Control Measure" means BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the States.

G Department. "Department" means the State of Maine Department of Environmental Protection.

H Department Approved Watershed Management Plan. "Department Approved Watershed Management Plan" means, for the purpose of this General Permit, the implementation of a Plan approved by the Department that has a means of funding that is in effect to meet all of the following requirements:

1. The Management Plan must adequately assess the watershed for pollutants and activities contributing to the waterbody's impairment.
2. The causes found to be contributing to the water quality impairment must be adequately addressed via structural or operational Best Management Practices in the watershed. The Management Plan will be reviewed by Department staff to determine the ability of the Management Plan to improve water quality based on the known pollutants and causes of impairment and for compliance with any approved TMDLs.
3. The Plan must include a schedule of implementation and a monitoring component to assess the progress of the watershed in attaining the goals of the 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.

I Discharge. "Discharge" means any spilling, leaking, pumping, pouring, emptying, disposing or other addition of any pollutant to waters of the State.

J Facility. "Facility" means a location where stormwater discharges associated with industrial activity occur including but not limited to, buildings, storage areas, travel ways and processing areas.

K Facility Associated with Industrial Activity. "Facility Associated with Industrial Activity" means the point source discharge which is directly related to manufacturing, processing, or raw material storage areas described in Appendices A-AD. This includes, but is not limited to, stormwater discharges associated with industrial activity.

L Infiltration. "Infiltration" means any process specifically used to meet all or part of the stormwater standards of this General Permit by actively directing all or part of the stormwater into the soil. Infiltration is the process by which runoff percolates through the unsaturated overburden and fractured bedrock to the water table. For this General Permit, infiltration does not include:

1. Incidental wetting of soil in ditches, detention basins or the equivalent;
2. Wetting of underdrained basins, dry swales, or similar filtration systems; or
3. Wetting buffers meeting department requirements for stormwater control.

M Impaired Waters. "Impaired Waters" means for the purposes of this General Permit, any water body listed on the 303d list of Maine's Integrated Water Quality Monitoring and Assessment Report.

N 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 discharges directly to waters of the State other than groundwater.

O No Exposure. "No Exposure" means that industrial activities are protected by a storm resistant shelter to prevent exposure to stormwater including rain, snow, snowmelt, run-on and runoff.

P Non-Numeric Technology Based Effluent Limitations. "Non-Numeric Technology Based Effluent Limits" means Best Management Practices approved and required by the Department that are designed and installed according to Best Practical Technology and Best Available Technology. This technology limits or eliminates pollutants generated on-site by industrial activities from coming into contact with waters of the State. Non-Numeric Technology Based Effluent limits are assigned by industrial activity and are described in the appropriate Sector specific Appendix.

Q 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.

R 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.

S Outfall. "Outfall" means any direct discharge of stormwater from an area of industrial activity to waters of the State or to a MS4.

T Owner or Operator. "Owner or Operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program. In the case of a publicly owned facility or activity, the owner shall be included as a licensee in any permit issued under the State NPDES program.

U Permittee. "Permittee" means the person that is covered under this General Permit for discharge of stormwater associated with industrial activity.

V Person. "Person" means an individual, firm, corporation, municipality, quasi-municipal corporation, (such as a watershed district), state agency, federal agency or other legal entity.

W Point Source. "Point Source" or "direct discharge" means a discharge from any discrete, confined or discernible conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This does not include discharges to buffers designed and maintained in accordance with Chapter 500 Appendix F.

X Qualifying Storm Event. "Qualifying Storm Event" means a storm event that is either precipitation, ice or snow melt that produces a measureable discharge at an outfall that occurs at least 72 hours from a previous measureable storm event.

Y 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.

Z Stormwater Discharge Associated with Industrial Activity. "Stormwater Discharge Associated with Industrial Activity" means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant or facility. The term does not include discharges from facilities or activities excluded from the MEPDES program under 38 MRSA 413. For the categories of industries identified in Table 2 and Appendices A –

AD, the term includes, but is not limited to, point sources stormwater discharges from the following areas: industrial plant yards; immediate access roads and rail lines used or travelled 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 (as defined at Chapter 525); 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 finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.

AA Surface Water. "Surface Water" means for purposes of this General Permit, any river, stream, brook, freshwater wetland, coastal wetland, lake, pond or ocean including the marginal and high seas.

BB Unanticipated Bypass. "Unanticipated Bypass" means for purposes of this General Permit, an unanticipated bypass of stormwater discharge from the site that was originally intended to go through a structural control device to remove pollutants associated with an industrial activity from that stormwater discharge. An unanticipated bypass may include the over topping or complete bypass of a stormwater pond or structural stormwater collection system. All unanticipated bypasses must be reported to the Department according to Part VIII(M)(2) of the General Permit.

Table 2. Sectors of Industrial Activity Covered By this General Permit

SIC Code or Activity Code	Activity Represented
SECTOR A: TIMBER PRODUCTS	
2411	Log Storage and Handling (Wet deck storage areas only authorized if no chemical additives are used in the spray water or applied to the logs)
2421	General Sawmills and Planning Mills
2426	Hardwood Dimension and Flooring Mills
2429	Special Product Sawmills, Not Elsewhere Classified
2431-2439 (except 2434)	Millwork, Veneer, Plywood, and Structural Wood (see Sector W)
2448, 2449	Wood Containers
2451, 2452	Wood Buildings and Mobile Homes
2491	Wood Preserving
2493	Reconstituted Wood Products
2499	Wood Products, Not Elsewhere Classified
SECTOR B: PAPER AND ALLIED PRODUCTS	
2611	Pulp Mills
2621	Paper Mills
2631	Paperboard Mills
2652-2657	Paperboard Containers and Boxes
2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
SECTOR C: CHEMICAL AND ALLIED PRODUCTS	
2812-2819	Industrial Inorganic Chemicals
2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass
2833-2836	Medicinal chemicals and botanical products; pharmaceutical preparations, in vitro and in vivo diagnostic substances; biological products, except diagnostic substances
2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
2861-2869	Industrial Organic Chemicals
2873-2879	Agricultural Chemicals
2873	Facilities that Make Fertilizer Solely from Leather Scraps and Leather Dust
2891-2899	Miscellaneous Chemical Products
3952 (limited to list	Complete list can be found in Sector C specific requirements
SECTOR D: ASPHALT PAVING AND ROOFING MATERIALS AND LUBRICANTS	
2951,2952	Asphalt Paving and Roofing Materials
2992,2999	Miscellaneous Products of Petroleum and Coal
SECTOR E: GLASS, CEMENT, CLAY, CONCRETE, STONE,AND GYPSUM PRODUCTS	
3211	Flat Glass

Table 2. Sectors of Industrial Activity Covered By this General Permit	
SIC Code or Activity Code	**Activity Represented**
3221,3229	Glass and Glassware, Pressed or Blown
3231	Glass Products Made of Purchased Glass
3241	Hydraulic Cement
3251-3259	Structural Clay Products
3261-3269	Pottery and Related Products
3271-3275	Concrete, Gypsum and Plaster Products
3281	Cut Stone and Cut Stone Products
3291-3299	Abrasive, Asbestos, and Miscellaneous Nonmetallic Mineral Products
SECTOR F: PRIMARY METALS	
3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
3321-3325	Iron and Steel Foundries
3331-3339	Primary Smelting and Refining of Nonferrous Metals
3341	Secondary Smelting and Refining of Nonferrous Metals
3351-3357	Rolling, Drawing, and Extruding of Nonferrous Metals
3363-3369	Nonferrous Foundries (Castings)
3398,3399	Miscellaneous Primary Metal Products
SECTOR G: METAL MINING (ORE MINING AND DRESSING)	
1011	Iron Ores
1021	Copper Ores
1031	Lead and Zinc Ores
1041,1044	Gold and Silver Ores
1061	Ferroalloy Ores, Except Vanadium
1081	Metal Mining Services
1094,1099	Miscellaneous Metal Ores
SECTOR H: COAL MINES AND COAL MINING RELATED FACILITIES	
1221-1241	Coal Mines and Coal Mining-Related Facilities
SECTOR I: OIL AND GAS EXTRACTION AND REFINING	
1311	Crude Petroleum and Natural Gas
1321	Natural Gas Liquids
1381-1389	Oil and Gas Field Services
2911	Petroleum Refineries
SECTOR J: MINERAL MINING AND DRESSING	
1411	Dimension Stone
1422-1429	Crushed and Broken Stone, Including Rip Rap
1442,1446	Sand and Gravel
1455,1459	Clay, Ceramic, and Refractory Materials
1474-1479	Chemical and Fertilizer Mineral Mining
1481	Nonmetallic Minerals Services, Except Fuels
1499	Miscellaneous Nonmetallic Minerals, Except Fuels

Table 2. Sectors of Industrial Activity Covered By this General Permit

SIC Code or Activity Code	Activity Represented
SECTOR K: HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES	
HZ	Hazardous Waste Treatment Storage or Disposal
SECTOR L: LANDFILLS AND LAND APPLICATION SITES	
LF	Landfills, Land Application Sites , and Open Dumps
SECTOR M: AUTOMOBILE SALVAGE YARDS	
5015	Automobile Salvage Yards
SECTOR N: SCRAP RECYCLING FACILITIES	
5093	Scrap Recycling Facilities
SECTOR O: STEAM ELECTRIC GENERATING FACILITIES	
SE	Steam Electric Generating Facilities
SECTOR P: LAND TRANSPORTATION AND WAREHOUSING	
4011,4013	Railroad Transportation
4111-4173	Local and Highway Passenger Transportation
4212-4231	Motor Freight Transportation and Warehousing
4311	United States Postal Service
5171	Petroleum Bulk Stations and Terminals
SECTOR Q: WATER TRANSPORTATION	
4412-4499	Water Transportation
SECTOR R: SHIP AND BOAT BUILDING OR REPAIRING YARDS	
3731, 3732	Ship and Boat Building or Repairing Yards
SECTOR S: AIR TRANSPORTATION	
4512-4581	Air Transportation Facilities
SECTOR T: TREATMENT WORKS	
TW	Treatment Works
SECTOR U: FOOD AND KINDRED PRODUCTS	
2011-2015	Meat Products
2021-2026	Dairy Products
2032	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties
2041-2048	Grain Mill Products
2051-2053	Bakery Products
2061-2068	Sugar and Confectionery Products
2074-2079	Fats and Oils
2082-2087	Beverages
2091-2099	Miscellaneous Food Preparations and Kindred Products
2111-2141	Tobacco Products
SECTOR V: TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING, LEATHER AND LEATHER PRODUCTS	
2211-2299	Textile Mill Products

Table 2. Sectors of Industrial Activity Covered By this General Permit

SIC Code or Activity Code	Activity Represented
2311-2399	Apparel and Other Finished Products Made From Fabrics and Similar Materials
3131-3199 (except 3111)	Leather and Leather Products, except Leather Tanning and Finishing (see Sector Z)
SECTOR W: FURNITURE AND FIXTURES	
2434	Wood Kitchen Cabinets
2511-2599	Furniture and Fixtures
SECTOR X: PRINTING AND PUBLISHING	
2711-2796	Printing, Publishing, and Allied Industries
SECTOR Y: RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISCELLANEOUS MANUFACTURING INDUSTRIES	
3011	Tires and Inner Tubes
3021	Rubber and Plastics Footwear
3052, 3053	Gaskets, Packing, and Sealing Devices and Rubber and Plastics Hose and Belting
3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
3081-3089	Miscellaneous Plastics Products
3931	Musical Instruments
3942-3949	Dolls, Toys, Games and Sporting and Athletic Goods
3951-3955 (except 3952)	Pens, Pencils, and Other Artists' Materials
3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
3991-3999	Miscellaneous Manufacturing Industries
SECTOR Z: LEATHER TANNING AND FINISHING	
3111	Leather Tanning and Finishing
SECTOR AA: FABRICATED METAL PRODUCTS	
3411-3499	Fabricated Metal Products, Except Machinery and Transportation Equipment
3911-3915	Jewelry, Silverware, and Plated Ware
SECTOR AB: TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY	
3511-3599 (except 3571-3579)	Industrial and Commercial Machinery (except Computer and Office Equipment) (see Sector AC)
3711-3799 (except 3731, 3732)	Transportation Equipment (except Ship and Boat Building and Repairing) (see Sector R)
SECTOR AC: ELECTRONIC, ELECTRICAL, PHOTOGRAPHIC, AND OPTICAL GOODS	
3571-3579	Computer and Office Equipment

Table 2. Sectors of Industrial Activity Covered By this General Permit

SIC Code or Activity Code	Activity Represented
3612-3699	Electronic, Electrical Equipment and Components, except Computer Equipment
3812	Measuring, Analyzing and Controlling Instrument; Photographic and Optical Goods

SECTOR AD: STORMWATER DISCHARGES DESIGNATED BY THE DEPARTMENT

The Sector AD is used to provide permit coverage for facilities designated by the Department as needing a stormwater permit, and any discharges of stormwater associated with industrial activity that do not meet the description of an industrial activity covered by Sectors A-AC.

Eligibility for Permit Coverage. Because this Sector is primarily intended for use by discharges designated by the Department as needing a stormwater permit (which is an atypical circumstance), and the facility may or may not normally be discharging stormwater associated with industrial activity, you must obtain the Department's written permission to use this permit prior to submitting an NOI. If you are authorized to use this permit, you will still be required to ensure that your discharges meet the basic eligibility provisions of this General Permit.

A complete list of SIC codes can be obtained from the internet at http://www.osha.gov/pls/imis/sic_manual.html or in paper from various locations in the document titled: "Handbook of Standard industrial Classifications", Office of Management and Budget, 1987.

Appendix A

Sector A - Timber Products

A. Covered Stormwater Discharges. The requirements for Sector A apply to stormwater discharges associated with Timber Products facilities as identified by the SIC Codes specified below.

SECTOR A: TIMBER PRODUCTS	
2411	Log Storage and Handling (Wet deck storage areas only authorized if no chemical additives are used in the spray water or applied to logs)
2421	General Sawmills and Planing Mills
2426	Hardwood Dimension and Flooring Mills
2429	Special Product Sawmills, Not Elsewhere Classified
2431-2439 (except 2434)	Millwork, Veneer, Plywood, and Structural Wood (see Sector W)
2448, 2449	Wood Containers
2451, 2452	Wood Buildings and Mobile Homes
2491	Wood Preserving
2493	Reconstituted Wood Products
2499	Wood Products, Not Elsewhere Classified

B. Limitations on Coverage. This General Permit does not authorize stormwater discharges from material or storage areas where there may be contact with sprayed chemical formulations to provide wood surface protection. These discharges must be covered by a separate MEPDES permit.

C. Authorized Non-Stormwater Discharges. This permit authorizes the intentional wetting of logs at wet deck storage areas where no chemical additives are used in the spray down waters and no chemicals are applied to the wood prior to or during storage. The non-stormwater component of the discharge must be compliant with Part V(D)(8) of the General Permit and numeric effluent limitations for this Sector.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: processing areas; equipment used for chemical treatment and chemical storage areas; treated wood and residue storage areas; wet decking areas; dry decking areas; untreated wood and residue storage areas.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) If the facility has used chlorophenolic, creosote or chromium-copper-arsenic formulations for wood surface protection or preserving, the following must also be identified in the SWPPP: areas where contaminated soils, treatment equipment and stored materials are located, and the BMPs identified and implemented to minimize the contact of these areas and materials with stormwater.

3. Stormwater Management Controls. (See also Part V(D)(8) and (9).) The permittee shall describe and implement measures to address the following activities or pollutant sources from: log, lumber and wood product storage areas; residue storage areas; loading and unloading areas; material handling areas; chemical storage areas; wood surface preservation and, equipment or vehicle maintenance, storage and repair areas.

4. Monthly Inspections. (See also Part V (I)(1-3).) If the facility performs wood surface protection or preservation activities, the permittee shall inspect all processing areas, transport areas and treated wood storage areas on a monthly basis to assess the effectiveness of practices implemented to minimize the accumulation of treatment chemicals in soils and stormwater discharges.

5. Good Housekeeping. Good housekeeping includes removal of yard debris and accumulated wood waste and sediments to limit the discharge of woody debris, minimize leachate generated from decaying wood materials and minimize the generation of dust from log storage and handling areas, including all wet decking areas. This must be performed twice per calendar year unless the facility has an approved log yard maintenance plan. When there is an exceedance of the benchmark for TSS as noted in Part E(1) of this Appendix, from an outfall that drains any log storage or handling area, removal of yard debris must be completed within twelve (12) weeks of the exceedance unless otherwise authorized by the Department. The entire storage and handling area ***does not*** need to be cleaned of accumulated material at one time, provided housekeeping procedures are adequate to meet benchmark values. Yard waste must be handled and disposed of in accordance with the Maine Solid Waste Management Rules. The permittee shall document a schedule of the implemented good housekeeping measures at the facility.

6. Material Containment. Use containment devices to prevent the tracking, blowing or drifting of sawdust, bark or wood chips to surface waters. Containment devices may include but are not limited to, wooden, concrete or metal barriers or structures to prevent tracking, blowing or drifting of material. Chipping and shredding activities should be performed in a designated, screened area designed to prevent tracking, blowing or drifting of the wood products to surface waters. Screening may consist of netting, fencing, or other containment device used to capture wind blown particles associated with the chipping or shredding activity. If stormwater associated with the material containment area(s) drains to a waste treatment or process sewer system, only screening to prevent tracking, blowing or drifting of the material to stormwater conveyances or surface waters must be utilized.

7. Water Usage Plan. Facilities conducting log watering activities must develop and implement a water usage plan which minimizes the amount of water utilized in the wet decking process. This plan must outline routine inspections and maintenance of BMPs and control measures. Water discharged from the wet decking process must be contained to the maximum extent practicable using the

best practicable and best available technology (BPT/BAT). This must be included in the facility's SWPPP.

E. Monitoring and Reporting Requirements. (See also Part VI.)

1. Benchmark Monitoring Requirements. These Benchmark parameters apply to primary and secondary industrial activities, as well as any multiple sector specific industrial activity. Quarterly samples must be collected as described in Part VI of this general permit. Quarterly samples must be collected during a qualifying storm event. The permittee shall collect a grab sample from each outfall (except representative outfalls) that produces a stormwater discharge associated with an industrial activity. The permittee shall conduct benchmark monitoring for:

   a. TSS – 100 mg/L
   b. pH – 6-9 s.u.

   The permittee shall calculate the average of each parameter from the quarterly samples to determine an average monitoring value for each parameter. If the **average** of the four (4) monitoring values of the quarterly samples for any parameter does ***not exceed*** the benchmark, the monitoring requirements are fulfilled for that parameter, **for the permit term**. If the average of the four (4) monitoring values of the quarterly samples of any parameter ***exceeds*** the benchmark, the permittee shall review the selection, design, and implementation of control measures and complete a corrective action report. Upon making any necessary modifications, the permittee shall continue quarterly monitoring for four additional quarters. Additional monitoring or corrective actions may be required by the Department based on a review of benchmark or visual monitoring results.

   Additional monitoring associated with Wood Preserving (SIC 2491). Facilities which perform wood preserving or protection activities must also perform quarterly benchmark monitoring for Arsenic and Copper.

   a. Arsenic – 0.15 mg/L
   b. Copper (hardness dependent)

Water Hardness Range	Copper (mg/L)
0-25 mg/L	.0038
26-50 mg/L	.0056
51-75 mg/L	.0090
76-100 mg/L	.0123
101-125 mg/L	.0156
126-150 mg/L	.0189
151-175 mg/L	.0221
176-200 mg/L	.0253
201-225 mg/L	.0285
226-250 mg/L	.0316
251+ mg/L	.0332

2. Numeric Monitoring Requirements. The requirements must be performed only during log watering operations. Samples must be collected from the point of discharge from this activity. If the facility has a control measure such as a detention pond or log watering pond that recycles spray water, and the treatment pond does not produce a measurable discharge, no sampling is required. If this activity produces a measurable discharge, the permittee shall collect at least two (2) samples separated by at least 30 days and analyze the samples for pH and woody debris. If the average of the two (2) samples for pH is between 6.0 and 9.0 s.u. monitoring requirements for pH are fulfilled for the permit year. No debris greater than one inch in diameter may be discharged. If the average of the two (2) pH samples exceeds the numeric limit, or if woody debris is discharged, the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of the exceedance. Upon making any necessary modifications, the permittee shall collect and analyze two (2) additional samples for any parameter that exceeded the numeric effluent limitation. Additional monitoring may be required.

SECTOR A: TIMBER PRODUCTS- SECTOR SPECIFIC NUMERIC LIMITATIONS

SIC Code	Regulated Activity	Parameter	Numeric Limitation**
2411	Wet Decking Discharges at Log Storage and Handling Facilities	pH Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	6.0-9.0 s.u. No debris that can pass through a (1") diameter round opening

3. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

   Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix B

Sector B - Paper and Allied Products Manufacturing.

A. Covered Stormwater Discharges. The requirements for Sector B apply to stormwater discharges associated with Paper and Allied Products Manufacturing facilities as identified by the SIC Codes below.

SECTOR B: PAPER AND ALLIED PRODUCTS	
2611	Pulp Mills
2621	Paper Mills
2631	Paperboard Mills
2652-2657	Paperboard Containers and Boxes
2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes

B. Authorized Non-Stormwater Discharges. This permit authorizes the intentional wetting of logs at wet deck storage areas where no chemical additives are used in the spray down waters and no chemicals are applied to the wood prior to or during storage. The non-stormwater component of the discharge must be compliant with Part V(D)(8) of the General Permit and numeric effluent limitations for this sector.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: processing areas; equipment used for chemical treatment and chemical storage areas; wood and residue storage areas; wet decking areas; dry decking areas.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) If the facility uses alternative fuel sources e.g., hog fuel or shredded materials these must be identified in the SWPPP. The permittee shall identify and implement BMPs to minimize the contact of these materials with stormwater.

3. Stormwater Management Controls. (See also Part V(D)(8) and (9).) The permittee shall describe and implement measures to address the following activities or pollutant sources from: log and wood product storage areas; residue storage areas; loading and unloading areas; material handling areas; chemical storage areas; fueling and fuel storage areas and, equipment or vehicle maintenance, storage and repair areas.

4. Good Housekeeping. Good housekeeping includes removal of yard debris and accumulated wood waste and sediments to limit the discharge of woody debris, minimize leachate generated from decaying wood materials and minimize the generation of dust from log storage and handling areas, including all wet decking areas. This must be performed twice per calendar year. Unless the facility has an approved log yard maintenance plan. When there is an exceedance of the benchmark for either TSS or COD as noted in Part D(1) of this Appendix, from an outfall that drains any log storage or handling area, removal of yard debris must

be completed within twelve (12) weeks of the exceedance unless otherwise authorized by the Department. The entire storage and handling area ***does not*** need to be cleaned of accumulated material at one time, provided housekeeping procedures are adequate to meet benchmark values. Yard waste must be handled and disposed of in accordance with the Maine Solid Waste Management Rules. The permittee shall document a schedule of the implemented good housekeeping measures at the facility.

5. Material containment. Use containment devices to prevent the tracking, blowing or drifting of sawdust, bark or wood chips to surface waters. Containment devices may include but are not limited to, wooden, concrete or metal barriers or structures to prevent tracking, blowing or drifting of material. Chipping and shredding activities should be performed in a designated, screened area to prevent wind blown tracking of the wood products to surface waters. Screening may consist of netting, fencing, or other screen used to capture windblown particulate matter associated with the chipping or shredding activity. If stormwater associated with the material containment area drains to a waste treatment or process sewer system, only screening to prevent wind blown tracking of the material to surface waters or stormwater conveyance system must be utilized.

6. Water Usage Plan. Facilities conducting log watering activities must develop and implement a water usage plan which minimizes the amount of water utilized in the wet decking process. This plan must outline routine inspections and maintenance of BMPs and control measures. Water discharged from the wet decking process must be contained to the maximum extent practicable using the best practicable and best available technology (BPT/BAT). This must be included in the facility's SWPPP.

D. Monitoring and Reporting Requirements. (See also Part VI.)

1. Benchmark Monitoring Requirements: These benchmark parameters apply to primary and secondary industrial activities, as well as any multiple sector specific industrial activity. Quarterly samples must be collected as described in Part VI of this General Permit during a qualifying storm event. The permittee shall collect a grab sample from each outfall (except representative outfalls) that produces a stormwater discharge associated with an industrial activity except facilities covered under SIC codes 2671-2679. Conduct benchmark monitoring for:

   a. TSS – 100 mg/L or COD – 120 mg/L
   b. pH – 6-9 s.u.

   The permittee shall calculate the average of each parameter from the quarterly samples to determine an average monitoring value for each parameter. If the average of the four (4) monitoring values of the quarterly samples for any parameter does ***not exceed*** the benchmark, the monitoring requirements are fulfilled for that parameter, for the **permit term**. If the average of the four (4) monitoring values of the quarterly samples of any parameter ***exceeds*** the benchmark, the permittee shall review the selection, design, and implementation of control measures and complete a corrective action report. Upon making any necessary modifications, the permittee shall continue quarterly monitoring for four additional quarters. Additional monitoring or corrective actions may be required by the Department based on a review of Benchmark or Visual Monitoring results.

2. Numeric Monitoring Requirements. The requirements must be performed only during log watering operations. Samples must be collected at the point of discharge from this activity. If the facility has a control measure such as a detention pond or log watering pond that recycles spray water, and the treatment pond does not produce a measurable discharge no sampling is required. If this activity produces a measurable discharge, the permittee shall collect at least two (2) samples separated by at least 30 days and analyze the samples for pH and woody debris. If the average of the two (2) samples for pH is between 6.0-9.0 s.u. monitoring requirements for pH are fulfilled for the permit year. No debris greater than one (1) inch in diameter may be discharged. If the average of the two (2) pH samples exceeds the numeric limit, or if woody debris is discharged the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of the exceedance. Upon making any necessary modifications, the permittee shall collect and analyze two (2) additional samples for any parameter that exceeded the numeric effluent limitation. Additional monitoring may be required.

SECTOR B: Paper and Allied Products Manufacturing SECTOR SPECIFIC NUMERIC LIMITATIONS		
Regulated Activity	**Parameter**	**Numeric Limitation**
Wet Decking Discharges at Log Storage and Handling Locations	pH Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	6.0 - 9.0 s.u. No debris that can pass through a (1") diameter round opening

3. Visual Monitoring Requirements. (See also VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly Visual Monitoring at outfalls that do not require Numeric Monitoring.

   Visual monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix C

Sector C - Chemical and Allied Products Manufacturing.

A. Covered Stormwater Discharges. The requirements for Sector C apply to stormwater discharges associated with Chemical and Allied Products Manufacturing facilities as identified by the SIC Codes specified below.

SECTOR C: CHEMICAL AND ALLIED PRODUCTS	
2812-2819	Industrial Inorganic Chemicals
2821-2824	Plastic Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass
2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; In Vitro and In Vivo Diagnostic Substances; Biological Products, except Diagnostic Substances
2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations
2851	Paints, Varnishes, Lacquers, Enamels and Allied Products
2861-2869	Industrial Organic Chemicals
2873-2879	Agricultural Chemicals
2873	Facilities that Make Fertilizer Solely from Leather Scraps and Leather Dust
2891-2899	Miscellaneous Chemical Products
3952 (limited to list)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints and Artist's Watercolors

B. Limitations on Coverage. This General Permit does not authorize: non-stormwater discharges containing inks, paints or substances (hazardous, nonhazardous, etc.) resulting from an onsite spill, including materials collected in drip pans; washwater from material handling and processing areas; and washwater from drum, tank or container rinsing and cleaning processes.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify where any of the following may be exposed to stormwater: processing and storage areas; access roads, railcars and tracks; areas where substances are transferred in bulk; and operating machinery.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) Describe the following sources and activities that have potential pollutants associated with them: loading, unloading and transfer of chemicals; outdoor storage of salt, pallets, coal, drums, containers, fuels, fueling stations; vehicle and equipment maintenance or cleaning areas; areas where the treatment, storage or disposal (on or off-site) of waste or wastewater occur; storage tanks and other containers; processing and storage areas; access roads, railcars and tracks; areas where the transfer of substances in bulk occurs; and areas where machinery operates.

3. Inspections. (See also Part V(I).) As part of the facility maintenance program, the following areas must be inspected and documented monthly: material storage and handling areas; liquid storage tanks; hoppers or silos; vehicle and equipment maintenance; cleaning and fueling areas; material handling vehicles; and, equipment and processing areas.

4. Good Housekeeping. (See also Part V(D)(9)(a).) Perform good housekeeping including supervised loading, unloading and transfer of bulk chemicals and inspections for spills and leaks; routinely inspect the condition of all drums, tanks and containers for potential leaks. The permittee shall prevent the exposure of fine granular solids to stormwater, by storing these materials in a covered structure such as silos, hoppers or buildings. The SWPPP must document a schedule of the implemented good housekeeping measures at the facility SWPPP.

5. Material containment. Any outside material storage piles must be contained by structural means and include daily pile maintenance. Containment may include wooden, concrete or metal barriers to prevent tracking and drifting of material.

D. <u>Monitoring and Reporting Requirements. (See also Part VI.)</u>

1. Numeric Effluent Monitoring. The permittee shall collect at least two (2) quarterly samples and analyze the sample for total phosphorus and fluoride. If the average of the two (2) samples for either parameter does not exceed the effluent limitation the monitoring requirements are fulfilled for that parameter for the permit year. If the average of the two (2) samples exceeds the effluent limitation for either parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of receiving the monitoring results. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for the parameter that exceeded the effluent limitation. Additional monitoring may be required.

   If the values of the first three years of numeric effluent limit monitoring does not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

SECTOR C: CHEMICAL AND ALLIED PRODUCTS- SECTOR SPECIFIC NUMERIC LIMITATIONS

SIC Code	Regulated Activity	Parameter	Numeric Limitation
2874	Stormwater from Phosphate fertilizer Manufacturing facilities that during manufacturing or processing, comes into contact with any raw materials, intermediate products, finished product, by-product or waste product	Total Phosphorus (as P)	105.0 mg/L, daily max 35 mg/L, 30-day avg.
		Fluoride	75.0 mg/L, daily max 25.0 mg/L, 30-day avg.

2. Visual monitoring Requirements. (See also VI(C).) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for

visual monitoring analysis from each outfall that has an industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly Visual Monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix D

Sector D - Asphalt Paving and Roofing Materials and Lubricant Manufacturers.

A. Covered Stormwater Discharges. The requirements for Sector D apply to stormwater discharges associated with Asphalt Paving and Roofing Materials and Lubricant Manufacturers facilities as identified by the SIC Codes specified below.

SECTOR D: ASPHALT PAVING AND ROOFING MATERIALS AND LUBRICANTS	
2951, 2952	Asphalt Paving and Roofing Materials
2992, 2999	Miscellaneous Products of Petroleum and Coal

B. Limitations on Coverage. This General Permit does not authorize discharges associated with fats and oils rendering; discharges from oil recycling facilities; discharges associated with detergents, petroleum or non-petroleum products applied to dump bodies to prevent asphalt from sticking; and vehicle wash water.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Inspections. (See also Part V(I).) Inspect the following areas monthly: material storage and handling areas; liquid storage tanks and associated valves including secondary containment structures; hoppers or silos; vehicle and equipment maintenance; cleaning and fueling areas; material handling vehicles; and, equipment and processing areas. Ensure that vehicle and equipment wash water does not come in contact with surface water. Appropriate actions must be taken as a response to inspections and follow up procedures must be documented in the SWPPP.

2. Good Housekeeping. Perform frequent inspection and management of all material storage piles. This includes removal and sweeping of accumulated or spilled materials, and removal of accumulated gravel or other material in travel ways and stormwater conveyances. The SWPPP must document a schedule of the implemented good housekeeping measures at the facility.

3. Material Containment. Aggregate and other storage piles must be contained by structural means or by daily pile maintenance. Containment may include wooden, concrete or metal barriers to prevent tracking or drifting of material.

D. Numeric Monitoring Requirements. Only discharges from areas where asphalt paving and roofing emulsions are produced are subject to numeric monitoring requirements. (See Also Part VI.) The permittee shall collect at least two (2) quarterly samples and analyze the sample for TSS, oil and grease and pH. If the **average** of the two (2) samples for any parameter does not exceed the numeric effluent limitation, the monitoring requirements are fulfilled for those parameters for the permit year. If the average of the two (2) samples exceeds the effluent limitation for any parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of receiving the monitoring results. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for any parameter that exceeded the effluent limitation*. Additional monitoring may be required. *Example: If a facility collects two quarterly samples for numeric monitoring and analyzes each sample for TSS, Oil and Grease, and pH and the average of the two samples for TSS and pH meets the numeric limit, and Oil and Grease exceeds the numeric limit subsequent numeric monitoring must only be conducted for Oil and Grease.

If the values of the first three years of numeric effluent limit monitoring does not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

SECTOR D: ASPHALT PAVING AND ROOFING MATERIALS AND LUBRICANTS- SECTOR SPECIFIC NUMERIC LIMITATIONS

SIC Code	Regulated Activity	Parameter	Numeric Limitation
2951, 2952	Discharges from areas where production of asphalt paving and roofing emulsions occurs	TSS	100.0 mg/L daily max
		Oil and Grease	15.0 mg/L daily max
		pH	6.0-9.0 s.u.

E. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix E

Sector E - Stone, Glass, Clay, Cement, Concrete, and Gypsum Products

A. Covered Stormwater Discharges. The requirements for Sector E apply to stormwater discharges associated with Glass, Cement, Clay, Concrete, Gypsum, Cut Stone, Abrasive, Asbestos and miscellaneous Products facilities as identified by the SIC Codes specified below.

SECTOR E: GLASS, CLAY, CEMENT, CONCRETE, AND GYPSUM PRODUCTS	
3211	Flat Glass
3221, 3229	Glass and Glassware, Pressed or Blown
3231	Glass Products Made of Purchased Glass
3241	Hydraulic Cement
3251-3259	Structural Clay Products
3261-3269	Pottery and Related Products
3171-3275	Concrete, Gypsum and Plaster Products
3281	Cut Stone and Stone Products
3291-3299	Abrasive, Asbestos, and Miscellaneous Nonmetallic Mineral Products

B. Limitations on Coverage. This General Permit does not authorize discharges associated with equipment or vehicle wash-out and wash water or process water associated with cutting stone.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify the locations of the following, as applicable: bag house or other dust control device; recycle/sedimentation pond, clarifier or other device used for the treatment of process wastewater; the areas that drain to the treatment device and associated outfall(s).

2. Inspections. (See also Part V(I).) Conduct and document weekly inspections of all active material storage piles, processing equipment and processing areas. Implement measures such as sweeping or removing accumulated or spilled dust, granular solids or gravel from travel ways and stormwater conveyances. Conduct and document monthly inspections for liquid storage tanks; hoppers or silos; vehicle and equipment maintenance; cleaning and fueling areas; material handling vehicles.

3. Good Housekeeping. (See also Part V(D)(9)(a).) Implement measures to prevent or minimize the discharge of spilled cement; aggregate (including sand or gravel); kiln dust; fly ash; settled dust; or other significant materials.

   Non-structural measures. If cement dust, kiln dust, fly ash or settled solids are generated or processed at the facility, the permittee shall sweep product and material storage areas weekly from all paved areas. Where practicable, the permittee shall prevent the exposure or processing of fine granular solids from coming in contact with stormwater, by storing or processing these materials in covered silos, hoppers, buildings or other control structures. The permittee shall document a schedule of the implemented Good Housekeeping measures at the facility in the SWPPP.

D. Certification. (See also Part V(I)(2)(f) and Part I(E).) Facilities must include a description of measures that ensure that all process waste water resulting from truck washing, mixers, transport buckets, molds or forms, wet saws or other equipment are discharged or recycled in accordance with MEPDES requirements. This information must be stated in the non-stormwater discharge certification.

E. Numeric Monitoring Requirements. Numeric monitoring must be performed only at facilities that manufacture cement. (See Also Part VI.) The permittee shall collect at least two (2) quarterly samples and analyze the sample for TSS, and pH. If the **average** of the two (2) samples for either parameter does not exceed the numeric effluent limitation, the monitoring requirements are fulfilled for those parameters for the permit year. If the average of either of the two (2) samples exceeds the numeric effluent limitation for any parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of receiving the monitoring results. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for any parameter that exceeded the effluent limitation. Additional monitoring may be required.

If the values of the first three years of numeric effluent limit monitoring do not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

SECTOR E: GLASS, CLAY, CEMENT, CONCRETE AND GYPSUM PRODUCTS-SECTOR SPECIFIC NUMERIC LIMITATIONS

Regulated Activity	Parameter	Numeric Limitation
Discharges from material storage piles at cement manufacturing facilities, including raw & waste materials, intermediate products, finished products, used or derived from manufacturing cement.	TSS pH	50.0 mg/L daily max 6.0-9.0 s.u.

F. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix F

Sector F - Primary Metals

A. Covered Stormwater Discharges. The requirements for Sector F apply to stormwater discharges from Primary Metals facilities as identified by the SIC Codes specified below.

SECTOR F: PRIMARY METALS	
3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
3321-3325	Iron and Steel Foundries
3331-3339	Primary Smelting and Refining of Nonferrous Metals
3341	Secondary Smelting and Refining on Nonferrous Metals
3351-3357	Rolling, Drawing, and Extruding of Nonferrous Metals
3363-3369	Nonferrous Foundries (Castings)
3398, 3399	Miscellaneous Primary Metal Products

B. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify where all of the following activities may be exposed to stormwater: storage or disposal of wastes such as spent solvents or baths, sand, slag or dross; liquid storage tanks or drums; processing areas including pollution control equipment (e.g., baghouses); and, raw material storage areas such as coal, coke, scrap, sand, fluxes, refractories or metal in any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal or coke handling operations, etc., and which process or material storage procedure could result in a discharge of pollutants to waters of the State.

2. Potential Pollutant Inventory of Exposed Material. (See also Part V(D)(4).) The inventory must include exposed materials handled at the site that potentially may be exposed to stormwater. Particulate matter from process air emissions or losses during material handling activities must be documented and evaluated.

3. Inspections. (See also Part V(I).) Routine quarterly inspections must address all potential sources of pollutants, including (if applicable) air pollution control equipment (e.g., bag-houses and electrostatic precipitators, scrubbers and cyclones). The inspector shall look for any signs of degradation (e.g., leaks, corrosion or improper operation) that could limit the efficiency of the air pollution control equipment and lead to excessive or fugitive emissions. To reduce the potential for fugitive emissions consider monitoring air flow at inlets and outlets Inspections. (See also Part V(I).) Routine quarterly inspections must address all potential sources of pollutants, including (if applicable) air pollution control equipment (e.g., bag-houses and electrostatic precipitators, scrubbers and cyclones). The permittee appointed inspector shall look for any signs of degradation (e.g., leaks, corrosion or improper operation) that could limit the efficiency of the air pollution control equipment and lead to excessive or fugitive

emissions. To reduce the potential for fugitive emissions consider monitoring air flow at inlets and outlets or use equivalent measures to check for leaks resulting from particulate deposition or from blockage in ducting systems. Also inspect all process and material handling equipment such as conveyors, cranes and vehicles for leaks, drips or the potential loss of material as well as material storage areas including piles, bins or hoppers used for the storage of coke, coal, scrap or slag. Chemicals stored in tanks and drums shall be inspected for signs of material losses caused by wind or stormwater runoff.

4. Good Housekeeping Measures. (See also Part V(D)(9)(a).) Perform good housekeeping including cleaning all impervious areas where particulate matter, dust or debris may accumulate. The permittee shall address material loading and unloading; material storage, handling and processing; and, paved areas where vehicle traffic or material is stored. These areas must be inspected weekly and sweeping must be conducted if there is a visible amount of material on the impervious surface. For unpaved areas where sweeping is not an effective housekeeping measures, the permittee shall implement measures such as sediment traps, vegetative buffer strips, filter fabric fencing, sediment filtering booms, gravel outlet protection or other equivalent measures effectively which trap or remove sediment and prevent the discharge of pollutants to a surface water.

C. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Sector G - Metal Mining (Ore Mining and Dressing)

A. Covered Stormwater Discharges. The requirements for Sector G apply to stormwater discharges from active, temporarily inactive and inactive metal mining and ore dressing facilities, including mines abandoned on Federal Lands, as identified by the SIC Codes specified below. Coverage is required for facilities that discharge stormwater contaminated by contact with or that have come into contact with any overburden, raw material, intermediate product, finished product, by-product, or waste product located on the site of the operation.

SECTOR G: METAL MINING (ORE MINING AND DRESSING)	
1011	Iron Ores
1021	Copper Ores
1031	Lead and Zinc Ores
1041, 1044	Gold and Silver Ores
1061	Ferroalloy Ores, Except Vanadium
1081	Metal Mining Services
1094, 1099	Miscellaneous Metal Ores

1. Covered Discharges from Inactive Facilities: All stormwater discharges.

2. Covered Discharges from Active and Temporarily Inactive Facilities: Only stormwater discharges from the following activities and areas are covered: waste rock, overburden piles if composed entirely of stormwater that is not combined with mine drainage; topsoil piles; off-site haul and access roads; onsite haul and access roads constructed of waste rock, overburden, or spent ore if composed entirely of stormwater that is not combined with mine drainage; onsite haul and access roads not constructed of waste rock and overburden, spent ore except if mine drainage is used for dust control; runoff from tailings dams, or dikes when not constructed of waste rock or tailings and no process fluids are present; runoff from tailings dams or dikes when constructed of waste rock or tailings if no process fluids are present, if composed entirely of stormwater that is not combined with mine drainage; concentration building if no contact with material piles; mill site, if no contact with material piles; office or administrative building and housing if mixed with stormwater from industrial area; chemical storage area(s); docking facility if no excessive contact with waste product that would otherwise constitute mine drainage; explosive storage; fuel storage; vehicle and equipment maintenance area and building; parking areas (if necessary); power plant; truck wash areas if no excessive contact with waste product that would otherwise constitute mine drainage; unreclaimed, disturbed areas outside of active mining area; reclaimed areas released from reclamation bonds prior to December 17, 1990; and, partially or inadequately reclaimed areas or areas not released from reclamation bonds.

B. Limitations on Coverage. This General Permit does not authorize stormwater discharges from active metal mining facilities which are subject to effluent limitation guidelines for the Ore Mining and Dressing Point Source Category (40 CFR Part 440), adit drainage and contaminated springs or seeps. (See Part I(E).)

Note: discharges that come in contact with overburden or waste rock are subject to 40 CFR Part 440, providing the discharges drain to a point source (either naturally or as a result of intentional diversion) and they combine with "mine drainage" that is otherwise regulated under the Part 440 regulations. Discharges from overburden or waste rock can be covered under this permit if they are composed entirely of stormwater, and do not combine with sources of mine drainage that are subject to 40 CFR Part 440, and meet other eligibility criteria contained in Part I(B)(3).

C. Definitions. The following definitions are not intended to supersede or affect the definitions of active and inactive mining facilities in 06-096 CMR 200.

1. Mining Operation. Typically consists of three phases, any one of which individually qualifies as a "mining activity." The phases are the exploration and construction phase, the active phase, and the reclamation phase.
2. Exploration and Construction Phase. Entails exploration and land disturbance activities to determine the financial viability of a site. Construction includes the building of site access roads and removal of overburden and waste rock to expose mineable minerals.
3. Active Phase. Activities including each step from extraction through the production of a salable product.
4. Reclamation Phase. Activities intended to return the land to its pre-mining use.
5. Active Metal Mining Facility. A place where work or other activity related to the extraction, removal or recovery of metal ore is conducted. For surface mining operations, this active metal mining facility definition does not include any land where grading has returned the earth to a desired contour and reclamation has commenced.
6. Inactive Metal Mining Facility. A site or portion of a site where metal mining and/or milling occurred in the past, but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the applicable State or Federal government agency.
7. Temporarily Inactive Metal Mining Facility. A site or portion of a site where metal mining and/or milling occurred in the past but is currently inactive, and the facility is covered by an active mining permit issued by the applicable State or Federal government agency.

D. Clearing, Grading and Excavation Activities. Clearing, grading and excavation activities conducted as part of the exploration and construction phase of a mining operation may be covered under this General Permit provided that the activities meet the requirements of Maine's Construction General Permit (MCGP).

E. Cessation of Earth Disturbing Activities. If the exploration phase involves clearing, grading and excavation activities and no further mining activities will occur at the site, the permittee shall comply with the requirements for terminating the Construction General Permit, (i.e., stabilize and revegetate the disturbed land), the permittee shall submit a Notice of Termination, etc. If active mining activities will continue, the permittee shall apply for coverage under this General Permit for associated stormwater discharges and be prepared to implement any new requirements prior to beginning of the active phase. Although recommended that the permittee terminates coverage under the Construction General Permit, it is not mandatory. If the permittee does not to terminate the construction General Permit, he/she will be responsible for complying with all permit conditions of the construction permit, in addition to those of this General Permit.

F. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify the following: mining or milling site boundaries; access and haul roads; drainage boundary areas of each stormwater outfall and the types of discharges from the drainage areas; equipment storage, fueling and maintenance areas; materials handling areas; outdoor manufacturing, storage or material disposal areas; chemicals and explosives storage areas; overburden, materials, soils or waste storage areas; location of where water leaves mine or other process water; existing and proposed tailings piles, ponds; heap leach pads; off-site points of discharge for process water; surface waters; and, boundary of tributary areas that are subject to effluent limitations guidelines in 40 CFR Part 440.

2. Potential Pollutant Sources and Exposed Materials. (See Part V(D)(4).) For each area of the mine or mill site where stormwater discharges associated with industrial activities occur, the permittee shall identify the types of pollutants (e.g., heavy metals or sediment) likely to be present in significant amounts. Consider these factors: the mineralogy of the ore and waste rock (e.g., acid forming); toxicity and quantity of chemicals used, produced or discharged; the likelihood of contact with stormwater; vegetation of site (if any); and, any history of leaks or spills of toxic or hazardous pollutants. Also include a summary of any existing ore, waste rock or overburden characterization data and test results for the potential generation of acid rock. If any new data is acquired due to changes in ore type being mined, the SWPPP must be updated with characterization and acid rock data.

3. Stormwater Management Controls. (See also Part V(D)(8).) The permittee shall consider each of the following BMPs. The potential pollutants identified in this Appendix shall determine the priority and appropriateness of the BMPs selected. If the permittee determines that one or more of these BMPs are not appropriate for the facility, the permittee is to explain why they are not appropriate. If BMPs are

implemented or planned but are not listed here (e.g., substituting a less toxic chemical for a more toxic one), include descriptions of the Best Management Practices in the SWPPP.

a. Stormwater Diversions. Divert stormwater away from potential pollutant sources. Stormwater diversion options include: interceptor or diversion controls (e.g., dikes, swales, curbs or berms); pipe slope drains; subsurface drains; conveyance systems (e.g., channels or gutters, open top box culverts and waterbars; rolling dips and road sloping; roadway surface water deflector, and culverts); or their equivalents.

b. Sediment and Erosion Control. (See also Part V(D)(9)(b).) For active and temporarily inactive sites consider a range of erosion controls within the broad categories of: flow diversion (e.g., swales); stabilization (e.g., temporary or permanent seeding); and, structural controls (e.g., sediment traps, dikes, silt fences).

c. Capping. When capping is a necessary BMP to minimize pollutant discharges in stormwater, identify the source being capped as well as the material used to construct the cap.

d. Treatment. Active and inactive mining sites must protect water quality using BMPs. Describe the type and location of Stormwater treatment. Treatment may consist of chemical or physical systems, oil water separators, or artificial wetlands.

4. Inspections. (See also Part V(I).) Active mining sites must be inspected monthly. Temporarily inactive sites must be inspected quarterly unless adverse weather conditions make the site inaccessible. Inactive mining sites must be inspected annually. If annual site inspections are not be practical due to inaccessibility such as the access road being impassable by vehicular means, the Department will permit inspections to be conducted once every 3 years. The SWPPP must include documentation as to why annual inspections are not possible.

G. Certification of Discharge Testing. (See also Part V(I)(1)(f) and Part I(F).) Testing is required to evaluate the presence of specific mining-related non-stormwater discharges such as seeps or adit discharges. If applicable, the permittee may certify in the SWPPP that a particular discharge comprised of commingled stormwater and non-stormwater is covered under a separate MEPDES permit. In doing so, the permit subjects the non-stormwater portion to effluent limitations prior to any commingling. This certification shall identify the non-stormwater discharges, the applicable MEPDES permit(s), the effluent limitations placed on the non-stormwater discharge by the permit(s), and the points at which the limitations are applied.

H. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark. Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix H

Sector H - Coal Mines and Coal Mining Related Facilities.

A. Covered Stormwater Discharges. The requirements for Sector H apply to stormwater discharges from Coal Mines and Coal Mining Related facilities as identified by the SIC Codes specified below.

SECTOR H: COAL MINES AND COAL MINING RELATED FACILITIES	
1221-1241	Coal Mines and Coal Mining-Related Facilities

B. Limitations on Coverage. (See also Part I (E-F.) This General Permit does not authorize discharges from pollutant seeps or underground drainage from inactive coal mines; refuse disposal areas that do not result from precipitation events; and, discharges from floor drains in maintenance buildings and other similar drains in mining and preparation plant areas.

C. Authorized Non-Stormwater Discharges. Discharges Subject to Stormwater Effluent Guidelines. See Part I (B)(3)(c) for guidelines on stormwater discharges associated with coal pile runoff.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Other Applicable Regulations. Most active coal mining-related areas (SIC Codes 1221-1241) are subject to sediment and erosion control regulations promulgated by the U.S. Office of Surface Mining (OSM). OSM enforces the Surface Mining Control and Reclamation Act (SMCRA). OSM has granted authority to most coal producing states to implement SMCRA through State SMCRA regulations. All SMCRA requirements regarding control of stormwater-related pollutant discharges must be addressed in the SWPPP either directly or by reference.

2. Site Map. (See Part V(D)(3).) The permittee must indentify any areas containing acidic spoil, refuse or unclaimed disturbed areas and liquid storage tanks containing caustics, hydraulic fluids and lubricants on the site drainage map. This applies to all mining related activities as described in this Appendix.

3. Potential Pollutant Sources and Exposed Materials. (See Part V(D)(4).) The permittee shall describe the following material and product sources and activities that may contain potential pollutants: truck traffic on haul roads resulting in the generation of sediment runoff and dust generation; fuel or other liquid storage; pressure lines containing slurry, hydraulic fluid or other potential harmful liquids; and, loading or temporary storage of acidic refuse or spoil.

4. Stormwater Management Controls. (See Part V(9)(b).) As indicated in F(1) of this Appendix, SMCRA requires that sediment and erosion control measures are in place. Sediment and erosion control measures are primary requirements of the SWPPP for mining-related areas subject to SMCRA authority. Most active coal mining-related areas (SIC Codes 1221-1241) are subject to sediment and erosion

control regulations promulgated by the U.S. Office of Surface Mining (OSM). OSM enforces the Surface Mining Control and Reclamation Act (SMCRA). OSM has granted authority to most coal producing states to implement SMCRA through State SMCRA regulations. All SMCRA requirements regarding control of stormwater-related pollutant discharges must be addressed in the SWPPP either directly or by reference.

5. Inspections of Active Mining-Related Areas and Inactive Areas under SMCRA Bond Authority. (See also Part V(I).) Quarterly inspections of areas covered by this permit corresponding with the inspections as performed by SMCRA inspectors of all mining-related areas are required by SMCRA. The permittee also maintains the records created by the SMCRA authority representative. The following areas must be inspected: haul and access roads; railroad spurs, sliding and internal hauling lines; conveyor belts, chutes and aerial tramways; equipment storage and maintenance yards; coal handling buildings / structures; and, inactive mines and related areas.

6. Good Housekeeping. (See also Part V(D)(9)(a).) Implement measures to minimize dust generation by using sweepers; covering storage piles; watering haul roads and, conserving vegetation wherever possible to minimize erosion.

7. Preventive Maintenance. (See also Part V(D)(9)(a).) Inspections of fuel, lubricant, hydraulic fluid and slurry storage tanks must be performed to prevent leaks due to deterioration or faulty connections. Other equivalent measures such as tank and line testing may be performed as a supplement to visual inspection methods.

E. <u>Monitoring and Reporting Requirements. (See Also Part VI.)</u>

1. Numeric Monitoring Requirements must be performed if 30 cubic yards or more of coal is stored onsite. Samples must be collected at the point of discharge from material storage. The permittee shall collect at least two (2) samples and analyze the sample for TSS and pH. If the average of the two samples for either parameter does not exceed the effluent limitation, the monitoring requirements are fulfilled for that parameter for the permit year. If the average of the two samples exceeds the effluent limitations for either parameter, the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of exceedance. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for the parameter that exceeded the effluent limitation. Additional monitoring may be required.

If the values of the first three years of numeric effluent limit monitoring does not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

NUMERIC LIMITATIONS FOR COAL PILE RUNOFF		
Parameter	**Limit**	**Sample Type**
Total Suspended Solids (TSS)	50 mg/L, max	Grab
pH	6.0-9.0 min. and max	Grab

2. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

   Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix I

Sector I - Oil and Gas Extraction and Refining

A. Covered Stormwater Discharges. The requirements in for Sector I apply to stormwater discharges from Oil and Gas Extraction and Refining facilities as identified by the SIC Codes specified below.

SECTOR I: OIL AND GAS EXTRACTION AND REFINING	
1311	Crude Petroleum and Natural Gas
1321	Natural Gas Liquids
1381-1389	Oil and Gas Field Services
2911	Petroleum Refineries

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize contaminated stormwater discharges from petroleum refining or drilling operations that are subject to guidelines found at 40 CFR Parts 419 and 435, respectively. Most contaminated discharges at petroleum refining and drilling facilities are subject to these effluent guidelines and are not eligible for coverage by this permit. The following non-stormwater discharges are not authorized by this permit: vehicle and equipment wash water and tank cleaning operations.

C. Clearing, Grading and Excavation Activities. Clearing, grading and excavation activities conducted as part of the exploration and construction phase may be covered under this General Permit provided that the activities meet the requirements of Maine's Construction General Permit (MCGP), this includes an Erosion and Sediment Control Plan which must be submitted to the Department for review and approval.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. Identify where any of the following may be exposed to stormwater: Reportable Quantity (RQ) releases; locations used for the treatment, storage or disposal of wastes; processing areas and storage areas; chemical mixing areas; construction and drilling areas; all areas subject to the effluent guidelines requirements for "No Discharge" in accordance with 40 CFR 435.32; and, the structural controls to achieve compliance with the "No Discharge" requirements.

2. Potential Pollutant Sources and Exposed Materials. The permittee shall describe the following sources and activities that have potential pollutants associated with them: chemical, cement, mud or gel mixing activities; drilling or mining activities; and, equipment cleaning and rehabilitation activities. In addition, include information about the RQ release that triggered the permit application requirements including; the nature of release (e.g., spill of oil from a drum storage area); the amount of oil or hazardous substance released; amount of substance recovered; date of the release; cause of the release (e.g., poor handling techniques and lack of containment in the area); areas affected by the release (i.e., land and

water); procedure to clean up release; actions or procedures implemented to prevent or improve response to a release; and, remaining potential contamination sources of stormwater from release. The permittee shall take into account human health risks, the control of drinking water intakes and the designed uses of the receiving water in the RQ release report.

3. Stormwater Management. The site description must include the nature of the exploration activity; estimates of the total site area and disturbed areas impacted by exploration activity; an estimate of the runoff coefficient of the site; a site drainage map, including approximate slopes; and, the name of all receiving waters. All sediment and erosion control measures must be inspected once every seven (7) days. The permittee shall describe and implement vegetative practices designed to preserve existing vegetation (where attainable) and re-vegetate open areas as soon as practicable after grade drilling. Consider the following equivalent measures: temporary or permanent seeding; mulching, sod stabilization, vegetative buffer strips; and, tree protection practices. The implementation of re-vegetative measures in disturbed areas must begin within 14 days of activity or as soon as the growing season will permit.

4. Inspections. Inspect all equipment weekly and areas addressed in the SWPPP every 6 months for active sites. Routinely (but not less than monthly) inspect equipment and vehicles which store, mix (including all on and offsite mixing tanks) or transport chemicals or hazardous materials, including those transporting supplies to oil field activities. Temporarily or permanently inactive oil and gas extraction facilities that are unstaffed must perform the inspections at least annually.

5. Good Housekeeping Measures. Perform frequent inspections of all control measures and remove accumulated materials from travel ways and stormwater conveyances.

6. Vehicle and Equipment Storage Areas. Inspect Vehicles and equipment to ensure they are properly maintained and operating effectively. Any designated vehicle and equipment maintenance area must be identified on the site map. The permittee shall describe and implement measures to eliminate or minimize contaminants. A spill kit, drip pans and other measures must be located on any active site.

7. Material and Chemical Storage Areas. Maintain material and chemical storage areas in good condition to prevent contamination of stormwater. Plainly label all hazardous materials.

E. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix J

Sector J - Mineral Mining and Dressing.

A. Covered Stormwater Discharges. The requirements for Sector J apply to stormwater discharges from active and inactive mineral mining and dressing facilities as identified by the SIC Codes specified below.

SECTOR J: MINERAL MINING AND DRESSING	
1411	Dimension Stone
1422, 1429	Crushed and Broken Stone, Including Riprap
1442, 1446	Sand and Gravel
1455, 1459	Clay, Ceramic, and Refractory Materials
1474-1479	Chemical and Fertilizer Mineral Mining
1481	Nonmetallic Minerals Services, Except Fuels
1499	Miscellaneous Nonmetallic Minerals, Except Fuels

B. Limitations of Coverage. (See also Part I(E).) The only non-stormwater discharge covered under this General Permit is mine dewatering discharges composed entirely of stormwater or uncontaminated ground water seepage from construction sand and gravel activities and industrial sand, and crushed stone mining facilities. Other stormwater discharges subject to an existing effluent limitation guideline contained in 40 CFR Part 436 are not authorized by this General Permit.

C. Definitions. The following definitions are not intended to supersede the definitions of active and inactive mining facilities established in 06-096 CMR 200.

1. Mining Operation. This typically consists of three-phases, any one of which individually qualifies as a "mining activity." The phases are the exploration and construction phase, the active phase, and the reclamation phase.

2. Exploration and Construction Phase. This entails exploration and land disturbance activities to determine the financial viability of a site. Construction includes the building of site access roads and the removal of overburden and waste rock to expose mineable minerals.

3. Active Phase. This includes activities associated with each step from extraction through production of a salable product.

4. Reclamation phase. This includes activities intended to return the land to a pre-mined state.

5. Active Mineral Mining Facility. A location where work or other activity related to the extraction, removal or recovery of minerals is conducted.

6. Inactive Mineral Mining Facility. A site or portion of a site where mineral mining or dressing occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active permit issued by the applicable State or Federal government agency.

7. Temporarily Inactive Mineral Mining Facility. A site or portion of a site where mineral mining and/or dressing occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the applicable State or Federal government agency.

8. Clearing, Grading and Excavation Activities. Clearing, grading and excavation activities conducted as part of the exploration and construction phase of a mineral mining operation may be covered under this General Permit provided that the activities meet the requirements of Maine's Construction General Permit (MCGP). This includes the submittal of an erosion and sedimentation control plan for review and approval.

D. Cessation of Exploration and Construction Activities. If the exploration phase of clearing, grading and excavation activities are completed and no further mining activities will occur at the site, the permittee shall comply with the requirements for terminating permit coverage, by stabilizing and revegetating the disturbed land, and by submitting a Notice of Termination. If active mining operations will continue, the permittee shall remain covered under this General Permit for the stormwater discharges unless the pit and all associated activities are internally drained. If the pit and all associated activities are internally drained, no permit coverage is required under this General Permit and the permittee shall submit a Notice of Termination to the Department.

E. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Inspections. (See also Part V(I).) The permittee shall conduct quarterly visual inspections of all BMPs at active mining facilities. At temporarily or permanently inactive facilities, annual inspections must be performed. The inspection program shall include: an assessment of the integrity of stormwater discharge diversions, conveyance systems, sediment control and collection systems and containment structures; inspections to determine if soil erosion has occurred at, or as a result of failed structural or vegetative BMPs, serrated slopes and benched slopes. The permittee shall conduct inspections of material handling and storage areas and other potential sources of pollutants for evidence of actual or potential discharges of contaminated stormwater.

2. Good Housekeeping. Perform frequent inspections of all control measures and remove accumulated materials in travel ways and stormwater conveyances. Good housekeeping procedures must be documented in the facility's SWPPP.

3. Material containment: Aggregate and other material storage piles must be contained to designated areas by structural means or by daily pile maintenance. Structural containment may include earthen berms, wood, concrete or metal barriers to prevent drifting and tracking of the material.

F. Numeric Monitoring Requirements. These requirements for non-stormwater discharges must be performed during mine dewatering activities. Samples must be collected from the point of discharge for this activity. If mine dewatering activities are separated by seven (7) days or greater, the permittee shall collect at least two (2) samples and analyze the sample for TSS and pH. The permittee shall calculate the average for TSS and pH to determine an average monitoring value for each parameter. If the **average** of the two (2) samples for either parameter does ***not exceed*** the numeric effluent limitation, the monitoring requirements are **fulfilled for the permit year.** If the average of the two (2) samples ***exceeds*** the numeric effluent limitation for either parameter, the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of receiving the monitoring results. Upon making any necessary modifications, the permittee shall collect and analyze two (2) additional samples for any parameter that exceeded the numeric limit. Additional monitoring may be required. If a facility is required to conduct analytical monitoring for TSS and pH under 06-096 CMR 378, or other Department license and the numeric limitation is at least as strict as the numeric monitoring in this General Permit those parameters are waived.

If the values of the first three years of numeric effluent limit monitoring does not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

SECTOR J: MINERAL MINING AND DRESSING SECTOR-SPECIFIC NUMERIC LIMITATIONS

Regulated Activity	Parameter	Numeric Limitation
Mine Dewatering Activities from Crushed and Broken Stone Facilities (SIC 1422-1429)	TSS	100.0 mg/L, daily max
	pH	6.0-9.0
Mine Dewatering Activities from Sand and Gravel Mining Facilities (SIC 1442, 1446)	TSS	45 mg/L daily max
	pH	6.0-9.0 s.u.

G. Visual Monitoring Requirements. (See also VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix K

Sector K - Hazardous Waste Treatment, Storage or Disposal Facilities.

A. Covered Stormwater Discharges. The requirements for Sector K apply to stormwater discharges from Hazardous Waste Treatment, Storage or Disposal facilities as identified by the Activity Code specified below, including those that are operating under interim status or a permit under Subtitle C of RCRA.

SECTOR K: HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES	
HZ	Hazardous Waste Treatment, Storage or Disposal

B. Limitations on Coverage. This General Permit does not authorize stormwater discharges from: leachate, gas collection condensate, drained free liquids, contaminated ground water, laboratory-derived wastewater and wash water from truck and railcar washing and surface areas which have come in direct contact with solid waste at the facility.

C. Definitions.

1. Contaminated Stormwater. Stormwater which comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Some specific 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.

2. Drained Free Liquids. Aqueous wastes drained from waste containers (e.g., drums, etc.) prior to landfilling.

3. Land Treatment Facility. A facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface. If the waste remains after site closure, the facility is considered a disposal facility.

4. Landfill. An area of land or an excavation in which wastes are placed for permanent disposal, that is not a land application or land treatment unit, surface impoundment, underground injection well, waste pile, salt dome formation, a salt bed formation, an underground mine or a cave as these terms are defined in 40 CFR 257.2, 258.2 and 260.10.

5. 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 groundwater, and wastewater from recovery pumping wells. Landfill 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 which have come in direct contact with solid waste at the landfill facility.

6. Leachate. Liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.
7. Non-Contaminated Stormwater. Non-contaminated stormwater includes stormwater which flows off the cap, cover, intermediate cover, daily cover, or final cover of the landfill. This includes drainage which does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater.
8. Pile. Any non-containerized accumulation of solid, non-flowing hazardous waste.
9. Surface Impoundment. A surface impoundment is a natural topographic depression, man-made excavation, or diked area formed of earthen materials. A surface impoundment may be lined with manmade materials designed to hold an accumulation of liquid waste or waste containing free liquids. Injection wells are not considered surface impoundments. Examples of surface impoundments include: holding, storage and settling ponds and aeration pits, ponds and lagoons.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. Identify where any of the following may be exposed to stormwater: locations where open dumping is occurring or has occurred, locations of hazardous waste containment or treatment areas, locations of any known leachate springs or other areas where uncontrolled leachate may commingle with runoff, leachate collection and handling systems, and areas where construction of new containment areas is being performed or anticipated in the coming year.
2. Potential Pollutant Sources and Exposed Materials. The permittee shall describe the following sources and activities that have potential pollutants associated with them: fertilizer, herbicide and pesticide application; earth moving (including construction activities); waste hauling and loading and 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.
3. Stormwater Management Control. Provide temporary stabilization which may include temporary seeding, mulching and geotextile placement on inactive portions of stockpiled materials consisting of daily, intermediate and final cover. For inactive areas of the landfill or open dump that have final covers but where vegetation has failed to established, the permittee must establish final vegetative cover.
4. Inspections. (Also see Part V(I).) Inspections of active sites Operating landfills, open dumps and land application sites must be inspected at least once every seven (7) days. Focus on areas of landfills which have not yet been finally stabilized; active land application areas; areas used for storage of material or wastes exposed to stormwater, stabilization, and structural control measures; leachate collection and treatment systems; and locations where equipment and waste trucks enter or

exit the site. Inspect the erosion and sediment control measures for effective operation. Conduct monthly inspections of stabilized sites and areas where land application has been completed.

Inspections of Inactive Sites. (Also see Part V(I).) Inspect inactive landfills, open dumps, and land application sites on a quarterly basis. Qualified personnel shall inspect landfill or open dump stabilization, structural erosion control measures, and leachate collection and treatment systems, associated with closed land application areas.

5. Preventative Maintenance Program. This program includes: the inspection and maintenance of all containers used for outdoor chemical or significant materials storage to prevent leakage; inspect and maintain all elements of leachate collection and treatment systems to prevent the commingling of leachate with stormwater; and, ascertain that the integrity and effectiveness of any intermediate or final cover is maintained. This includes repairing the cover as necessary to minimize the effects of settlement, sinking and erosion.
6. Good Housekeeping. Perform good housekeeping including frequent management of all material handling or waste storage areas. This includes the removal of accumulated waste or other material located in travel ways and stormwater conveyances. Good housekeeping procedures must be included in the facility's SWPPP.
7. Material containment. All material storage piles must be contained to designated areas by structural means or by daily pile maintenance. Structural containment may include wooden, concrete or metal barriers to prevent drifting and tracking of the contained material.
8. Recordkeeping and Internal Reporting. Implement a tracking system for 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.
9. Non-Stormwater Discharge Test Certification. The discharge test certification must be conducted for the presence of leachate and vehicle wash water. This test must be performed annually.

E. <u>Monitoring and Reporting Requirements. (See also Part VI.)</u>

1. Numeric Monitoring. Numeric Monitoring must be performed quarterly unless otherwise instructed by the Department. The permittee shall collect at least two (2) samples and analyze the sample for the parameters listed below. If the average of the two (2) samples for any parameter does not exceed the numeric effluent limitation the monitoring requirements are fulfilled for that parameter for the permit year. If the average of the two (2) samples exceeds the effluent limitation for any parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of the exceedance. Upon making any necessary modifications, the permittee shall collect and analyze two additional

samples for the parameter that exceeded the effluent limitation. Additional monitoring may be required.

SECTOR K: HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILTIES SECTOR-SPECIFIC NUMERIC EFFLUENT LIMITATIONS			
Activity Code	**Regulated Activity** **(Discharges may be subject to requirements for more than one sector/subsector)**	**Parameter**	**Numeric Limitation***
HZ	ALL – Industrial Activity Code "HZ" Subject to the Provisions of 40 CFR Part 445 Subpart A	BOD$_5$	220mg/L, daily max 56 mg/L, monthly avg. max.
		TSS	88 mg/L, daily max 27 mg/L, monthly avg. max.
		Ammonia	10 mg/L, daily max 4.9 mg/L, monthly avg. max.
		Alpha Terpineol	0.024 mg/L, daily max 0.019 mg/L, monthly avg. max.
		Aniline	0.024 mg/L, daily max 0.015 mg/L, monthly avg. max.
		Benzoic Acid	0.119 mg/L, daily max 0.073 mg/L, monthly avg. max.
		Naphthalene	0.059 mg/L, daily max 0.022 mg/L, monthly avg. max.
		p-Cresol	0.024 mg/L, daily max 0.015 mg/L, monthly avg. max.
		Phenol	0.048 mg/L, daily max 0.029 mg/L, monthly avg. max.
		Pyridine	0.072 mg/L, daily max 0.025 mg/L, monthly avg. max.
		Arsenic (Total)	1.1 mg/L, daily max 0.46 mg/L, monthly avg. max.
		Chromium (Total)	1.1 mg/L daily max 0.46 mg/L, monthly avg. max.
		Zinc (Total)	0.535 mg/L, daily max 0.296 mg/L, monthly avg. max.
		pH	Within 6.0-9.0 s.u.

*These numeric limitations apply to contaminated stormwater discharges from hazardous waste landfills subject to the provisions of RCRA Subtitle C at 40 CFR Parts 264 (Subpart N) and 265 (Subpart N) except for any of the facilities described below:

(a) Landfills operated in conjunction with other industrial or commercial operations when the landfill only receives 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 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 of the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;

(c) Landfills operated in conjunction with Centralized Waste Treatment (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; or

(d) Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service.

2. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix L

Sector L - Landfills, Land Application Sites and Open Dumps

A Covered Stormwater Discharges. The requirements for Sector L apply to stormwater discharges associated with industrial activity from Landfills and Land Application Sites and Open Dumps as identified by the Activity Codes specified below. This permit may authorize stormwater discharges for Sector L facilities associated with waste disposal at landfills, land application sites and open dumps that receive or have received industrial waste, including sites subject to regulation under Subtitle D of RCRA. Stormwater discharges associated with new cell construction are also covered for Sector L facilities provided that the new construction areas are addressed in the facility's SWPPP.

SECTOR L: LANDFILLS AND LAND APPLICATION SITES	
LF	Landfills, Land Application Sites, and Open Dumps

B Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the following discharges: 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 which have come in direct contact with solid waste at the landfill facility.

C Definitions.

1. Contaminated Stormwater. Stormwater which comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Some specific 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.

2. Drained Free Liquids. Aqueous wastes drained from waste containers (e.g., drums, etc.) prior to land filling.

3. Landfill Wastewater. As defined in 40 CFR Part 445 (Landfills Point Source Category) is all wastewater associated with or produced by landfilling activities except for sanitary wastewater, non-contaminated stormwater, contaminated groundwater, 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 trucks, equipment and railcar exteriors and surface areas which have come in direct contact with solid waste at the landfill facility.

4. Leachate. Liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

5. Non-Contaminated Stormwater. Non-contaminated stormwater includes stormwater which flows off the cap, cover, intermediate cover, daily cover, or final cover of the landfill. This includes drainage which does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater.

D Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. Identify where any of the following may be exposed to stormwater: locations where open dumping is occurring or has occurred, locations of waste handling, containment or treatment areas, locations of any known seeps or other areas where uncontrolled leachate may commingle with runoff, leachate collection and handling systems, and areas where construction of new containment areas is being performed or anticipated in the coming year.

2. Potential Pollutant Sources and Exposed Materials. The permittee shall describe the following sources and activities that have potential pollutants associated with them: fertilizer, herbicide and pesticide application; earth moving (including construction activities); waste hauling and loading and 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.

3. Stormwater Management Control. Provide temporary stabilization which may include temporary seeding, mulching and geotextile placement on inactive portions of stockpiled materials consisting of daily, intermediate and final cover. For inactive areas of the landfill or open dump that have final covers but where vegetation has failed to established, the permittee must establish final vegetative cover.

4. Inspections. Inspections of active sites (Also see Part V(I).) operating landfills, open dumps and land application sites must be inspected at least once every seven (7) days. Focus on areas of landfills that have not been closed out with final cover; active land application areas; areas used for stockpiling of soil for cover and liner material, or wastes exposed to stormwater, stabilization, and structural control measures; leachate collection and treatment systems; and locations where equipment and waste trucks enter or exit the site. Inspect the erosion and sediment control measures for effective operation. Conduct monthly inspections of stabilized sites and areas where land application has been completed.

   Inspections of Inactive Sites. (Also see Part V(I).) Inspect inactive landfills, open dumps, and land application sites on a quarterly basis. Qualified personnel shall inspect landfill or open dump stabilization, structural erosion control measures, and leachate collection and treatment systems, associated with closed land application areas.

5. Preventative Maintenance Program. This program includes: the inspection and maintenance of all containers used for outdoor chemical or significant materials storage to prevent leakage; inspect and maintain all elements of leachate collection and treatment systems to prevent the commingling of leachate with stormwater; and, ascertain that the integrity and effectiveness of any intermediate or final cover is maintained. This includes repairing the cover as necessary to minimize the effects of settlement, sinking and erosion.

6. Good Housekeeping. Perform good housekeeping including frequent management of all material handling or waste storage areas. This includes the removal of accumulated waste or other material located in travel ways and stormwater conveyances. Good housekeeping procedures must be included in the facility's SWPPP.

7. Material containment. All material storage piles must be contained to designated areas by structural means or by daily pile maintenance. Structural containment may include wooden, concrete or metal barriers to prevent drifting and tracking of the contained material.

8. Recordkeeping and Internal Reporting. Implement a tracking system for 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.

9. Non-Stormwater Discharge Test Certification. The discharge test certification must be conducted for the presence of leachate and vehicle wash water. This test must be performed annually. A description of the preventative measures used to insure that process waste water resulting from truck or equipment washing is discharged in accordance with MEPDES requirements must be included in the non-stormwater discharge certification statement. A copy of the manifest for trucking of waste water off site or a waste acceptance letter from the receiving treatment facility is acceptable if wastewater is hauled off site for disposal or treatment. If the process waste water is to be recycled on site, a description of the process must be included in the SWPPP.

E Monitoring and Reporting requirements. (Also see Part VI.)

1. Numeric Monitoring. Numeric Monitoring must be performed quarterly unless otherwise instructed by the Department. The permittee shall collect at least two (2) samples and analyze the sample for the parameters listed below. If the average of the two (2) samples for any parameter does not exceed the numeric effluent limitation the monitoring requirements are fulfilled for that parameter for the permit year. If the average of the two (2) samples exceeds the effluent limitation for any parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of the exceedance. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for the parameter that exceeded the effluent limitation. Additional monitoring may be required.

SECTOR L: LANDFILLS AND LAND APPLICATION SITES- SECTOR SPECIFIC NUMERIC LIMITATIONS

Activity Code	Industrial Activity (Discharge may be subject to requirements for more than one sector/subsector)	Parameter	Numeric Limitation*
LF	All Landfills which are Subject to the Requirements of 40 CFR Part 445 Subpart B	BOD_5	140 mg/L, daily max 37 mg/L, monthly avg. max.
		TSS	88 mg/L, daily max 27 mg/L, monthly avg. max.
		Ammonia	10 mg/L, daily max. 4.9 mg/L, monthly avg. max.
		Alpha Terpineol	0.033 mg/L, daily max. 0.016 mg/L, monthly avg. max.
		Benzoic Acid	0.12 mg/L, daily max. 0.071 mg/L, monthly avg. max.
		p-Cresol	0.025 mg/L, daily max. 0.014 mg/L, monthly avg. max.
		Phenol	0.026 mg/L, daily max. 0.015 mg/L, monthly avg. max.
		Zinc (Total)	0.20 mg/L, daily max 0.11 mg/L, monthly avg. max.
		pH	Within the range of 6-9 pH units

*As set forth at 40 CFR Part 445 Subpart B, these numeric limitations apply to contaminated storm water discharges from MSWLFs which have not been closed in accordance with 40 CFR 258.60, and contaminated storm water discharges from those landfills which are subject to the provisions of 40 CFR Part 257 except for discharges from any of facilities described in (a) through (d) below:

(a) Landfills operated in conjunction with other industrial or commercial operations when the landfill only receives 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 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 the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;

(c) Landfills operated in conjunction with Centralized Waste Treatment (CWT) facilities subject 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; or

(d) Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service.

2. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

   Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix M

Sector M - Automobile Salvage Yards

A. Covered Stormwater Discharges. The requirements for Sector M apply to stormwater discharges associated with industrial activity from Automobile Salvage Yards as identified by the SIC Code specified below. Sector M permittees may be engaged in dismantling or wrecking used motor vehicles for parts recycling and for the resale of the parts or vehicles for scrap.

SECTOR M: AUTOMOBILE SALVAGE YARDS	
5015	Automobile Salvage Yards

B. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify all outfalls and areas where concentrated flow from industrial activity leaves the site. Identify areas of industrial activity including, but not limited to, vehicle or parts dismantling, vehicle storage, vehicle crushing and vehicle or parts maintenance. Also identify where any of the following may be exposed to stormwater: dismantling areas; parts (e.g., engine blocks, tires, hub caps, batteries, hoods, transmissions, and mufflers) storage areas; and, liquid storage tanks and drums for fuel and other fluids.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) Assess and describe the following pollutant-associated activities and areas which may impact stormwater: vehicle storage areas; dismantling areas; vehicle crushing; parts storage area(s) (e.g., engine blocks, tires, hub caps, batteries, hoods, mufflers, etc); fueling location(s); fuel and fluid removal from vehicles scheduled crushing or dismantling; and fluid storage.

3. Stormwater Management Controls. (See also Part V(D)(8) and (9).) Implement the following best management practices to control stormwater such as berms or drainage swales on the upslope property line to reduce run-on from adjacent properties. Where possible store oily parts inside vehicles or buildings; minimize uncovered outdoor storage of oily parts (e.g., engine blocks) and install berms around above-ground liquid storage containers greater than 55 gallons. Install filtering devices such as an oil water separator and utilize drip pans, absorbent pads and booms. Whenever possible conduct vehicle maintenance inside storm resistant buildings. Each facility must have a spill kit that includes: absorbent material, absorbent pads, sausage booms, and personal protective safety equipment. This should include eye protection, rubber gloves, six millimeter "contractor" bags, duct tape and the DEP Emergency Spill Response Number 800-482-0777. Depending on the facility, additional BMPs may be necessary to reduce pollutants.

4. Inspections. (See also Part V(I).) Vehicles must be inspected for leaks upon arrival. All equipment containing oily parts, hydraulic fluids or any other types of

fluids must be inspected monthly. Inspect all fluid containers and containment areas monthly for signs of spills and leaks. All inspections must be documented in the SWPPP. If leaks are observed throughout the year the location and response action must be summarized in the annual report.

Mercury switches must be removed from vehicles upon delivery to the yard or as soon thereafter as practicable. The switches must be stored in a covered Universal Hazardous Waste bucket and be located in an area designated as a "Universal Hazardous Storage Area." A Maine Motor Vehicle Mercury Switch Log-Sheet must be kept onsite in the designated Universal Hazardous Waste area.

C. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix N

Sector N - Scrap Recycling and Waste Recycling Facilities

A. Covered Stormwater Discharges. The requirements for Sector N apply to stormwater discharges associated with industrial activity from Scrap Recycling and Waste Recycling facilities as identified by the SIC Codes specified below.

SECTOR N: SCRAP RECYCLING FACILITIES	
5093	Scrap Recycling Facilities

B. Alternative Permit Coverage Requirements. Separate permit requirements are established for recycling facilities that only receive and transfer source-separated recyclable materials from non-industrial and residential sources. The source-separated materials include: common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum and tin cans. These facilities do not require permit coverage under this General Permit unless the facility processes these materials on site. Recycling facilities commonly referred to as material recovery facilities (MRF) have separate permit requirements.

C. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize non-stormwater discharges from turnings containment areas. Discharges from turnings containment areas are prohibited unless covered by a separate MEPDES permit.

D. Additional SWPPP Requirement and Non-Numeric Technology Based Effluent Limit.

1. Site Map. (See also Part V(D)(3).) The permittee shall document the locations of any of the following activities or sources that may be exposed to stormwater: scrap and waste material storage, outdoor scrap and waste processing equipment; and containment areas for turnings exposed to cutting fluids.

2. Quarterly Inspections. (See also Part V (I).) Inspections must be conducted on a quarterly basis. Inspections must include all areas such as where waste is stored generated, received, treated or disposed.

3. Scrap and Waste Recycling Facilities (Non-Source Separated, Non-Liquid Recyclable Materials). The following requirements are for facilities that receive process waste and conduct wholesale distribution of non-liquid recyclable wastes including ferrous and nonferrous metals, plastics, glass, cardboard and paper. This type of facility may receive both non recyclable and recyclable materials. This sector is not intended for those facilities that only accept, sort and transfer recyclables from non-industrial and residential sources.

4. Each facility must have a spill kit that includes: absorbent material, absorbent pads, sausage booms, and personal protective safety equipment. This should include eye protection, rubber gloves, six millimeter "contractor" bags, duct tape

and the DEP Emergency Spill Response Number 800-482-0777. Depending on the facility, additional BMPs may be necessary to reduce pollutants.

Since there are a variety of scrap and waste recycling facilities which conduct various activities, please refer to the below listed facility type and activity for guidance.

Inbound Recyclable and Waste Material Control Program. The permittee shall notify major suppliers of which scrap materials will not be accepted at the facility or materials which are only accepted under certain conditions. The facility must minimize the chance of accepting materials that are considered source-pollutants by conducting inspections of all inbound recyclables and waste materials. BMP options to consider: provide educational information to scrap and recyclable waste materials suppliers on how to drain and properly dispose of residual fluids from vehicles, equipment, engines, radiators, transmissions, oil-filled transformers and individual containers or drums; or have a procedure to properly drain and dispose of fluids if fluid removal did not occur prior to delivery of fluid containing materials to the facility. The site owner or operator shall implement procedures to minimize residual fluids from coming into contact with stormwater, and develop 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 discussed later in this sector. The owner or operator must provide employee targeted-training to all employees who engage in the inspection and acceptance of inbound recyclable materials and, liquid wastes, including used oil. These liquids must be stored in material-compatible, non-leaking containers and disposed or recycled in accordance with RCRA.

Outdoor Scrap and Waste Material Stockpiles or Storage. The facility must minimize stormwater contact with stockpiled materials, processed materials and non-recyclable wastes. Implement the following BMPs where applicable: ensure scrap or waste materials are not leaking fluids and are free of residual materials, provide permanent or semi-permanent covers or store materials on an impervious surface such as asphalt or concrete; utilize sediment traps, vegetated swales and buffer strips, catch basin filters and sand filters to facilitate settling or filtering of pollutants; divert stormwater away from storage areas via dikes, berms, containment trenches, culverts and surface grading; install oil water separators, sumps and apply absorbents booms for areas where potential sources of residual fluids are stockpiled (e.g., automobile engine storage areas).

Outdoor Stockpiling of Turnings Exposed to Cutting Fluids. The facility must develop procedures to minimize contact of stormwater with residual cutting fluids. BMP options that are used singularly or in combination may include: screening, pressing or draining residual fluids from turnings; store all turnings exposed to cutting fluids under some form of permanent or semi-permanent cover. Stormwater discharges from these areas are permitted provided the discharge is first treated by an oil water separator or its equivalent. Identify procedures to collect, handle, dispose or recycle residual fluids which may be present; establish dedicated containment areas for all turnings that have been exposed to cutting fluids. Stormwater runoff from these areas can be discharged provided: the containment areas are constructed of either concrete, asphalt or other equivalent types of impervious material; a barrier around the perimeter of the containment area is constructed (e.g., berms, curbing, elevated pads, etc.) to prevent contact with stormwater run-on; a drainage collection system is constructed for discharges generated from containment areas; the permittee has a schedule to maintain the oil water separators (or its equivalent); and, the permittee identifies procedures for properly disposing or recycling collected residual fluids.

Covered or Indoor Storage of Scrap and Waste Material Stockpiles/Storage. The facility must minimize contact of stormwater with residual liquids and particulate matter from materials stored indoors or under cover. BMP options include: good housekeeping measures including the use of absorbent materials or wet vacuuming to contain, dispose or recycle residual liquids originating from recyclable containers; maintain a "dry" shop, this General Permit does not authorize discharges from wash-water or other indoor processing areas to a surface water or a storm sewer system. All floor drains must be connected to an approved holding tank or a POTW. If the floor drains are connected to a sanitary sewer, a copy of the agreement with the POTW for any required pre-treatment agreement must be maintained in the SWPPP.

Scrap and Recyclable Waste Processing Areas. The permittee shall minimize the contact of stormwater with onsite scrap processing equipment. Activities that generate visible amounts of particulate residue, such as shredding must minimize the contact of stormwater with accumulated particulate matter and residual fluids by employing good housekeeping and preventative maintenance activities. BMP options include: locating these operations on a concrete or asphalt pad and conducting regular clean-up or collection of visible particulate matter; conducting regular equipment inspections for spills, leaks, and for malfunctioning, worn or corroded parts or equipment; establishing a preventive maintenance program for processing equipment; using absorbent materials, drip pans or practices to collect leaking or spilled fluids. Install protection devices such as, low-level alarms or other equivalent devices, or install secondary containment capable of containing the entire reservoir of any unattended hydraulic reservoirs over 150 gallons. Install diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, or conduct grading to minimize contact of stormwater with outdoor processing equipment or stored materials. Install oil water separators or sumps; install permanent or semi-permanent covers in processing areas where there are residual fluids and grease; create retention or detention ponds or basins; sediment traps, vegetated swales or vegetated buffer strips (for pollutant settling and filtration); and, install catch basin filters or sand filters.

Scrap Lead-Acid Battery Programs. The facility must properly handle, store and dispose of scrap lead-acid batteries. BMP options include the: a) segregation of scrap lead-acid batteries from other scrap materials; b) proper handling, storage and disposal of cracked or broken batteries; c) collection, containment and disposal of leaking lead-acid battery fluid; d) minimize or eliminate (if possible) exposure of scrap lead-acid batteries to stormwater; and, e) implement employee training for the handling, storage and management of scrap batteries.

Spill Prevention and Response Procedures. The facility must minimize stormwater contamination at loading or unloading areas, and from equipment or container failures. BMP options include: developing prevention and response measures for areas that are potential sources of fluid leaks or spills; immediate containment and clean up of spills and leaks. If malfunctioning equipment is responsible for the spill or leak, repairs must be conducted immediately; implement measures including the use of drip pans and absorbent materials. Place drip pans or equivalent measures under leaking stationary equipment until the leak is repaired. The facility must have an adequate supply of well maintained drip pans and absorbent materials onsite. Used absorbent materials must be properly disposed of; store drums containing liquids indoors, in a bermed area, in overpack containers or spill pallets, or in other containment devices. Install overfill prevention devices on fuel pumps or tanks. Install alarms or pump shut off 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.

Waste Recycling Facilities (Liquid Recyclable Materials). Indoor Waste Material Storage. Minimize or eliminate contact between residual liquids from waste materials stored indoors and stormwater in the event of a spill or accidental release. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112. BMP options include establishing: procedures for material handling (including labeling and marking); cleaning up spills and leaks with absorbent materials or a wet vacuum system; implementing appropriate containment structures (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, 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.

Outdoor Waste Material Storage. The permittee shall minimize contact between stored residual liquids and stormwater. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112. Discharges from containment areas containing used oil must be in accordance with applicable sections of 40 CFR Part 112 and the terms of this General Permit. BMP options include: a) installing appropriate containment structures (e.g., dikes, berms, curbing, pits) to store the volume of the largest tank with sufficient extra capacity for precipitation; installing drainage control and other diversionary structures; provide corrosion protection and leak detection systems for storage tanks; and, use absorbent materials or a wet vacuum system to collect spills.

Trucks and Rail Car Waste Transfer Areas. Minimize pollutants in discharges from truck and rail car loading or unloading areas. Include written measures to clean up minor spills and leaks resulting from the transfer of liquid wastes. BMP options include containment and diversionary structures to minimize contact with stormwater including dry clean-up methods, wet vacuuming, installing roof coverings, and implementing runoff controls.

E. Recycling Facilities (Source Separated Materials). The following identifies requirements for facilities that receive only source-separated recyclables from non-industrial and residential sources that conduct processing activities. Inbound Recyclable Material Control. Minimize the chance of accepting non-recyclables (e.g., hazardous materials) which could be a significant source of pollutants by conducting inspections of inbound materials.

Outdoor Storage. Minimize exposure of recyclables to stormwater. Use good housekeeping measures to prevent accumulation of particulate matter and fluids, particularly in high traffic areas. Other BMP options include: provide totally-enclosed drop-off containers for the public; install a sump pump with each container pit and treat or discharge collected fluids to a sanitary sewer system; provide dikes and curbs for secondary containment (e.g., around bales of recyclable waste paper); divert stormwater away from outside material storage areas; provide covers over containment bins, dumpsters, and roll-off boxes; and, store the equivalent of one day's volume of recyclable material indoors.

Indoor Storage and Material Processing. Minimize the release of pollutants from indoor storage and processing areas. BMP options: schedule routine good housekeeping measures and inspections for all storage and processing areas; prohibit tipping floor wash water from draining to the storm sewer system; and, provide affected employees training on pollution prevention practices.

Vehicle and Equipment Maintenance Areas. Prohibit vehicle and equipment wash water from discharging to the storm sewer system; minimize or eliminate outdoor maintenance areas whenever possible; establish spill prevention and clean-up procedures in fueling areas; avoid topping off fuel tanks; divert runoff from fueling areas; store lubricants and hydraulic fluids indoors; and, provide employee training on proper handling, and storage of fluids and lubricants.

F. Monitoring and Reporting Requirements. (See also Part VI.)

1. Benchmark Monitoring Requirements: These benchmark parameters apply to scrap metal recycling facilities. Facilities which process paper, cardboard, plastic or other household or non-industrial recyclables are not required to perform the above Benchmark monitoring. Samples must be collected as described in Part VI of this General Permit during a qualifying rain event. Additional monitoring or corrective actions may be required by the Department based on review of Benchmark and Visual Monitoring results.

TSS – 100 mg/L
Total Petroleum Hydrocarbons – 100 mg/L
pH – 6.0-9.0 units

2. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

   Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly Visual Monitoring at outfalls that do not require Numeric Monitoring.

   Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix O

Sector O - Steam Electric Generating Facilities

A. Covered Stormwater Discharges. The requirements for Sector O apply to stormwater discharges associated with Steam Electric Generating facilities as identified by the Activity Code specified below.

SECTOR O: STEAM ELECTRIC GENERATING FACILITIES	
SE	Steam Electric Generating Facilities

B. Limitations on Coverage. This General Permit does not authorize stormwater discharges from: steam electric power generation using coal, natural gas, oil, or nuclear energy, to produce a steam source, including coal handling areas; coal pile runoff, including effluent limitations established by 40 CFR Part 423; and, dual fuel co-generation facilities.

Stormwater discharges from ancillary facilities including gas turbine stations and substations that are not contiguous to a steam electric power generating facility; and heat capture co-generation facilities are not covered by this permit.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee must identify any areas where any of the following may be exposed to stormwater: storage tanks, scrap yards, general refuse areas; landfills, construction sites; stock pile areas (e.g., coal or limestone piles), short and long term storage of general materials. Materials are, but not limited to: supplies, construction materials, paint equipment, oils, fuels, used and unused solvents, cleaning materials, paint, water treatment chemicals, fertilizer and pesticides).

2. Monthly Inspections. (Also see Part V(I).) The monthly inspection must include an evaluation of the following: coal handling areas, loading and unloading areas, switchyards, fueling areas, bulk storage areas, ash handling areas, areas adjacent to disposal ponds and landfills, maintenance areas, liquid storage tanks, and, long term and short term material storage areas.

3. Fugitive Dust Emissions. Describe and implement measures to prevent or minimize fugitive dust emissions from coal handling areas. Consider such procedures to minimize the tracking of coal dust offsite as installing specially designed tires on handling vehicles, or washing vehicles in a designated area before leaving the handling area.

4. Delivery Vehicles. Describe and implement measures to prevent or minimize contamination of stormwater runoff from delivery vehicles arriving at the plant site. Consider the following: procedures to inspect delivery vehicles arriving at

the plant site and ensure overall integrity of the body or container; and, procedures to deal with leakage or spillage from vehicles or containers.

5. Fuel Oil Unloading Areas. Describe and implement measures to prevent or minimize contamination of stormwater from fuel oil unloading areas. Consider, at a minimum (or their equivalents): using containment curbs in unloading areas; having personnel familiar with spill prevention and response procedures present during deliveries to ensure that any leaks or spills are immediately contained and cleaned up; and, using spill and overflow protection (e.g., drip pans, drip diapers or other containment devices placed beneath fuel oil connectors to contain potential spillage during deliveries or from leaks at the connectors).

6. Chemical Loading or Unloading. Describe and implement measures to prevent or minimize contamination of stormwater from chemical loading or unloading areas. Consider, at a minimum (or their equivalents): using containment curbs at chemical loading or unloading areas to contain spill; having personnel familiar with spill prevention and response procedures present during deliveries to ensure that any leaks and spills are immediately contained and cleaned up; and load or unload in covered areas and store chemicals indoors.

7. Miscellaneous Loading or Unloading Areas. Describe and implement measures to prevent or minimize contamination of stormwater from loading or unloading areas. Consider, at a minimum (or their equivalents): covering the loading area; grading, berming, or curbing around the loading area to divert stormwater run-on; or, locating the loading or unloading equipment and vehicles so leaks are contained in existing containment and flow diversion systems.

8. Liquid Storage Tanks. Describe and implement measures to prevent or minimize contamination of surface runoff from above ground liquid storage tanks. Consider using, at a minimum (or their equivalents): protective guards around tank; containment curbs; spill and overflow protection; and, dry cleanup methods.

9. Large Bulk Fuel Storage Tanks. Describe and implement measures to prevent or minimize contamination of surface runoff from large bulk fuel storage tanks. Consider, at a minimum, using containment berms (or its equivalent). The permittee is required to also comply with other applicable local, State and Federal laws, including Spill Prevention Control and Countermeasures (SPCC).

10. Spill Reduction Measures. Describe and implement measures to reduce the potential for an oil or chemical spill or reference the appropriate Part of the SPCC plan. On a monthly basis, visually inspect the structural integrity of all above ground tanks, pipelines, pumps and other related equipment. Any necessary repairs must be made immediately.

11. Oil Bearing Equipment in Switchyards. Describe and implement measures to prevent or minimize contamination of surface runoff from oil bearing equipment in switchyard areas. Consider using level grades and gravel surfaces to impede flows and limit the spread of spills or collecting runoff in perimeter ditches.

12. Residue Hauling Vehicles. Inspect all residue hauling vehicles for proper covering over the load, adequate gate sealing and overall integrity of the container body. Vehicles without load covering or adequate gate sealing, or with leaking containers or beds must be repaired as soon as practicable.

13. Ash Loading Areas. Describe and implement procedures to reduce or control the tracking of ash/residue from ash loading areas. Where practicable, clear the ash building floor and immediately adjacent roadways of any spillage, debris and excess water prior to each vehicle departing the ash loading areas.

14. Areas Adjacent to Disposal Ponds or Landfills. Describe and implement measures to prevent or minimize contamination of surface runoff from areas adjacent to disposal ponds or landfills. Develop procedures to reduce ash residue that may be tracked on to access roads traveled by residue handling vehicles, and reduce ash residue on exit roads leading into and out of residue handling areas.

15. Landfills, Scrap yards, Surface Impoundments, Open Dumps, General Refuse Sites. Address these areas in the SWPPP and include appropriate BMPs as referred to in Part V.

16. Vehicle Maintenance Activities. For vehicle maintenance activities performed on the plant site, use the applicable BMPs outlined in this Appendix.

17. Material Storage Areas. Describe and implement measures to prevent or minimize contamination of stormwater runoff from material storage areas (including areas used for temporary storage of miscellaneous products and construction materials stored in lay-down areas). Consider using (or their equivalents): flat yard grades; collecting runoff in graded swales or ditches; erosion protection measures at steep outfall sites (e.g., concrete chutes, riprap, stilling basins); covering lay-down areas; storing materials indoors; and, covering materials temporarily with polyethylene, polyurethane, polypropylene or hypalon. Stormwater run-on may be minimized by constructing an enclosure or building a berm around the area.

D. Monitoring and Reporting Requirements. (See also Part VI.)

1. Numeric Monitoring. The permittee shall collect at least two (2) quarterly samples and analyze the sample for TSS, and pH. If the **average** of the two (2) samples for either parameter does not exceed the numeric effluent limitation, the monitoring requirements are fulfilled for those parameters for the permit year. If the average of the two (2) samples exceeds the effluent limitation for any parameter the permittee shall review the selection, design and implementation of control measures, complete a corrective action report and notify the Department within 14 days of receiving the monitoring results. Upon making any necessary modifications, the permittee shall collect and analyze two additional samples for

any parameter that exceeded the effluent limitation. Additional monitoring may be required.

If the values of the first three years of numeric effluent limit monitoring does not exceed the numeric limitation for any parameter, numeric monitoring may be reduced to once a year for the remainder of the permit term.

NUMERIC LIMITATIONS FOR COAL PILE RUNOFF			
Parameter	Limit	Monitoring Frequency	Sample Type
Total Suspended Solids (TSS)	50 mg/L, max	1/quarter	Grab.
pH	6.0-9.0 min. and max	1/quarter	Grab.

Note: If your facility is designed, constructed, and operated to treat the volume of coal pile runoff that is associated with a 25-year, 24-hour rainfall event, any untreated overflow of coal pile runoff from the treatment unit is not subject to the 50 mg/L limitation for total suspended solids.

2. Visual Monitoring Requirements. Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix P

Sector P - Land Transportation and Warehousing.

A. Covered Stormwater Discharges. The requirements for Sector P apply to stormwater discharges associated with industrial activity from Land Transportation and Warehousing facilities as identified by the SIC Codes specified below.

SECTOR P: LAND TRANSPORTATION AND WAREHOUSING	
4011, 4013	Railroad Transportation
4111-4173	Local and Highway Passenger Transportation
4212-4231	Motor Freight Transportation and Warehousing
4311	United States Parcel Service
5171	Petroleum Bulk Stations and Terminals

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the discharges associated with equipment or vehicle wash water. A copy of the MEPDES permit issued for vehicle or equipment wash water (or a copy of the pending application) must be attached or referenced in the SWPPP. If an industrial user permit is issued under a pretreatment program, attach a copy to the SWPPP.

If wash water is handled in another manner (e.g., hauled offsite), describe the disposal method and attach all pertinent waste manifests and documentation and any other information (e.g., frequency, volume, destination, etc.) in the plan.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify the locations of any of the following activities or sources: fueling stations; vehicle and equipment maintenance or cleaning areas; vehicle, equipment, and material storage areas; loading and unloading areas; areas where treatment, storage or disposal of wastes occur; and liquid storage tanks.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) Describe and assess the potential for the following to contribute pollutants to stormwater: onsite fluid and waste fluid storage or disposal; parking areas for vehicles awaiting maintenance; activities associated with mechanical repairs; grinding, painting or fabrication; used battery storage and fueling areas.

3. Inspections. (See also Part V(I).) The permittee shall inspect storage areas for vehicles and equipment awaiting maintenance; fueling areas; indoor and outdoor vehicle or equipment maintenance areas; material storage areas; vehicle or equipment cleaning areas; vents and stacks associated grinding, sanding or painting; and loading and unloading areas.

4. Good Housekeeping Measures. (See also Part V(D)(9)(a).) Perform good housekeeping which includes the following areas and activities:

Vehicle and Equipment Storage Areas. Leaky or leak-prone vehicles or equipment awaiting maintenance must be confined to designated areas. Use drip pans or absorbent pads under leaking vehicles and equipment. Store vehicles and equipment scheduled for maintenance inside or under cover if possible, or on an impervious surface such as concrete or asphalt if stored outside.

Fueling Areas. Prevent or minimize stormwater contamination from fueling areas by immediately cleaning up drips and spills with absorbent pads or dry absorbent materials. The facility must have a spill kit on site. Consider covering the fueling area with an overhang or extended roof area.

Vehicle and Equipment Cleaning Areas. The discharge of vehicle or equipment wash water is not authorized under this General Permit. Consider performing all washing or cleaning operations indoors in a dedicated wash bay where the wash water is either pumped to a holding tank or sent to the sanitary sewer. The latter may require a pre-treatment agreement with the POTW. Outdoor washing is allowed if there is no discharge to a stormwater conveyance or a surface water, and there is no engine washing or the use of acids bases or degreasers.

Vehicle and Equipment Maintenance Areas. Implement measures to prevent or minimize contamination of stormwater with fluids, grease, or particulate matter from grinding or sanding. Consider performing maintenance activities indoors and use drip pans or other absorbent materials for drips and spills. Maintain an organized inventory of materials used in the shop; drain all parts of fluid prior to disposal. Maintain a dry indoor maintenance shop and prohibit wet clean up practices.

Locomotive Sanding (Loading Sand for Traction) Areas. Implement measures to prevent the discharge of traction sand, measures may include: covering sanding areas; minimizing stormwater run on and runoff. The permittee shall implement appropriate sediment removal practices to minimize the offsite transport of sanding material.

Material Storage Areas. Maintain all liquid material storage vessels free of debris or residue for products and waste products to prevent contamination of stormwater. Plainly label all waste product containers (e.g., "Used Oil," "Spent Solvents," etc.). Consider storing the materials indoors with proper secondary containment. Barrels stored outside must residue free and stored on pallets while awaiting transport for indoor use or for proper disposal. Outdoor storage of barrels must be inspected weekly for spills or leaks.

5. Employee Training. (See also Part V(D)(9)(a).) Provide annual training to address, as applicable: spill response and safety procedures, used oil and spent solvent storage and management; fueling procedures; general good housekeeping practices for painting, grinding, sanding and metal or fiberglass fabrication, and welding; and, used battery storage, containment and management.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix Q

Sector Q - Water Transportation.

A. Covered Stormwater Discharges. The requirements for Sector Q apply to stormwater discharges associated with industrial activity from Water Transportation as identified by the Activity Codes specified below.

SECTOR Q: Water Transportation	
4412-4499	Water Transportation

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the following: discharges containing bilge and ballast water; sanitary wastes; pressure wash water; and, cooling water originating from vessels. An Antifouling Paint Contaminated Vessel Wash Water General Permit is required for discharges of bottom wash water which contains Antifouling Paints (AFP).

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify areas where the following may be exposed to precipitation/surface runoff: fueling; engine maintenance or repair; vessel maintenance or repair; pressure washing; painting; sanding; blasting; welding; metal fabrication; loading or unloading areas; locations used for the treatment, storage or disposal of wastes; liquid storage tanks; liquid storage areas (e.g., paint, solvents, resins); and, material storage areas (e.g., blasting media, aluminum, steel, scrap iron).

2. Potential Pollutant Sources and Exposed Materials (See also Part V(D)(4).) Describe the following additional sources and activities that have potential pollutants associated with them (if applicable): outdoor manufacturing or processing activities (e.g., welding, metal fabricating); and; significant dust or particulate generating processes (e.g., abrasive blasting, grinding, sanding, scraping).

3. Good Housekeeping Measures. (See also Part V(D)(9)(a).)

   Pressure Washing Area. If pressure washing is used to remove marine growth from vessels, the discharge water must be permitted as a process wastewater by a separate MEPDES permit.

   Blasting and Painting Area. If applicable, implement and describe measures to prevent spent abrasives, paint chips and over spray from discharging into the receiving water or the storm sewer systems. Consider containing all blasting or painting activities or use other measures to prevent the discharge of contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). Where necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips. Provide written details in the

SWPPP outlining any standard operating practices relating to blasting, sanding, grinding, scraping or painting that will occur (e.g., prohibiting these activities over open water, and prohibit these activities during windy conditions which can render containment ineffective).

Engine Maintenance and Repair Areas. If applicable, implement and describe measures to prevent or minimize the contamination of stormwater from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors; maintaining an organized inventory of materials used in the shop; draining all parts of fluid prior to disposal; keeping a dry shop using dry cleanup methods such as sweeping and prohibiting the practice of hosing down the shop floor; and, treating or recycling stormwater runoff collected from the maintenance area.

Material Handling Area. If applicable, implement and describe measures to prevent or minimize the contamination of stormwater from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). Consider the following (or their equivalents): covering fueling areas; using spill overflow protection and not letting customers conduct fueling operations; mixing paints and solvents in a designated area (preferably indoors or under a shed); and, minimizing stormwater run-on to material handling areas.

Dry-dock Activities. If applicable, describe the procedures for routinely maintaining or cleaning the dry-dock to prevent or minimize pollutants in stormwater. Address the cleaning of accessible areas of the dry-dock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease or fuel spills occurring on the dry-dock. Consider the following (or their equivalents): sweeping rather than hosing off debris or spent blasting material from accessible areas of the dry-dock prior to flooding, and having absorbent materials and oil containment booms readily available to contain or cleanup any spills.

General Yard Area. Implement and describe a schedule for routine yard maintenance and cleanup. Regularly remove from the general yard area scrap metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, welding rods, and packaging.

4. Monthly Inspections. (See also Part V(I).) If the following activities occur at the facility these activity areas must be inspected monthly during periods of operation: pressure washing area; blasting, grinding, scraping, sanding and painting areas; material storage areas; engine maintenance or repair areas; material handling areas; dry-dock area; and, general yard area.

5. Stormwater Management Controls. (See also Part V(D)(9)(a).) Timely inspections and maintenance of stormwater management devices must be performed to remain compliant in the preventive maintenance program. As part of the preventive maintenance program, perform timely inspection and

maintenance of stormwater management devices (e.g., cleaning oil water separators and sediment traps to ensure that spent abrasives, paint chips and solids will be intercepted and retained prior to entering the storm drainage system) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

6. Material Containment. Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste fluids, antifreeze, batteries) in a protected, secure location away from drains. Implement and describe measures to prevent or minimize the contamination of stormwater from the storage areas. Specify which materials are stored indoors and consider containment or enclosure for those stored outdoors. If abrasive blasting or grinding is performed, document the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite. Proper approved containment and storage must be used for all wash water and other wastewater collection. (See also Part V(D)(6).)
7. Employee Training. (See also Part V(D)(9)(a).) At a minimum, the employee training program must include (as applicable) the following topics: used oil management; spent solvent management; disposal of spent abrasives; disposal of vessel wastewaters; Grinding, blasting, scraping, sanding and painting; spill prevention and control; fueling procedures; general good housekeeping practices; and, used battery storage, disposal and management.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix R

Sector R - Ship and Boat Building or Repair Yards.

A. Covered Stormwater Discharges. The requirements for Sector R apply to stormwater discharges associated with industrial activity from Ship and Boat Building or Repair Yards as identified by the Activity Codes specified below.

SECTOR R: SHIP AND BOAT BUILDING OR REPAIRING YARDS	
3731, 3732	Ship and Boat Building or Repairing Yards

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the following: discharges containing bilge and ballast water; sanitary wastes; pressure wash water; and, cooling water originating from vessels. An Antifouling Paint Contaminated Vessel Wash Water General Permit is required for discharges of bottom wash water which contains Antifouling Paints (AFP).

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) Identify areas where the following may be exposed to stormwater: fueling; engine maintenance or repair; vessel maintenance or repair; pressure washing; painting; sanding; grinding, blasting; welding; metal fabrication; loading or unloading areas; locations used for the treatment, storage or disposal of wastes; liquid storage tanks; liquid storage areas (e.g., paint, solvents, resins); and, material storage areas (e.g., blasting media, aluminum, steel, scrap iron).

2. Potential Pollutant Sources and Exposed Materials (See also Part V(D)(4).) Describe the following additional sources and activities that have potential pollutants associated with them (if applicable): outdoor manufacturing or processing activities (e.g., welding, metal fabricating, repairs and maintenance); and; significant dust or particulate generating processes (e.g., abrasive blasting, grinding, scraping or sanding).

3. Good Housekeeping Measures. (See also Part V(D)(9)(a).)

   Pressure Washing Area. If pressure washing is used to remove marine growth from vessels, the discharge water must be permitted as a process wastewater by a separate MEPDES permit.

   Blasting and Painting Area. Implement and describe measures to prevent spent abrasives, paint chips and over spray from discharging into the receiving water or the storm sewer systems. Consider containing all blasting or painting activities or use other measures to prevent the discharge of contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). Where necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips. Provide written details in the SWPPP outlining any standard operating practices relating to blasting/painting that will occur (e.g., prohibiting uncontained blasting or painting over open water, or prohibiting blasting and painting during windy conditions which can render containment ineffective).

Engine Maintenance and Repair Areas. Implement and describe measures to prevent or minimize the contamination of stormwater from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors; maintaining an organized inventory of materials used in the shop; draining all parts of fluid prior to disposal; prohibiting the practice of hosing down the shop floor; using dry cleanup methods; and, treating or recycling stormwater collected from the maintenance area.

Material Handling Area. Implement and describe measures to prevent or minimize the contamination of stormwater from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). Consider the following (or their equivalents): covering fueling areas; using spill or overflow protection; mixing paints and solvents in a designated area (preferably indoors or under a shed); and, minimizing stormwater run-on to material handling areas.

Dry-dock Activities. Describe the procedures for routinely maintaining or cleaning the dry-dock to prevent or minimize pollutants in stormwater runoff. Address the cleaning of accessible areas of the dry-dock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease or fuel spills occurring on the dry-dock. Consider the following (or their equivalents): sweeping rather than hosing off debris or spent blasting material from accessible areas of the dry-dock prior to flooding, and having absorbent materials and oil containment booms readily available to contain/cleanup any spills.

General Yard Area. Implement and describe a schedule for routine yard maintenance and cleanup. Regularly remove from the general yard area scrap metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, welding rods, and packaging.

4. Monthly Inspections. (See also Part V(I).) Inspect the following areas on a monthly basis: pressure washing area; blasting, grinding, scraping, sanding and painting areas; material storage areas; engine maintenance or repair areas; material handling areas; dry-dock area; and, general yard area.

5. Stormwater Management Controls. (See also Part V(D)(9)(a).) Timely inspections and maintenance of stormwater management devices must be performed to remain compliant in the preventive maintenance program. As part of the preventive maintenance program, perform timely inspection and maintenance of stormwater management devices (e.g., cleaning oil water

separators and sediment traps to ensure that spent abrasives, paint chips and solids will be intercepted and retained prior to entering the storm drainage system) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

6. Material Containment. Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Implement and describe measures to prevent or minimize the contamination of stormwater from the storage areas. Specify which materials are stored indoors and consider containment or enclosure for those stored outdoors. If abrasive blasting, or grinding is performed, discus the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite. Proper approved containment and storage must be used for all wash water and other wastewater collection. (See also Part V(D)(6).)

7. Employee Training. (See also Part V(D)(9)(a).) At a minimum, the employee training program must include (as applicable) the following topics: used oil management; spent solvent management; disposal of spent abrasives; disposal of vessel wastewaters; spill prevention and control; fueling procedures; general good housekeeping practices; painting and blasting procedures; and, used battery storage, containment and management.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix S

Sector S - Air Transportation

A. Covered Stormwater Discharges. The requirements for Sector S apply to stormwater discharges associated with industrial activity from Air Transportation facilities as identified by the SIC Codes specified below.

SECTOR S: AIR TRANSPORTATION	
4512-4581	Air Transportation Facilities

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the following discharges: aircraft, ground vehicle, runway and equipment wash waters; and dry weather discharges of deicing chemicals **unless** the facility performs deicing in a location that includes a deicing recovery system. These discharges must be covered by a separate MEPDES permit.

Only those portions of the facility that are involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations or deicing operations are addressed in this Appendix.

C. Special Conditions.

Hazardous Substances or Oil. Each individual permittee is required to report spills equal to or exceeding the reportable quantity (RQ) levels specified at 40 CFR 110, 117 and 302. See also 38 M.R.S.A. § 543, 550 and 1318-B. If an airport authority is the sole permittee, then the sum total of all spills at the airport must be assessed against the RQ. If the airport authority is a co-permittee with other operators at the airport, such as numerous different airlines, the assessed amount must be the summation of spills by each co-permittee. If separate, distinct individual permittees exist at the airport, then the amount spilled by each separate permittee shall be the assessed amount for the RQ determination.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

If an airport's tenant has a SWPPP for discharges from their own areas of the airport, that SWPPP must be integrated with the plan for the entire airport. Tenants of the airport facility include air passenger or cargo companies, fixed based operators and other parties who have contracts with the airport authority to conduct business operations on airport property and whose operations result in stormwater discharges associated with industrial activity.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: aircraft and runway deicing operations; fueling stations; aircraft, ground vehicle, equipment maintenance and cleaning areas; and, storage areas for aircraft, ground vehicles and equipment awaiting maintenance.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) The permittee must describe the following activities: aircraft, runway, ground vehicle, equipment maintenance and cleaning; aircraft and runway deicing operations. These areas may include apron and centralized aircraft deicing stations, runways, taxiways and ramps.

   If the permittee uses deicing chemicals, the permittee shall maintain a record of the types (including the Material Safety Data Sheets [MSDS]) used and the monthly quantities, either as measured or, in the absence of metering, as estimated to the best of the facility's owner(s) or operator(s) knowledge. This includes all deicing chemicals, not just glycols and urea (e.g., potassium acetate), because large quantities of these other chemicals can still have an adverse impact on receiving waters. Tenants or other fixed-based operations that conduct deicing operations shall provide the above information to the airport authority for inclusion in any comprehensive airport SWPPPs.

Note: "deicing" will generally be used to imply both deicing (removing frost, snow or ice) and anti-icing (preventing accumulation of frost, snow or ice) activities, unless specific mention is made regarding anti-icing and/or deicing activities.

Runway Deicing Operation. Evaluate, at a minimum, whether over-application of deicing chemicals occurs by analyzing application rates and adjusting as necessary, consistent with considerations of flight safety. Also consider these BMP options (or their equivalents): metered application of chemicals; pre-wetting dry chemical constituents prior to application; installing a runway ice detection system; and, implementing anti-icing operations as a preventive measure against ice buildup.

Aircraft Deicing Operations. Determine whether excessive application of deicing chemicals occurs and adjust as necessary, consistent with considerations of flight safety. This evaluation must be carried out by the aircraft pilot. Consider using alternative deicing/anti-icing agents as well as containment measures for all applied chemicals. The permittee may consider BMP options (or their equivalents) for reducing deicing fluid use. Also consider using ice-detection systems and airport traffic flow strategies and departure slot allocation systems.

Management of deicing. Where deicing operations occur, describe and implement a program to control or manage contaminated runoff to reduce the amount of pollutants being discharged from the activity. Consider these BMP options or equivalents: a dedicated deicing facility with a runoff collection and recovery system; use vacuum collection trucks; store contaminated stormwater or deicing fluids in tanks and release controlled amounts to a publicly owned treatment works; collect contaminated runoff in a wet pond for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations); and, direct runoff into vegetative swales or other infiltration measures. Also consider recovering deicing materials when these materials are applied during non-precipitation events (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains, etc.) to prevent these materials from later becoming a source of stormwater contamination. Used deicing fluid should be recycled whenever possible.

Source Reduction. Consider alternatives to the use of urea and glycol-based deicing chemicals to reduce the aggregate amount of deicing chemicals used and/or decrease environmental impact. Chemical options to replace ethylene glycol, propylene glycol and urea include: potassium acetate; magnesium acetate; calcium acetate; and, anhydrous sodium acetate.

3. Good Housekeeping Measures. (See also Part V(D)(9)(a).) Describe and implement measures to prevent or minimize the contamination of stormwater from all areas used for aircraft, ground vehicle and equipment maintenance (including the maintenance conducted on the terminal apron and in dedicated hangers). Consider the following practices or equivalents: perform maintenance activities indoors; maintain an organized inventory of material used in the maintenance areas; drain all parts of fluids prior to disposal; prevent the practice of hosing down the apron or hanger floor; use dry cleanup methods; and collect the or treat stormwater from the maintenance area.

    a. Aircraft, Ground Vehicle and Equipment Cleaning Areas. Clean equipment only in the designated areas identified in the SWPPP and site map. Describe and implement measures that prevent or minimize the contamination of stormwater from cleaning areas.

    b. Aircraft, Ground Vehicle and Equipment Storage Areas. Store all aircraft, ground vehicles and equipment awaiting maintenance in designated areas. Consider the following BMPs or equivalents: store aircraft and ground vehicles indoors; using drip pans for the collection of fluid leaks; and, perimeter drains, dikes or berms surrounding the storage areas.

4. Inspections. Specify the frequency of inspections in the SWPPP. During the deicing season, inspections must be conducted monthly for all areas and equipment used in the deicing operations. This includes all months during which deicing chemicals are used. The Department may specifically require the permittee to increase inspections and SWPPP reevaluations as necessary.

   The permittee shall conduct one of the quarterly Site Compliance Evaluations (See also Part V(I).) during a qualifying rain event during the deicing season or within 30 days after deicing operations have ceased.

5. Material Containment. Maintain the vessels of stored materials (e.g., used oils, hydraulic fluids, spent solvents, and waste aircraft fuel) in good condition, to prevent or minimize contamination of stormwater. Also plainly label the vessels (e.g., "used oil," "Contaminated Jet A," etc.). Describe and implement measures that prevent or minimize contamination of stormwater from these areas. Consider the following BMPs or equivalents: store materials indoors; store waste materials in a centralized location; and, install berms or dikes around storage areas.

Airport Fuel System and Fueling Areas. Describe and implement measures to prevent or minimize the discharge of fuel to the storm sewer or surface waters resulting from fuel servicing activities or other operations conducted in support of the airport fuel system. Consider the following BMPs or equivalents: implement spill and overflow practices (e.g., placing absorptive materials beneath aircraft during fueling operations); using dry cleanup methods; and, collect contaminated stormwater.

E. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix T

Sector T - Treatment Works.

A. Covered Stormwater Discharges. The requirements for Sector T apply to stormwater discharges associated with Treatment Works facilities as identified by the Activity Code specified below.

SECTOR T: TREATMENT WORKS	
TW	Treatment Works

B. Industrial Activities Covered by Sector T. The requirements listed under this Part pertain to all existing point source stormwater discharges associated with the following activities:

Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system used in the storage, treatment, recycling and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge and those areas that are located within the confines of the facility with a design flow of 1.0 MGD or more; or required to have an approved pretreatment program under 40 CFR Part 403.

Not required to have permit coverage: farm lands; domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located within the facility; or areas that are in compliance with Section 405 of the Clean Water Act.

C. Limitations on coverage. (See also Part I(E).) This General Permit does not authorize the following: sanitary and industrial wastewater; and equipment or vehicle wash water.

Wastewater and Wash Water Requirements. (See also Part I(E)(3).) If the facility has a MEPDES permit for: wastewater, industrial process water, vehicle and equipment wash water discharges, these permits must be referenced in the facility's SWPPP. If the wash water is handled in another manner, describe the disposal method and include documentation in the SWPPP.

D. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: grit, screenings and other solids handling, storage or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage or hauled waste receiving station; and, storage areas for process chemicals, petroleum products, solvents, fertilizers, herbicides and pesticides.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) The permittee must describe the following potential pollutant sources and activities as applicable: grit, screenings and other solids handling, storage or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage or hauled waste receiving station; and, access roads and rail lines.

3. Stormwater Management Controls. (See also Part V(D)(8) and (9).) In addition to the other BMPs considered, consider routing stormwater to the treatment works or covering exposed materials from the following areas: grit, screenings and other solids handling, storage or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage; or, hauled waste receiving station.

4. Inspections. (See also Part V(I).) Include the following areas in all inspections: access roads, rail lines; grit, screenings and other solids handling, storage or disposal areas; sludge drying beds; dried sludge piles; compost piles; septage; or, hauled waste receiving station areas.

5. Employee Training. (See also Part V(D)(9)(a).) At a minimum, the training of employees must address the following topics when applicable to a facility: petroleum product management; process chemical management; spill prevention and controls; fueling procedures; general good housekeeping practices; and, proper procedures for using fertilizer, herbicides and pesticides.

E. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix U

Sector U - Food and Kindred Products

A. Covered Stormwater Discharges. The requirements for Sector U apply to stormwater discharges associated with Food and Kindred Products facilities as identified by the SIC Codes specified below. Including material handling sites; refuse sites; sites used for storage and maintenance of material handling equipment; manufacturing buildings; and, storage areas for raw material and intermediate and finished products. This includes historical site industrial activity areas and locations where significant materials remain on the property. "Material handling activities" include the storage, loading or unloading, transportation or conveyance of any raw material, intermediate product, finished product, by-product or waste product;

SECTOR U: FOOD AND KINDRED PRODUCTS	
2011-2015	Meat Products
2021-2026	Dairy Products
2032	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties
2041-2048	Grain Mill Products
2051-2053	Bakery Products
2061-2068	Sugar and Confectionary Products
2074-2079	Fats and Oils
2082-2087	Beverages
2091-2099	Miscellaneous Food Preparations and Kindred Products
2111-2141	Tobacco Products

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the following discharges from; boiler blow-down, cooling tower overflow and blow-down, ammonia refrigeration purging and vehicle washing or clean-out operations, and sites used for application or disposal of process wastewaters or residential wastewater treatment, storage, or disposal. Concentrated Animal Feeding Areas (CAFOs) are not covered under this permit.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: vents or stacks from cooking, drying and similar operations; dry product vacuum transfer lines; animal holding pens; spoiled product; and, broken product container storage areas.

2. Potential Pollutant Sources and Exposed Material. (See also Part V(D)(4).) If the facility uses, has used, applies or stores pest-control chemicals including rodenticides, insecticides, fungicides, etc. these chemicals and processes must be identified in the SWPPP.

3. Inspections. (See also Part V(I).) The permittee must regularly inspections the following areas: loading and unloading areas for all significant materials; storage areas including associated containment areas; waste management units; vents and

stacks emanating from industrial activities; spoiled product and broken product container holding areas; animal holding pens; staging areas; and, air pollution control equipment.

4. Good Housekeeping. Good housekeeping practices include maintaining all material storage areas, minimizing dust and debris from vent and stack areas and making certain that spoiled product and broken product containers or holding areas are properly contained and not discharging to a surface water or a stormwater conveyance system; and that offsite tracking of material is minimized.
5. Employee Training. (See also Part V(D)(9)(a).) The permittee shall address pest control in the training program. As applicable to the facility and with regards to federal and state regulations, and as further required by the facility's employee training program, the training program shall address concerns mandated by good manufacturing processes, and the amended FIRFA to include an Integrated Pest Management Plan (IPM). The training will also address spill response and use of the SWPPP.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix V

Sector V - Textile Mills, Apparel and Other Fabric Products

A. Covered Stormwater Discharges. The requirements for Sector V apply to stormwater discharges associated with Textile Mills, Apparel, and Other Fabric Product Manufacturing facilities as identified by the SIC Code specified below.

SECTOR V: TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING, LEATHER AND LEATHER PRODUCTS	
2211-2299	Textile Mill Products
2311-2399	Apparel and Other Finished Products Made From Fabrics and Similar Materials
3131-3199 (except 3111)	Leather and Leather Products, except Leather Tanning and Finishing (see Sector Z)

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the non-stormwater discharges from the following: discharges of wastewater (e.g., wastewater resulting from wet processing or from any processes relating to the production process); and, reused or recycled water; and waters used in cooling towers.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) As applicable to the facility, describe the following potential pollutant sources: back-winding; beaming; bleaching; backing bonding; carbonizing; carding; cutting and sewing operations; desizing; drawing; dyeing; locking; fulling; knitting; mercerizing; opening; packing; plying; scouring; slashing; spinning; synthetic-felt processing; textile waste processing; tufting; turning; weaving; web forming; winging; yarn spinning; and, yarn texturing.

2. Material Containment. Plainly label and store all containerized materials (e.g., fuels, petroleum products, solvents, dyes, etc.) in a protected area away from drains. Describe and implement measures aimed at preventing or minimizing contamination of stormwater runoff from storage areas and include a description of the containment area or enclosure used for those materials stored outdoors. Also consider an inventory control plan to prevent purchases of potentially hazardous substances. When storing empty chemical drums or containers, ensure the drums or containers are clean and there is no contact of residuals with precipitation. Consider triple-rinsing the drums and containers. Properly collect and dispose of wash water from the drum and container triple rinsings.

3. Stormwater Management Controls.

   Material Handling Area. The following must be considered: use of spill or overflow protection; covering fueling areas; and, covering or enclosing areas where the transfer of material may occur. Address the replacement or repair of leaking connections, valves, transfer lines and pipes used to carry or transport chemicals, dyes or wastewater.

   Fueling Areas. The following must be considered: covering the fueling area, using spill and overflow protection, minimizing run-on of stormwater to the fueling areas, using dry cleanup methods, and, treating and or recycling stormwater runoff collected from the fueling area.

   Above Ground Storage Tank Area. The following must be considered: regular cleanup of above ground storage tank areas; preparation of the spill prevention control and countermeasure program; provide spill and overflow protection; minimizing runoff of stormwater from adjacent areas; restricting access to the area; insertion of filters in adjacent catch basins; providing absorbent booms in unbermed fueling areas; using dry cleanup methods; and, permanently sealing drains within critical areas that may discharge to a storm drain.

4. Monthly Inspections. (See also Part V(I)(1-3).) Minimally, conduct monthly inspections of transfer and transmission lines; fueling areas; catch basins; processing areas, material containment, and all BMPs.

5. Employee Training. (See also Part V(D)(9)(a).) Additional employee training shall include: use of reused recycling waters; solvents management; proper disposal of dyes; proper disposal of petroleum products and spent lubricants; spill prevention and control; fueling procedures; and, good housekeeping practices.

D. <u>Visual Monitoring Requirements. (See also Part VI.)</u> Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix W

Sector W - Furniture and Fixtures

A. Covered Stormwater Discharges. The requirements for Sector W apply to stormwater discharges associated with Furniture and Fixtures and Wood Kitchen Cabinets as identified by the SIC Codes specified below.

SECTOR W: FURNITURE AND FIXTURES	
2434	Wood Kitchen Cabinets
2511-2599	Furniture and Fixtures

B. Limitations on Coverage. This General Permit does not authorize stormwater discharges from sawdust piles or other residual wood byproducts or from dust collecting systems that may malfunction and discharge sawdust onto roofing systems or other material or storage areas where there may be contact with sprayed chemical formulations to provide wood surface protection or between phases of furniture finishing or refinishing. These discharges must be covered by a separate MEPDES permit.

C. Additional SWPPP Requirements and Non-numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: material storage (including tanks or other vessels used for liquid or waste storage) areas; outdoor material processing areas including dust collection systems; and areas where wastes are treated, stored or disposed; access roads; and, rail spurs.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) If the facility stores wood products or has the potential to generate sawdust or other fines particles, these must be identified in the SWPPP. The permittee shall identify and implement BMPs to minimize the contact of these materials with stormwater.

3. Stormwater Management Controls. (See also Part V(D)(8) and (9).) The permittee shall describe and implement measures to address the following activities or pollutant sources from: raw wood and wood product storage areas; residue storage areas; dust collection systems; loading and unloading areas; material handling areas; chemical storage areas; fueling and fuel storage areas and, equipment or vehicle maintenance, storage and repair areas.

4. Good Housekeeping. Good housekeeping includes removal of yard debris and accumulated wood waste and sediments to limit the discharge of woody debris, minimize leachate generated from decaying wood materials and minimize the generation of sawdust from dust colleting systems and all product handling areas.

The permittee shall document a schedule of the implemented good housekeeping measures at the facility.

5. Material containment. Use containment devices to prevent the tracking, blowing or drifting of sawdust, fines and furniture sanding debris to surface waters. Containment devices may include but are not limited to, wooden, concrete or metal barriers or structures to prevent tracking, blowing or drifting of material. Sanding activities should be performed in a designated, screened area to prevent wind blown tracking of the sawdust and sanding fines to surface waters. Screening may consist of netting, fencing, or other screen used to capture windblown particulate matter associated with the sanding or finishing or refinishing activity. If stormwater associated with the material containment area drains to a waste treatment or process sewer system, only screening to prevent wind blown tracking of the material to surface waters or stormwater conveyance system must be utilized.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix X

Sector X - Printing and Publishing

A Covered Stormwater Discharges. The requirements in Sector X apply to stormwater discharges associated with Printing and Publishing facilities as identified by the SIC Codes specified below.

SECTOR X: PRINTING AND PUBLISHING	
2711-2796	Printing, Publishing and Allied Industries

B. Limitations on Coverage. (See also Part 1(E).) This General Permit does not authorize the non stormwater discharge of blanket wash.

C. Additional SWPPP Requirements and Non-numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: above ground storage tanks, and, drums and barrels that are permanently stored outside.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) As applicable to the facility, describe the following pollutant sources including: loading and unloading operations; outdoor storage activities; significant dust or particulate generating processes; and, onsite waste disposal practices (e.g., blanket wash). Also identify the pollutant or pollutant parameter (e.g., oil and grease, scrap metal, etc.) associated with each potential pollutant source.

3. Material Containment. Label and store all containerized materials including skids, pallets, solvents, bulk inks, and hazardous waste, empty drums, portable or mobile containers of plant debris, wood crates, steel racks, fuel oil, in a protected area, away from storm drains. Provide a narrative of the implementation measures aimed at preventing or minimizing contamination of stormwater runoff from such storage areas. Include a description of the containment area or enclosure for those materials that are stored outdoors. Also consider developing an inventory control plan to prevent the practice of purchasing potentially hazardous substances.

4. Stormwater Management Controls. The permittee shall prevent and minimize potential pollutants which may mix with stormwater from loading and unloading of materials. The following BMPs must be considered: use of spill or overflow protection; covering fueling areas; and, covering or enclosing areas where the transfer of materials may occur. Where applicable, address the replacement or repair of leaking connections, valves, transfer lines and pipes that may carry or transport chemicals or wastewater. Other areas which must be considered are:

Fueling Areas. Provide a narrative for implemented measures that prevent or minimize contamination of stormwater from fueling areas. Consider the following (or equivalent measures): covering the fueling area, using spill and overflow protection, minimizing stormwater run-on to the fueling areas, using dry cleanup methods, and treating or recycling stormwater collected from the fueling area.

Above Ground Storage Tank Area. Provide a narrative for implemented measures that prevent or minimize contamination of the stormwater from above ground storage tank areas, including the associated piping and valves. Consider the following (or equivalent measures): regular cleanup of these areas; preparation of the spill prevention control and countermeasure program; provide spill and overflow protection; minimizing runoff of stormwater from adjacent areas; restricting access to the area; inserting filters in adjacent catch basins; providing absorbent booms in non-bermed fueling areas; using dry cleanup methods; and, permanently sealing drains within critical areas that may discharge to a storm drain.

5. Employee Training. (See also Part V(D)(9)(a).) As applicable, the employee training program, must address, at a minimum, the following activities: spent solvent management, control measures implemented at the facility to eliminate the contact of stormwater with blanket wash or other solvent mixing processes; spill prevention and control; used oil management; fueling procedures; and, general good housekeeping practices.

D. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix Y

Sector Y - Rubber, Miscellaneous Plastic Products and Miscellaneous Manufacturing Industries

A. Covered Stormwater Discharges. The requirements for Sector Y apply to stormwater discharges associated with Rubber, Miscellaneous Plastic Products and Miscellaneous Manufacturing facilities as identified by the SIC Codes specified below.

SECTOR Y: RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISCELLANEOUS MANUFACTURING INDUSTRIES	
3011	Tires and Inner Tubes
3021	Rubber and Plastics Footwear
3052, 3053	Gaskets, Packing, and Sealing Devices and Rubber and Plastic Hose and Belting
3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
3081-3089	Miscellaneous Plastics Products
3931	Musical Instruments
3942-3949	Dolls, Toys, Games and Sporting and Athletic Goods
3951-3955 (except 3952 facilities, see Sector C)	Pens, Pencils, and Other Artist's Materials
3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
3991-3999	Miscellaneous Manufacturing Industries

B. Additional SWPPP Requirements and Non-numeric Technology Based Effluent Limits.

1. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) If Zinc is used at the facility, the permittee shall identify and describe these areas, including associated BMPs in the facility's SWPPP and identify the areas on the site map.

2. Good Housekeeping. Perform good housekeeping including a review of the handling and storage practices of zinc bags at the facility. The following are BMP options which must be considered: training of employees on the handling and storage of zinc bags; provide indoor storage of zinc bags; perform cleanup of zinc spills without washing the zinc into the storm drain; and, avoid the use of large sacks of zinc, and consider using smaller more manageable sized packages. Other BMP options which must be considered are: using chemicals which are purchased in pre-weighed, sealed polyethylene bags; storing materials which are in use in sealable containers; ensuring airspace between the container and the cover to minimize "puffing" loss when the container is opened; and, using automatic dispensing and weighing equipment. To reduce discharges of zinc from onsite dumpsters consider covering dumpster(s), moving dumpster(s) indoors, or install dumpster(s) liners.

Malfunctioning Dust Collectors or Baghouses: The permittee shall properly maintain baghouses to reduce or eliminate discharges of pollutants to stormwater, and review the potential for baghouses and dust collectors to be a possible source of zinc in stormwater runoff. Replace or repair improperly operating baghouses and dust collectors.

Grinding Operations. Review dust generation from rubber grinding operations and, as appropriate, install a dust collection system.

Zinc Stearate Coating Operations. Develop BMPs to eliminate discharge of zinc stearate to stormwater. Provide a detailed narrative for measures aimed at preventing or cleaning up drips or spills of zinc stearate slurry that may be released to the storm drain. A discharge of zinc stearate is not authorized by this General Permit. A sound BMP option would consist of using alternate compounds to zinc stearate.

Controls for Plastic Products Manufacturers. Provide a narrative of implemented control mechanisms targeted to minimize the discharge of plastic resin pellets. The following BMPs should be considered for implementation (or equivalents measures include): minimize spills; prompt and thorough cleanup of spills; thoroughly sweep; capture pellets; and, employee awareness training and disposal precautions.

C. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring.

The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix Z

Sector Z - Leather Tanning and Finishing.

A. Covered Stormwater Discharges. The requirements for Sector Z apply to stormwater discharges associated with Leather Tanning and Finishing facilities as identified by the SIC Codes specified below.

SECTOR Z: LEATHER TANNING AND FINISHING	
3111	Leather Tanning and Finishing

B. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: processing and storage areas of the beam-house, tan-yard, and re-tan wet finishing and dry finishing operations; and, haul roads, access roads and rail spurs.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) As appropriate to the facility, describe potential pollutant(s) associated with the following activities and sources: temporary or permanent storage of fresh and brine cured hides; extraneous hide substances and hair; leather dust, scraps, trimmings and shavings; chemical drums, bags, containers and above ground tanks; empty chemical containers and bags; spent solvents; floor sweepings or washings; refuse, waste piles and sludge; and, significant dust or particulate generating processes such as buffing.

3. Material Containment. Label all chemicals containers including hazardous materials, spent solvents, and waste materials. Describe and implement measures to prevent or minimize contact with stormwater. The following areas must be addressed as applicable:

   Storage Areas for Raw, Semi-processed or Finished Tannery By-products. The following should be stored indoors or protected by polyethylene wrapping, tarpaulins, roofed storage, or other protective shelter: pallets or bales of raw, semi-processed or finished tannery byproducts including splits, trimmings, and shavings. Consider placing materials on impermeable surfaces, and enclosing or constructing berms around the storage area to prevent stormwater run-on or runoff.

   Buffing and Shaving Areas. Provide a narrative of implemented control measures targeted to minimize or prevent the contamination of stormwater runoff with leather dust from buffing or shaving areas. Consider dust collection enclosures or devices, conducting preventive inspection or maintenance programs or other appropriate material collection and containment measures.

Receiving, Unloading, and Storage Areas. Provide a narrative of implemented control measures targeted to minimize or prevent the contamination of stormwater runoff from receiving, unloading, and storage areas. If storage areas are exposed consider covering all hides and chemical supplies; diverting drainage to the process sewer; or, grade berming or curbing area to prevent runoff of stormwater.

Outdoor Storage of Contaminated Equipment. Provide a narrative of implemented control measures targeted to minimize or prevent the contamination of stormwater with contaminated equipment. Consider covering equipment; diverting drainage to the process sewer; and, cleaning the equipment thoroughly prior to storage.

Waste Management. Provide a narrative of implemented control measures targeted to minimize or prevent the contamination of stormwater runoff from waste storage areas. The following shall be consider: inspection or maintenance programs for leaking containers or spills; covering dumpsters; moving waste management activities indoors; covering waste piles with temporary covering material such as tarpaulins or polyethylene; and, minimizing stormwater runoff by enclosing the area or building berms around the area.

C. Visual Monitoring Requirements. (See also part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix AA

Sector AA - Fabricated Metal Products.

A. Covered Stormwater Discharges. The requirements for Sector AA apply to stormwater discharges associated with industrial activity from Fabricated Metal Products facilities as identified by the SIC Codes specified below.

SECTOR AA: FABRICATED METAL PRODUCTS	
3444-3499	Fabricated Metal Products, Except Machinery and Transportation Equipment
3911-3915	Jewelry, Silverware, and Plated Ware

B. ~~Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.~~

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: raw metal storage areas; finished metal storage areas; scrap disposal collection sites; equipment storage areas; retention and detention basins; temporary or permanent diversion dikes or berms; right-of-way or perimeter diversion devices; sediment traps and other barriers; processing areas including outside painting areas; wood preparation; recycling; and, raw material storage.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) The permittee shall describe the following activities and potential pollutant sources: loading and unloading operations for paints, chemicals and raw materials; outdoor storage activities for raw materials, paints, empty containers, chemicals, and scrap metals; outdoor manufacturing or processing activities such as grinding, cutting, degreasing, buffing, brazing, etc; and, onsite waste disposal practices for spent solvents, sludge, pickling baths, shavings, ingots pieces, refuse and waste piles.

3. Good Housekeeping Measures. Perform good housekeeping including implementation measures aimed at controlling and recovering scrap metals, metal-fines and iron dust. Include measures for containing materials within storage handling areas, as well as preventing the exposure of recyclable wastes. Also provide a narrative of the implementation measures aimed at preventing or minimizing the exposure of paint, paint chips and painting equipment to stormwater. If sandblasting operations are conducted at the facility, provide operating procedures that control blast media buildup and prevent the dispersion of blast media. Substitute hazardous chemicals used in the painting process with environmentally-friendly cleaners wherever possible. If lubricating oils or hydraulic fluids are used at the facility, consider monitoring equipment or other devices to detect and control leaks and overflows. The installation of perimeter controls such as dikes, curbs, grass filter strips or other equivalent measures must be considered in the areas where fluids and oils are used and applied.

4. Spill Prevention and Response Procedures. For each of the areas below the permittee shall provide a narrative of the implementation measures utilized for preventing spills and leaks; quick and effective remedial clean up of spills and leaks; and, provide employees with hands-on training related to cleanup techniques and procedures. In addition to the narratives required for each area, necessary cleanup equipment must be available to personnel in the below listed facility areas:

   - Metal Fabricating Areas
   - Storage Areas for Raw Metal
   - Receiving, Unloading, and Storage Areas
   - Chemical Storage Areas
   - Storage of Equipment and Equipment Storage Area
   - Metal Working Fluid Storage Areas
   - Cleaners and Rinse Water

   When compiling the list of past spills and leaks, pay particular attention to the following metals, chemicals and compounds: chromium, toluene, pickle liquor, sulfuric acid, zinc and other water priority chemicals, hazardous chemicals and associated waste streams.

C. <u>Visual Monitoring Requirements. (See also Part VI.)</u> Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require numeric monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix AB

Sector AB - Transportation Equipment, Industrial or Commercial Machinery

A. Covered Stormwater Discharges. The requirements for Sector AB apply to stormwater discharges associated with Transportation Equipment, Industrial or Commercial Machinery facilities as identified by the SIC Codes specified below.

SECTOR AB: TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY	
3511-3599 (except 3571-3579)	Industrial and Commercial Machinery (except Computer and Office Equipment) (see Sector AC)
3711-3799 (except 3731, 3732)	Transportation Equipment (except Ship and Boat Building and Repairing) (see Sector R)

B. Limitations on Coverage. (See also Part I(E).) This General Permit does not authorize the discharges associated with equipment or vehicle wash water. A copy of the MEPDES permit issued for vehicle or equipment wastewater (or a copy of the pending application) must be attached or referenced in the SWPPP. If an industrial user permit is issued under a pretreatment program, attach a copy or reference in the SWPPP.

C. Additional SWPPP Requirements and Non-Numeric Technology Based Effluent Limits.

1. Site Map. (See also Part V(D)(3).) The permittee shall identify areas where any of the following may be exposed to stormwater: all vents and stacks associated with metal processing and similar operations.

2. Potential Pollutant Sources and Exposed Materials. (See also Part V(D)(4).) Describe and assess the potential for the following to contribute pollutants to stormwater: onsite fluid and waste fluid storage or disposal; parking areas for vehicles awaiting maintenance; activities associated with mechanical repairs; metal or fiberglass processing, grinding, painting or fabrication; used battery storage and fueling areas.

3. Inspections. (See also Part V(I).) The permittee shall inspect storage areas for vehicles and equipment awaiting maintenance; fueling areas; indoor and outdoor vehicle or equipment maintenance areas; material storage areas; vehicle or equipment cleaning areas; vents and stacks associated with metal or fiberglass processing, grinding, sanding or painting; and loading and unloading areas.

4. Good Housekeeping Measures. (See also Part V(D)(9)(a).) Perform good housekeeping which includes the following areas and activities:

Vehicle and Equipment Storage Areas. Leaky or leak-prone vehicles or equipment awaiting maintenance must be confined to designated areas. Use drip pans or absorbent pads under leaking vehicles and equipment. Store vehicles and equipment scheduled for maintenance inside or under cover if possible, or on an impervious surface such as concrete or asphalt if stored outside.

Fueling Areas. Prevent or minimize stormwater contamination from fueling areas by immediately cleaning up drips and spills with absorbent pads or dry absorbent materials. The facility must have a spill kit on site. Consider covering the fueling area with an overhang or extended roof area.

Vehicle and Equipment Cleaning Areas. The discharge of vehicle or equipment wash water is not authorized under this General Permit. Consider performing all washing or cleaning operations indoors in a dedicated wash bay where the wash water is either pumped to a holding tank or sent to the sanitary sewer. The latter may require a pre-treatment agreement with the POTW. Outdoor washing is allowed if there is no discharge to a stormwater conveyance or a surface water, and there is no engine washing or the use of acids bases or degreasers.

Vehicle and Equipment Maintenance Areas. Implement measures to prevent or minimize contamination of stormwater with fluids, grease, or particulate matter from grinding or sanding. Consider performing maintenance activities indoors and use drip pans or other absorbent materials for drips and spills. Maintain an organized inventory of materials used in the shop; drain all parts of fluid prior to disposal. Maintain a dry indoor maintenance shop and prohibit wet clean up practices.

Material Storage Areas. Maintain all liquid material storage vessels free of debris or residue for products and waste products to prevent contamination of stormwater. Plainly label all waste product containers (e.g., "Used Oil," "Spent Solvents," etc.). Consider storing the materials indoors with proper secondary containment. Barrels stored outside must residue free and stored on pallets while awaiting transport for indoor use or for proper disposal. Outdoor storage of barrels must be inspected weekly for spills or leaks.

5. Employee Training. (See also Part V(D)(9)(a).) Provide annual training to address, as applicable: spill response and safety procedures, used oil and spent solvent storage and management; fueling procedures; general good housekeeping practices for painting, grinding, sanding and metal or fiberglass fabrication, and welding; and, used battery storage, containment and management.

D. <u>Visual Monitoring Requirements. (See also Part VI.)</u> Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with numeric monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require numeric monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix AC

Sector AC - Electronic, Electrical Equipment and Components, Photographic and Optical Goods

A. Covered Stormwater Discharges. The requirements for Sector AC apply to stormwater discharges associated with Electronic, Electrical Equipment and Components and Photographic and Optical Products facilities as identified by the SIC Codes specified below.

SECTOR AC: ELECTRONIC, ELECTRICAL, PHOTOGRAPHIC, AND OPTICAL GOODS	
3571-3579	Computer and Office Equipment
3612-3699	Electronic, Electrical Equipment and Components, except Computer Equipment
3812	Measuring, Analyzing and Controlling Instruments, Photographic and Optical Goods

B. Visual Monitoring Requirements. (See also Part VI.) Visual monitoring must be conducted quarterly during a qualifying storm event. Collect a grab sample for visual monitoring analysis from each outfall that has an associated industrial activity within the outfall's drainage area. The outfall(s) must be sampled quarterly unless the facility has representative outfalls.

Visual monitoring requirements are waived if the facility is in compliance with and can demonstrate participation in the implementation of an established Department Approved Watershed Management Plan; or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric Monitoring for Total Suspended Solids (TSS). Visual monitoring is only waived for the outfall(s) associated with Numeric Monitoring. The permittee shall conduct quarterly visual monitoring at outfalls that do not require Numeric Monitoring.

Visual monitoring must be resumed if Benchmark Monitoring, Numeric Monitoring or Impaired Waters sampling is ceased.

Appendix AD

Sector AD - Stormwater Discharges Designated By the Department Requiring Permits.

A. Covered Stormwater Discharges. Sector AD is reserved for facilities that do not meet the descriptive requirements of an established industrial activity presently covered by Sectors A - AC and those which are designated by the Department as necessitating a stormwater permit for industrial stormwater discharges. This reserved Sector could allow for almost any type of stormwater discharge, as deemed required by the Department. A permittee must be assigned to Sector AD by the Department and may NOT choose sector AD when filing a Notice of Intent (NOI) or describing the activities conducted at the facility.

B. Eligibility for Permit Coverage. Because this Sector only pertains to discharges designated by the Department as necessitating a stormwater permit due to atypical circumstances presented by the facility which may effect stormwater quality or the facility's industrial activities were inadvertently left out of Sectors A-AC, and further, the facility may not normally be discharging stormwater associated with industrial activity, the permittee is required to obtain the Department's written permission to use this reserved permit prior to submitting a Notice of Intent. If the permittee is authorized to use this permit, the permittee will be required to ensure that the discharges meet the basic eligibility provisions of this permit in Part I (B).

C. Stormwater Pollution Prevention Plan (SWPPP) Requirements. (See also Part V.) The Department will establish any additional SWPPP requirements for the facility at the time of accepting the Notice of Intent to be covered by this reserved permit. Additional requirements are based on the nature of activities at the facility and the stormwater discharges.

D. Monitoring and Reporting Requirements. (See also Part VI and Part V(I).) The Department will establish any additional monitoring, inspection and reporting requirements at acceptance of the Notice of Intent. Additional permit requirements would be based on the nature of industrial activities at the facility and the stormwater discharges.

Appendix E – Facility Activity and Associated Pollutants Summary Table

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
1, 2, 3, 4, 5	DA-1	Includes the closed asbestos landfill, Phase 7, 8C', 9 and 10 Secure Landfills, and the Woodwaste Processing Facility. Stormwater in DA-1 flows to five erosion control structures (ECS-20, 21, 29, 30, and 31). Receiving waters are the unnamed wetland areas that flow to Mill Stream.	Inactive Landfill Areas	Potentially exposed wastes & materials	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., leachate collection systems and ECSs); material management practices (i.e., temporary and permanent caps and stabilization); inspections; and preventive maintenance of caps.
			Active Landfill Areas	Exposed waste materials	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e.,ECSs); and storm water, leachate, and tire wash water collection systems); material management practices (limiting the size of the active portion of the landfill, providing daily cover to exposed areas, and overall good housekeeping); inspections; and preventive maintenance of equipment.
			Outdoor Storage - Daily, Interim and Final Cover Materials	Daily, interim and final cover materials	Turbidity/TSS	Low	Structural controls (i.e., ECSs); material management practices (i.e., good housekeeping); and inspections.
			Leachate Collection System	Internal to landfill cells - piping, sumps, and pumps	Turbidity/TSS, BOD, COD, and Metals	Low	Structural controls (i.e., secondary containment including double-walled piping); material management practices (i.e., collecting and treating contaminated stormwater as leachate); inspections; and preventive maintenance of system.
			Loading and Unloading - Diesel	3,000-gallon double-wall diesel fuel AST	Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Structural controls (i.e., secondary containment for the diesel AST); material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; inspections; and preventive maintenance of tank.
			Loading - Virgin Petroleum Products	Mobile equipment	Petroleum and Oil & Grease	Low	Structural controls (I.e. secondary containment for the AST), material management practices (I.e. written spill prevention and response procedures, spill control kits present), employee training, inspections, and preventative maintenance of equipment.
			Outdoor Storage - Green Wood, C&D Wood, and Wood Chips	Wood waste	Turbidity/TSS, BOD, and COD	Low	Structural controls, material management practices (i.e., good housekeeping); and inspections.
			Waste Hauling Roads	Waste hauling vehicles tracking sediment	Turbidity/TSS, BOD, COD and Oil & Grease	Low	Structural controls (i.e., tire wash water collection systems, roadways graded to swales that discharge to ECSs); material management practices (i.e., sweeping roadways) and removing accumulated liter or debris in swales, ditches, manholes, and culverts, as needed); and inspections.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
6	DA-2	Includes the access road along the east side of the Phase 8C' Secure Landfill, the Landfill Maintenance Garage, and the MRF. Stormwater in DA-2 flows into a drainage swale/culverts located along the western portion of the drainage area. The swale/culverts discharge generally in a southerly direction to ECS-3B and discharge to surface water at Outfall #6. Receiving waters are the unnamed wetland associated with Mill Stream.	Processing of Recyclables in Commercial Transfer	Cardboard and plastic	Turbidity/TSS	Low	Minimizing exposure; material management practices (i.e., good housekeeping); and inspections.
			Leachate Storage (USTs) in Maintenance Garage and outside MRF	Two USTs (one 750-gallon (MRF) and one 1,800-gallon (Maintenance Garage))	Turbidity/TSS, BOD, COD, and Metals	Low	Structural controls (i.e., secondary containment including double-wall piping); material management practices (i.e., collecting and treating contaminated storm water as leachate); and inspections.
			Loading and Unloading - Virgin and Used Petroleum Products inside Maintenance Garage	ASTs (with containment areas)	Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; inspections; and preventive maintenance of tanks.
			Loading and Unloading - Used Oil inside Maintenance Garage	275-gallon, 598-gallon, and 500-gallon ASTs (with containment areas)	Petroleum, PHCs, VOCs, SVOCs, Oil & Grease, and Metals	Low	Strucural controls (i.e., secondary containment for the ASTs), material management controls (i.e., written spill prevention and response procedures, spill control kits present), employee training, inspections, and preventative maintenance of tanks.
			Vehicle and Equipment Maintenance	Maintenance chemicals (petroleum-based products, paints, solvents, and detergents)	Petroleum, VOCs, SVOCs, Oil & Grease, Metals, and Detergents	Low	Structural controls; material management practices (i.e., written spill prevention and response procedure, spill control kits, good housekeeping); employee training; inspections; and preventive maintenance of vehicles and equipment.
			Waste Hauling Roads	Waste hauling vehicles tracking sediment	Turbidity/TSS, BOD, COD, and Oil & Grease	Low	Structural controls (i.e., tire wash water collection systems, roadways graded to swales that discharge to ECSs); material management practices (i.e., sweeping roadways) and removing accumulated liter or debris in swales, ditches, manholes, and culverts, as needed) and inspections.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
7	DA-3	Includes the paved and grassed areas east of the MRF. Stormwater in DA-3 flows into catch basins located in the vicinity of the MRF which discharge to the drainage swale located south of the building. The drainage swale discharges to a wet area located south of the building via Outfall #7. Receiving waters are the unnamed wetland associated with Mill Stream.	Waste Hauling Roads	Waste hauling vehicles tracking sediment	Turbidity/TSS, BOD, COD, and Oil & Grease	Low	Roadways graded to swales that discharge to ECSs; material management practices (i.e., sweeping roadways) and removing accumulated liter or debris in swales, ditches, manholes, and culverts, as needed); inspections; and preventive maintenance.
			Authorized Non-stormwater Discharges	MRF is equipped with foundation drains. The location of the foundation drain discharges are shown on the Site Plan. Foundation drains are authorized non-stormwater discharges	N/A	N/A	N/A
8	DA-4	Includes the western portion of the Phase 11 Secure Landfill. Stormwater in DA-4 flows in a generally westerly direction to ECS-25 and discharges via Outfall #8. Receiving waters are seasonally wet areas associated with Mill Stream.	Inactive Landfill Areas	Potentially exposed waste materials	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., leachate collection systems and ECSs); material management practices (i.e., temporary and permanent caps and stabilization); inspections; and preventive maintenance.
			Leachate Collection	Leachate	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., secondary containment including double-walled piping); material management practices (i.e., collecting and treating contaminated stormwater as leachate); inspections; and preventive maintenance.
9	DA-5	Includes the eastern portion of the Phase 11 Secure Landfill. Stormwater in DA-5 flows in a generally southerly direction to ECS-24 and discharges via Outfall #9. Receiving waters are seasonally wet areas associated with Mill Stream.	Inactive Landfill Areas	Potentially exposed wastes materials	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., leachate collection systems and ECSs); material management practices (i.e., temporary and permanent caps and stabilization); inspections; and preventive maintenance of cap.
			Leachate Collection	Leachate	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., secondary containment including double-walled piping); material management practices (i.e., collecting and treating contaminated stormwater as leachate); inspections; and preventive maintenance.
			Outdoor Storage - Empty Containers	Residual material in containers	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Inspections and preventive maintenance of containers.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
10	DA-6	Includes the areas associated with the Phase 12 Secure Landfill. Stormwater in DA-6 flows to ECS-26 and is discharged to the proximate wetlands mitigation area via outfall #10. Receiving waters are the unnamed wetland area (south of ECS-26), which discharges eventually to Mill Stream.	Inactive Landfill Areas	Potentially exposed wastes	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Structural controls (i.e., leachate collection systems and ECSs); material management practices (i.e., temporary and permanent caps and stabilization); inspections; and preventive maintenance of liner.
			Leachate Collection	Leachate	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Structural controls (i.e., secondary containment including double-walled piping); material management practices (i.e., collecting and treating contaminated stormwater as leachate); inspections; and preventive maintenance of leachate collection system.
			Outdoor Storage - Empty Containers	Residual material in containers	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Inspections and preventive maintenance of containers.
11, 12	DA-7, DA-8	Includes the Tire Processing Facility. Stormwater in DA-7 is directed generally in a southerly direction toward ECS-27 and discharges via Outfall #11. Stormwater in DA-8 is directed toward ECS-28 and discharges via Outfall #12.	Loading Virgin Petroleum Products	Mobile equipment	Petroleum, Oil & Grease	Low	Structural controls (I.e. secondary containment for the AST), material management practices (I.e. written spill prevention and response procedures, spill control kits present), employee training, inspections, and preventative maintenance of equipment.
			Outdoor Storage	Tires, Shredded Tires, and Non-Recyclable Tire Parts	Turbidity/TSS and Metals	Low	Structural controls (i.e., ECSs); material management practices (i.e., good housekeeping); inspections; and preventive maintenance of equipment.
			Tire Processing Area	Tire dust	Turbidity/TSS and Metals	Low	Structural controls (i.e., swales, ECSs); sediment and erosion control and inspections.
			Vehicle and Equipment Parking	Fuel tank, hydraulic and other liquid reservoirs	Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls; material management practices (i.e., written spill prevention and response procedure, spill control kits, good housekeeping); employee training; inspections; and preventive maintenance of vehicles and equipment.
			Loading and Unloading-Diesel	500-gallon Diesel Fuel Tank with Covered Secondary Containment	Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., secondary containment for the diesel AST); material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; inspections; and preventive maintenance of tank and equipment.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
None	DA-9	Includes the two large leachate ASTs and the concrete containment area (stormwater is pumped to DA-10).	Leachate Transfer System and Storage Area	Two leachate ASTs (one - 948,000-gallon and one 91,000-gallon)	Turbidity/TSS, BOD, COD and Metals	Low	Structural controls (i.e., secondary containment), inspections and preventive maintenance of containment.
13	DA-10	Includes the remainder of the site including the Airport Road Transfer Station, the LFGTE Plant, the fueling area, Main Office building, the scale house, and wooded and wetland areas. Stormwater in DA-10 infiltrates into the ground, is discharged as sheet flow to the wetland areas with no point source discharge, or discharges to surface water at Outfall #13.	Leachate Transfer Area	Generators, pumps and pipelines / 55-gallon drum of diesel fuel / leachate collection from active and inactive landfill areas	Turbidity/TSS, BOD, COD and Metals	Low	Structural controls (i.e., secondary containment including double-walled piping); material management practices (i.e., collecting and treating contaminated stormwater as leachate); inspections; and preventive maintenance of equipment.
			Vehicle and Equipment Parking	Fuel tanks, hydraulic and other liquid reservoirs	Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls; material management practices (i.e., written spill prevention and response procedure, spill control kits, good housekeeping); employee training; inspections; and preventive maintenance of vehicles and equipment.
			Waste Hauling Roads	Waste hauling vehicles tracking sediment	Turbidity/TSS, BOD, COD and Oil & Grease	Low	Structural controls (i.e., tire wash water collection systems, roadways graded to swales that discharge to ECSs); material management practices (i.e., sweeping roadways) and removing accumulated liter or debris in swales, ditches, manholes, and culverts, as needed); and inspections.
			Outdoor Storage - Empty Containers	Residual material in containers	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Inspections and preventive maintenance of containers.
			Filling No. 2 Fuel Oil Tank (office building)	No. 2 fuel oil delivery area and commercial tanker truck	Petroleum, VOCs (VOCs), SVOCs, and Oil & Grease	Low	Material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; and inspections.
			Main Office (small closed top dumpsters)	Municipal solid waste	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., containers are covered and of sound integrity); material management practices (i.e., good housekeeping); and inspections.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
13	DA-10	Includes the remainder of the site including the Airport Road Transfer Station, Main Office Building, the scale house, and wooded and wetland areas. Stormwater in DA-10 infiltrates into the ground, is discharged as sheet flow to the wetland areas with no point source discharge, or discharges to surface water at Outfall #13.	Authorized Non-stormwater Discharges	Main Office building is equipped with foundation drains. The location of the foundation drain discharges are shown on the Site Plan. Foundation drains are authorized non-stormwater discharges	N/A	N/A	N/A
			Outdoor Storage - Cover Materials	Final cover materials / borrow storage area(s)	Turbidity/TSS	Low	Structural controls and sediment and erosion controls (i.e., silt fences, hay bales, ECSs, and swales); and inspections.
			Outdoor Storage - Tires	Tire shreds	Turbidity/TSS and Metals	Low	Structural controls (i.e., ECSs); material management practices (i.e., good housekeeping); inspections; and preventive maintenance of equipment.
			Airport Road (Residential) Transfer Station	Source separated recyclables, construction debris, wood waste and municipal solid waste	Turbidity/TSS, BOD, COD, Petroleum, VOCs, SVOCs, Oil & Grease and Metals	Low	Structural controls (i.e., containers are covered and of sound integrity); material management practices (i.e., good housekeeping); inspections; and preventive maintenance of equipment and containers.
			TDF Stockpiles (east of Phase 11 Secure Landfill)	Tire shreds	Turbidity/TSS and Metals	Low	Structural controls (i.e., ECSs); material management practices (i.e., good housekeeping); and inspections.

FACILITY ACTIVITY AND ASSOCIATED POLLUTANTS TABLE

Outfalls	Drainage Area	Drainage Area Description	Facility Activity	Potential Pollutant Source	Potential Pollutants	Risk	Stormwater Controls
13	DA-10	Includes the remainder of the site including the Airport Road Transfer Station, the LFGTE Plant, the fueling area, Main Office building, the scale house, and wooded and wetland areas. Stormwater in DA-10 infiltrates into the ground, is discharged as sheet flow to the wetland areas with no point source discharge, or discharges to surface water at Outfall #13.	Loading and Unloading - Lubrication Oil	Lubrication Oil Delivery Area / Exterior through-pipe access in Engine Room - LFGTE Plant / Commercial Tanker Truck / 1,500-gallon double-wall steel AST inside building	Petroleum, VOCs, SVOCs, and Oil & Grease	Low	Material management practices (i.e., written spill prevention and response procedures, spill control kits), employee training, inspections and preventive maintenance of tank.
			Loading and Unloading - Used Oil	Used oil transfer and storage at LFGTE Plant / Commercial Tanker Truck / 1,500-gallon double-wall steel AST inside building	Petroleum, VOCs, SVOCs, and Oil & Grease	Low	Material management controls (i.e., used oil transfer protocols, written spill prevention and response procedures, spill control kits), employee training, inspections and preventive maintenance of tank.
			Loading and Unloading - Coolant	Exterior through-pipe access in Engine Room - LFGTE Plant / Commercial Tanker Truck / 1,500-gallon double-wall steel AST inside building	Ethylene Glycol	Low	Material management controls (i.e., written spill prevention and response procedures, spill control kits), employee training, inspections and preventive maintenance of tank.
			Storage - Batteries in LFGTE PLANT	Batteries	Sulfuric Acid	Low	Material management controls (i.e., written spill prevention and response procedures, spill control kits), employee training, and inspections.
			Transformer Oil Storage	Mineral oil in one 960-gallon transformer and in one 312-gallon transformer located on same concrete pad	Petroleum, VOCs, SVOCs, and Oil & Grease	Medium	Structural controls, material management controls (ie: written spill prevention and response procedures, spill control kits), employee training, inspections, and preventative maintenance of transformers.
			Loading and Unloading - Diesel	Diesel fueling area / 12,000-gallon double-wall diesel fuel AST	Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Structural controls (i.e.,double-wall tank); material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; inspections; and preventive maintenance of tank.
			Loading and Unloading - Gasoline	Gasoline fueling Area / 2,000-gallon double-wall gasoline AST	Petroleum, VOCs, SVOCs, Oil & Grease, and Metals	Low	Structural controls (i.e., double-wall tank); material management practices (i.e., written spill prevention and response procedure, spill control kits); employee training; inspections; and preventive maintenance of tank.

Appendix F – SWPPP Employee Training Form and Environmental Protection Training Record

SWPPP EMPLOYEE TRAINING FORM

SWPPP EMPLOYEE TRAINING OUTLINE. Training should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. A complete list of those employees who attend various training sessions is maintained in the facility's employee training files.

Completed by: ______________________

Title: ______________________

Date:

Training Topics	**Brief Description of Training**
Spill Prevention and Response	• Identifying potential spill areas and drainage routes. • Actions to take in case of a spill, including a review of spill kit contents, location of spill kits, and use. • Familiarizing employees with past spill events, and lessons learned, as applicable. • Discussing pollution prevention measures during mobile fueling, or transferring fuels and bulk liquids into trucks, tanks, or equipment (i.e. no topping off, must be attended, etc.).
Good Housekeeping	• Reviewing basic expectations about cleanliness and cleanup procedures. • Reminding employees that liquids must be stored in closed containers, meaning that drums must be closed when not in use, and buckets or pitchers containing waste fluids such as motor oil must be emptied promptly and not left unattended. • Identifying proper methods for storing and managing significant materials such as solid waste, recyclables, automotive fluids, paints and solvents, and soaps. • Ensuring that employees know where spill cleanup equipment is stored and how to keep spill kits stocked.
Material Management Practices	• Identifying hazardous materials and where they are stored. • Making sure containers are labeled and in good condition. • Instructing employees to use the oldest materials first and minimize wastes generated.
Other Topics	

ENVIRONMENTAL PROTECTION TRAINING RECORD

Date

Location

Subject

	PRINTED NAME	SIGNATURE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

TRAINING MATERIAL SUMMARY:

Instructor Name / Signature: ____________

PAGE ______ OF ______

Appendix G – Inspection Forms

QUARTERLY VISUAL ASSESSMENT FORM

Completed by (sampler):

Site Name:

Date:

Time Since Previous Storm Event[3]:

Outfall (identify as indicated on Site Plan) [1]	Observation Time[2]	Type of Discharge (rainfall/ snowmelt)	Observations[4]								
			color	odor	clarity	floating solids	settled solids	suspended solids	foam	oil sheen	other
1, 2, 3, 4, 5, 8, 9, 10[6]											
6											
7											
11											
12											
13											

[1] Storm event must produce a measurable discharge at the outfall.

[2] Sample must be taken within 60 minutes (or as soon thereafter as practicable, but not to exceed 2.25 hours) of when runoff or snowmelt begins discharging from the outfall.

[3] Storm event must be at least 72 hours since previously measurable event. Document if no qualifying storm event occurred during the quarter.

[4] Document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen and other obvious indicators of storm water pollution using an Imhoff cone and the procedure outlined in Maine DEP document DEPLW0768.

[5] This report must be signed by a "Responsible Corporate Officer" and maintained with the SWPPP.

[6] Sample only one of these outfalls during a sampling period; rotate sequentially through all these outfalls.

I ______________________________ certify under penalty of perjury 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(s) who manage the system, 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[5]:______________________________

Title:______________________________Date:______________

QUARTERLY INACTIVE LANDFILL SITE INSPECTION AND COMPREHENSIVE SITE COMPLIANCE EVALUATION REPORT

Facility Name	Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
Location	357 Mercer Road, Norridgewock, Maine
Date of Visit	
Inspector	
Weather	

Does this Evaluation qualify as the one required annual evaluation conducted within 24 hours of a qualifying storm event? ☐ Yes ☐ No

Table 1
Inspection of Potential Pollutant Sources

Active Areas at the Facility			
1. Leachate	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the active landfill with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
4. Borrow Staging Areas	Is there evidence of tracking or erosion from site soil borrow areas with the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
5. Mobile Equipment	Is mobile equipment leaking oil or other liquids with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Table 1, Continued

Stabilized Areas at the Facility			
1. Leachate	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the active landfill with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Inactive Areas at the Facility			
1. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the inactive areas with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MRF	Is there evidence of industrial materials, residue or trash on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
4. Leachate Underground Storage Tank (Maintenance Facility)	Is leachate observed on ground, or leaking from tank or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
5. Diesel Fueling Area (12,000-gal. tank)	Is there evidence of leaking diesel with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)

Table 1, Continued

Inactive Areas at the Facility			
6. Gasoline Fueling Area (2,000-gal. tank)	Is there evidence of leaking gasoline with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
7. 500-gal. Oil Tanks (Maintenance Facility)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
8. Waste Oil Tanks (Maintenance Facility)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
9. Other Containers (Maintenance Facility)	Is there evidence of leaking oil or other liquids with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
10 3,000-gal. Diesel Fuel Tank (landfill)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
11 1,500-gal. Lubrication New & Used Oil Tanks (LFGTE Plant)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
12 1,500-gal. Coolant Tank (LFGTE Plant)	Is there evidence of leaking coolant with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
13 Batteries (LFGTE Plant)	Is there evidence of leaking battery acid with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
14 Other Containers (LFGTE Plant)	Is there evidence of leaking liquids with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
15 960-gal. & 312-gal. Transformers	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
16 Empty Container Staging Area (Container Storage Area)	Is there evidence of industrial materials, residue or trash on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)

Table 1, Continued

Inactive Areas at the Facility			
17 Equipment, Vehicles, and Tire Processing and Storage Areas (Tire Processing Facility)	Is there evidence of industrial materials, residue or trash on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
18 Leachate Storage Tanks and Transfer Area (Leachate Storage Tank Facility)	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
19 275-gal. Fuel Oil Tank (Main Office Building)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
20 Small Closed-Top Containers (Main Office Building)	Is there evidence of residue or trash observed on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
21 Tire Shreds Storage Piles	Is there evidence of tire shreds on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
22 500-gal. Diesel Tank (Tire Processing Facility)	Is there evidence of leaking oil with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
23 Airport Road Transfer Station	Is there evidence of industrial materials, residue or trash on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
24 Pole Barn	Is there evidence of industrial materials, residue or trash on ground with evidence of or the potential to impact storm water?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Table 2
Inspection of Storm Water BMPs, Conveyances and Outfalls

Description	Condition
Catch Basins	
Interim Geomembrane Cover	
Rip Rap Inlet/Outlet Structures	
Vegetates Swales	
Litter Control Fences	
Leachate Collection and Storage Systems	

Table 2, Continued

Description	Condition
Silt Fence/Hay Bales	
Wooded Buffers	
Erosion Control Structures (#3A, 3B, 20, 21, 22, 22A, 23, 24, 25, 26, 27, 28, 29, 30 & 31)	
Outfalls (#1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, & 13)	

Table 3
New Potential Pollutant Source and/or Recommendations for Additional BMPs

Reference	Description	Schedule

Table 4
Modifications Required to SWPPP or Site Plan

Reference	Description

Certification

☐ Facility is in compliance with SWPPP and MSGP.

☐ Facility is not in compliance with SWPPP and MSGP and either BMP maintenance, additional BMPs or modifications to the SWPPP are required.

I certify under penalty of perjury 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(s) who manage the system, 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:	**Title:**
Signature:	**Date:**

WEEKLY INSPECTION REPORT

Facility Name	Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
Location	357 Mercer Road, Norridgewock, Maine
Date of Visit	
Inspector	
Weather	

Table 1
Inspection of Potential Pollutant Sources

Active Areas at the Facility			
1. Leachate	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the active landfill with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
4. Borrow Staging Areas	Is there evidence of tracking or erosion from site soil borrow areas with the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
5. Mobile Equipment	Is mobile equipment leaking oil or other liquids with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Table 2
Inspection of Storm Water BMPs, Conveyances and Outfalls

Description	Condition
Catch Basins	
Interim Geomembrane Cover	
Rip Rap Inlet/Outlet Structures	
Vegetates Swales	
Litter Control Fences	
Leachate Collection and Storage Systems	
Silt Fence/Hay Bales	
Erosion Control Structures (#20, 21, 29, 30 & 31)	
Outfalls (#1, 2, 3, 4 & 5)	

Table 3
New Potential Pollutant Source and/or Recommendations for Additional BMPs

Reference	Description	Schedule

Certification

☐ Facility is in compliance with SWPPP and MSGP.
☐ Facility is not in compliance with SWPPP and MSGP and either BMP maintenance, additional BMPs or modifications to the SWPPP are required.

I certify under penalty of perjury 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(s) who manage the system, 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:	**Title:**
Signature:	**Date:**

MONTHLY INSPECTION REPORT

Facility Name	Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill
Location	357 Mercer Road, Norridgewock, Maine
Date of Visit	
Inspector	
Weather	

Table 1
Inspection of Potential Pollutant Sources

Active Areas at the Facility			
1. Leachate	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the active landfill with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
4. Borrow Staging Areas	Is there evidence of tracking or erosion from site soil borrow areas with the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
5. Mobile Equipment	Is mobile equipment leaking oil or other liquids with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Table 1, Continued

Stabilized Areas at the Facility			
1. Leachate	Is leachate observed on ground, or leaking from tanks or piping, with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
2. Waste Hauling Roads	Are industrial materials, residue or trash observed on roads where vehicles enter or exit the active landfill with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
3. MSW and Construction Debris (windblown debris)	Is MSW and/or construction debris on ground, tracking, blowing, or whirling with evidence of or the potential to impact stormwater?	☐ Yes ☐ No	☐ Comments (see below)
Comments			

Table 2
Inspection of Storm Water BMPs, Conveyances and Outfalls

Description	Condition
Catch Basins	
Interim Geomembrane Cover	
Rip Rap Inlet/Outlet Structures	
Vegetates Swales	
Litter Control Fences	
Leachate Collection and Storage Systems	
Silt Fence/Hay Bales	
Erosion Control Structures (#20, 21, 24, 25, 26, 29, 30 & 31)	
Outfalls (#1, 2, 3, 4, 5, 8, 9 & 10)	

Table 3
New Potential Pollutant Source and/or Recommendations for Additional BMPs

Reference	Description	Schedule

Certification

☐ Facility is in compliance with SWPPP and MSGP.

☐ Facility is not in compliance with SWPPP and MSGP and either BMP maintenance, additional BMPs or modifications to the SWPPP are required.

I certify under penalty of perjury 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(s) who manage the system, 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:	**Title:**
Signature:	**Date:**

Appendix H – Stormwater Sampling Plan

STORMWATER SAMPLING PLAN

Introduction

The Stormwater Sampling Plan describes stormwater monitoring schedule and objectives, methods and procedures for stormwater sample collection and analyses, reporting and recordkeeping.

Sample Locations

The following outfalls are present at the Crossroads Landfill: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13

Based on an evaluation of effluent and the industrial activities within each drainage area the following outfalls are considered to be substantially identical: 1, 2, 3, 4, 5, 8, 9, and 10.

Procedures

Samples must be taken as close to the point of discharge as reasonably practical and can be achieved safely.

Sampling conducted at the facility consists of the activities summarized in Table A1-1. Sampling activities address the specific objectives listed.

Table A1-1
Stormwater Sampling Schedule – Crossroads Landfill

Monitoring Schedule	Activities	Objectives
First Quarter (January, February, March) **Second Quarter** (April, May, June) **Third Quarter** (July, August, September) **Fourth Quarter** (October, November, December)	Quarterly visual monitoring of stormwater collected from outfall for: color, odor, clarity, floating solids, settled solids, suspended solids, foam and oil sheen	Measure potential stormwater impacts.

Sampling will be documented on the **Quarterly Visual Assessment Form** provided in Appendix G.

Qualifying Storm Events

In accordance with the MSGP, the Crossroads Landfill will attempt to collect samples during a "*qualifying storm event.*"

A qualifying storm event is described as either precipitation, ice or snow melt that produces a measurable discharge at an outfall that occurs at least 72 hours from a previous qualifying storm event. A grab sample

must be collected within the first 60 minutes, but not more than 2.25 hours from the time stormwater begins to discharge from the outfall.

The Crossroads Landfill is not required to sample qualifying storms that occur outside of regular business hours or during unsafe conditions. If one or more of the sampling criteria cannot be met, Crossroads Landfill must still collect and record stormwater sample results. If sampling is conducted, but one or more of the qualifying criteria are not met, an explanation must be provided identifying what criteria were not met and why. If Crossroads Landfill is unable to sample during a monitoring quarter, they must still perform a sampling event for that quarter in the next quarter so that 4 monitoring events per year are obtained.

Sampling Location and Sample Type

The typical sample type for Crossroads Landfill is a grab sample that can be collected directly from flowing water from the outfall. The outfall locations are identified on the Site Plan.

Sampling Supplies

Stormwater sampling supplies include:

- If needed, a pole to hold sample bottles and strapping tape to secure
- Powder free gloves (powder may contaminate samples)
- Quarterly Visual Assessment Form for recordkeeping

Sampling Methods and Handling Procedures

The person collecting samples will use the following procedures to collect stormwater.

1. Powder free gloves will be worn while sampling. Use a new pair of gloves for each separate sampling location if more than one location is being sampled.
2. A grab sample will be obtained by filling a single sample "grabbed" by filling up a container either by hand or with a sample bottle securely attached to a pole (if necessary).
3. Grab samples will be collected with the stormwater entering directly into bottles.
4. When holding the sample bottle, hands and other objects will be kept away from the opening to prevent contaminating the sample.
5. The sample bottle will be held with its opening facing upstream toward the flow of water so that the water enters directly into the bottle without contacting other objects.
6. Samples will be collected as close to the central portion of the flow as possible. To the extent practical, the bottom of vaults will not be touched to prevent stirring up solids.

7. Bottles will not be rinsed or overfilled. Approximately 1/2 inch of headspace will be in the top of each bottle.

8. Once the sample is collected, the bottle will be capped and labeled. Labels will include:

   - Outfall Name or Number, i.e. *Outfall #1*
   - Sample Date and Time
   - Sampler's Initials
   - Project Identifier, i.e., "*Crossroads Landfill: Stormwater*"

Visual Stormwater Monitoring and Recording

Pour the 1 liter sample into a 1 L polycarbonate plastic graduated Imhoff cone. Examine the sample for the following criteria: foam, odor, clarity, floating solids, suspended solids, color, oil sheen, settled solids, and any other obvious indicators of stormwater pollution. The settled solids (measured to the nearest milliliter) should be read 1 hour after pouring the sample into the cone. Additional details are provided in the Maine Department of Environmental Protection Document Number DEPLW0768 procedures (copy included at the end of this appendix).

Record sample data on the Quarterly Visual Assessment Form. The form must be signed and certified in accordance with the MSGP.

Recordkeeping

Copies of the completed Quarterly Visual Assessment Forms should be maintained with the SWPPP.

Standard Operating Procedure
Bureau of Land and Water Quality
Date: April 20, 2006
Revised: February 3, 2012
Doc num: DEPLW0768

Bureau of Land and Water Quality
Division of Watershed Management
Industrial Stormwater Program

Standard Operating Procedures and Visual Monitoring Guidelines for Stormwater Discharges Associated With Industrial Activities.

1. **APPLICABILITY.** This Standard Operating Procedure (SOP) applies to all industrial facilities covered under Maine's Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity. Permitted facilities are required to perform quarterly visual monitoring of their stormwater discharges and record and maintain the results in the facility's Stormwater Pollution Prevention Plans (SWPPP).

   Visual monitoring is not required if a facility is participating in a Department Approved Watershed Management Plan or if the facility is conducting Benchmark, Impaired Waters sampling and analysis, or Numeric monitoring for Total Suspended Solids (TSS). Visual monitoring must be resumed if Benchmark monitoring, Numeric monitoring, or Impaired Waters sampling is terminated.

2. **PURPOSE.** This document provides guidelines for standardized collection and visual examination of quarterly visual monitoring samples for indicators of stormwater pollution as defined in Part VI of the MSGP and to provide guidelines describing standardized methods of data recording and record keeping of all quarterly visual stormwater discharge monitoring data as described in Part VI of the MSGP.

3. **DEFINITIONS.**

   3.1. MULTI-SECTOR GENERAL PERMIT (MSGP). A general permit for Stormwater Discharges Associated with Industrial Activity. Authorizes the direct discharge or point source discharge of stormwater associated with industrial activity to waters of the State (other than groundwater) or to an MS4 (which discharges to waters of the State), provided the discharge meets the requirements stated in this permit. This permit is effective April 26, 2011 and expires April 25, 2016. It replaces Maine's 2005 MSGP for Industrial Activity issued October 11, 2005.

   3.2. SWPPP. Stormwater Pollution Prevention Plan. A written plan developed and implemented by each permitted facility to reduce or eliminate pollutants which come in contact with stormwater associated with industrial activity. This plan outlines sources of potential stormwater pollutants and the methods by which these pollutants will be reduced or prevented from entering waters of the State.

   3.3. GRAB SAMPLE. A single sample or collection of stormwater taken during a qualifying storm event from a single stormwater outfall. The sample may be collected manually or with an automatic sampler.

3.4. OUTFALL. The point at which any direct discharge of stormwater from an area of industrial activity enters waters of the state, an MS4, or leaves the property. Examples include discharges from ditches, swales, catch basins, culverts or pipes, rills, boat ramps, or treatment systems such as detention ponds where the discharge is a shallow concentrated flow of stormwater that leaves the property or enters waters of the State.

3.5. QUALIFYING STORM EVENT. A storm event that is either precipitation, ice or snow melt that produces a measureable discharge at an outfall that occurs at least 72 hours from a previous measureable storm event.

4. RESPONSIBILITIES.

4.1. MONITORING PROGRAM IMPLEMENTATION. The visual monitoring schedule listed below in this section is also outlined Maine's 2011 MSGP Part VI(H). Visual examinations must be clearly documented and maintained in the facility's SWPPP. The permittee shall perform and document a quarterly visual examination of industrial stormwater discharges from each outfall which discharges stormwater associated with industrial activity from the facility.

4.2. OUTFALL IDENTIFICATION. The permittee shall identify each industrial stormwater outfall at the facility. All outfalls must be clearly identified on the facility site map which is part of the facility's SWPPP and presented in the written text of the SWPPP.

4.3. REPRESENTATIVE OUTFALLS. "Representative outfalls" mean two or more outfalls with a single drainage area that discharge substantially identical effluents, have like industrial activities and significant materials, or practices occurring within the outfalls' designated drainage area. If the facility contains representative outfalls, visual monitoring may be conducted at one of the outfalls during a given monitoring period provided that subsequent samples are taken from a different outfall within the representative outfalls' drainage area. The facility is not required to monitor more than one representative outfall within a designated drainage area per monitoring event as long as the site's SWPPP contains the required information as identified in Part VI (I) of the MSGP.

4.4. EMPLOYEE TRAINING. The permittee shall ensure that all facility personnel involved in stormwater sampling are properly trained. Staff involved in sampling shall:

a. Be familiar with the site map and outfall locations
b. Walk the site to physically identify each sampling location
c. Become familiar with local rainfall and drainage patterns
d. Become competent with proper sample collection procedures

Personnel involved in sampling should also be trained in all facility safety procedures as they apply to stormwater sampling. If possible, the same individual should carry out the

collection and examination of discharges for the entire permit term. Written documentation signed by the SWPPP team leader certifying that all personnel involved in sampling have been properly trained should be documented in the SWPPP.

4.5. SAMPLE COLLECTION FREQUENCY. Visual examination of industrial stormwater discharges must be performed once per monitoring quarter. If a qualifying storm event does not occur at the facility for a particular monitoring quarter, the permittee is excused from visual monitoring for that quarter, provided the permittee documents in the monitoring records that no qualifying event occurred. The Visual Monitoring Form shall be used to document both qualifying and non-qualifying storm events. Schedule of monitoring quarters is listed below.

- First: January 1 – March 31
- Second: April 1 – June 30
- Third: July 1 – September 30
- Fourth: October 1 – December 31

All other time specific sampling requirements are to be performed in accordance with the parameters outlined in the procedures section of this document.

4.6. RECORD KEEPING AND REPORTING. The permittee shall maintain all visual monitoring reports/records onsite with the SWPPP. The permittee is not required to submit visual monitoring results to DEP unless specifically requested to do so, or if the facility is required to submit an annual report as described in Part III (D)(1) of the MSGP. Requirements for recording visual examination data are outlined in the procedures section of this document.

5. PROCEDURES

5.1. SAMPLE COLLECTION TIMING. A grab sample must be collected from each facility outfall (except representative outfalls) once per quarter during a qualifying storm event. During a qualifying storm event, a grab sample for visual examination should be collected during the first 60 minutes or as soon thereafter, but must not to exceed 2.25 hours of when runoff begins discharging from an outfall. During monitoring quarters when snow or icemelt represents the only stormwater discharge, a grab sample must also be collected during periods of significant snow or ice melt within the first 60 minutes or as soon thereafter, but not to exceed 2.25 hours of when snow or icemelt begins discharging from an outfall. Stormwater runoff from employee parking lots, administration buildings, and landscaped areas that is not mixed with stormwater associated with industrial activity, or stormwater discharges to municipal sanitary sewers does not need to be sampled.

5.2. SAMPLE CONTAINER CLEANING AND PREPARATION. The facility should have an adequate supply of containers prepared for collection of industrial stormwater samples

from each outfall prior to collecting samples for visual examination. All sample containers used for sampling for visual examination should be certified as clean and free of residue. After each use and for cleaning the Imhoff Settling Cone or graduated beaker. A bottle brush will aid in removing any fine sediment trapped in the bottom point of the Imhoff cone:

- Wash containers in a non-phosphate detergent and tap water wash.
- Thoroughly fill and rinse containers with tap water at least three (3) times.
- Store containers closed, and in an area free of dust and other potential sample contaminants.
- If additional containers are needed to collect samples from less accessible outfalls (e.g. buckets which are attached to poles for reaching outfalls), these containers should also be cleaned and prepared as indicated above.

5.3. SAMPLE EXAMINATION. Samples should be examined in clear glass or clear plastic container prepared and cleaned as indicated above, so that all visual monitoring criteria can be observed.

MANUAL GRAB SAMPLE COLLECTION. Manual grab samples should be collected by inserting a container under or downstream of a discharge with the container opening facing upstream, and with the opening of the container completely immersed under water, whenever possible. A sample container at least 1000 ml should be used to collect the sample. The container must be able to be submersed so that the container opening is held under water while still collecting an adequate sample size to make a correct visual inspection. In most cases the sample container can be held in hand while the sample is collected. Less accessible outfalls may require the use of poles and buckets to collect grab samples. Take the grab from the horizontal and vertical center of the outfall. If sampling in a channel, (e.g., ditch, trench, rill) avoid stirring up bottom sediments. Avoid touching the inside of the container to prevent contamination. Transfer sample to a clear glass or plastic container if using another container such as a bucket to collect a sample from a less accessible location. If taking samples from multiple outfalls, label containers with outfall identification prior to taking samples. Make sure samples are securely capped until examination.

COLLECTION OF GRAB SAMPLES BY AUTOMATIC SAMPLER. Facilities which use automatic samplers for stormwater sampling may collect grab samples for visual examination by this method. Programming for collecting grab samples is specific to the type of automatic sampler. All facility personnel who collect stormwater samples using automatic samplers should be properly trained in operation of the sampler before doing so. Several different types of automatic samplers are available for stormwater sampling. However, the following guidelines should be followed when sampling regardless

of the type of sampler used. All equipment must be properly cleaned, particularly the tubing and sample containers. Deionized water should be drawn through the sampler to remove any residuals prior to taking samples. Tubing should also be periodically replaced to avoid algae or bacterial growth. Additionally, a distilled/deionized water blank sample should be taken at each outfall sampled to determine if contamination of stormwater samples by the sampling equipment has occurred. Samplers should be used in exact accordance with the manufacturers' instructions. All sampler calibration and maintenance data should be kept on site with the SWPPP.

5.4. SAMPLE EXAMINATION. Visual examination of all grab samples collected must be performed within the first sixty (60) minutes. Bring the collected samples to a well lit indoor area. Pour each sample into a separate 1 L polycarbonate plastic graduated Imhoff settling cone or 1000 ml graduated cylinder. The Imhoff settling cone or beaker should have graduations that allow volume measurement to the nearest milliliter. Record the total sample volume to the nearest milliliter on the visual monitoring form. Examine the samples for the following criteria according to the instructions provided with the visual monitoring form: Foam, odor, clarity, floating solids, suspended solids, color, oil sheen, settled solids, and any other obvious indicators of stormwater pollution. Read the settled solids 1 hour after pouring the sample into the cone, as this assures that all solids are settled out of the water. Settled solids in the bottom of the cone should be measured to the nearest milliliter.

*Note: Clear polycarbonate plastic Imhoff cones are available from several scientific supply companies. You may also purchase 1000 ml graduated beakers from various scientific supply companies.

5.5. SAMPLE DATA RECORDING. Record all sample data on the visual monitoring form after examining the sample for all of the criteria listed in the instructions. The form should include the examination date and time, examination personnel, the nature of the discharge (e.g., rain, snow or icemelt), identification of outfall sampled, quality of the stormwater discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and any other obvious indicators of stormwater pollution), and probable sources of any observed contamination. The permittee must sign and certify the documentation in accordance with Part VIII (E) of the Maine MSGP. All visual examination reports must be maintained with the facility SWPPP.

5.6. RECOMMENDATIONS FOR SOLVING SAMPLE LOCATION PROBLEMS. Consult guidelines listed below when it is necessary to sample an outfall located at a less than ideal location for sampling.

- PROBLEM: Sampling where stormwater comingles with process water or other non-stormwater discharge.

RECOMMENDATION: Attempt to sample the stormwater discharge before it mixes with the non-stormwater discharge. If this is impossible, sample the discharge and maintain a record of the visual examination data observed under both conditions on site with the SWPPP. This will provide an indication of the contribution of any observable contamination from each source.

- PROBLEM: Numerous small point channels make up an outfall from which it is difficult to collect a sample.

  RECOMMENDATION: Impound channels or join their flow together by building a weir or digging a ditch to collect discharge at a low point for sampling. This artificial collection point should be lined with plastic or filter fabric and stone to prevent infiltration and/or high levels of sediment.

- PROBLEM: Inaccessible discharge point. Examples include underwater discharges or unreachable discharges (e.g., out of a cliff, steep slope or bank of a stream).

  RECOMMENDATION: Go up the pipe to sample (e.g., to the nearest manhole or inspection point). If these are not available, tap into the pipe, or sample at several locations upstream of the pipe if the pipe is the only outfall for the facility.

- PROBLEM: Managing multiple sampling sites to collect grab samples during the first 60 minutes of a measurable storm event.

  RECOMMENDATION: Have a sampling crew ready to help when forecasts indicate that a measurable storm event is likely to occur. If this is not possible, sample the missed outfall locations during other measurable storm events and record this circumstance in the SWPPP.

- PROBLEM: Commingling of parking lot runoff with discharge associated with industrial activity.

  RECOMMENDATION: The combined runoff must be sampled at the discharge point as near as possible to the industrial activity or at the parking lot drain inlet if there is one.

- PROBLEM: Sampling in manholes.

  RECOMMENDATION: Sample with a collection device on the end of a pole to reach stormwater. Personnel sampling in manholes should have confined space safety training and ambient air monitoring sampling devices if manholes have to be entered.

- PROBLEM: Run-on from other property.

RECOMMENDATION: If possible, collect and examine a sample of the stormwater at the border of the property where the run-on occurs. Then, collect and examine a sample of the stormwater at a facility outfall downstream of the run-on point. Note any observable differences between the samples and maintain the documentation with the SWPPP.

- When confronted with other difficult sampling scenarios not addressed above, the permittee should consult DEP for guidance on how to best address the situation.

6. REFERENCES

6.1. GUIDANCE MANUAL FOR THE MONITORING AND REPORTING REQUIREMENTS OF THE NPDES MULTI-SECTOR STORM WATER GENERAL PERMIT
United States Environmental Protection Agency, Office of Water (EN-336), EPA 833-B-99-001(January, 1999)

6.2. NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT
United States Environmental Protection Agency, Office of Water (EN-336), EPA 833-8-92-001 (July, 1992)

6.3. STATE OF MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION MULTI-SECTOR GENERAL PERMIT MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM STORMWATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY
Maine Department of Environmental Protection, Bureau of Land and Water Quality, Waste Discharge License # W-008227-5Y-B-R (April 25, 2011)

SECTION VI – PART A

GAS MIGRATION AND MONITORING PLAN

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update w/ Dec 96 Gas Migration and Monitoring Plan	n/a
1	April 00	All	2000 update with response to MDEP comments on Rev. No. 0	IVS(GZA)
2	Dec. 01	All	2001 annual update	WMDSM
3	Dec. 02	All	2002 annual update	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
6A	April 07	Edits tracked & highlighted	Additional edits – added manhole structure screening: Pages 8 and 11, Figure VIA-B-1, Appendix C	WMDSM
6B	Jan. 08	Edits tracked & highlighted	Additional edits – revised manhole structure screening: Pages 8 and 11, Figure VIA-B-1, Appendix C	WMDSM
7	Dec 16	Edits tracked	Accepted 2008 edits; 2016 annual update	WMDSM
	* "TOC" refers to the Table of Contents			

SECTION VI – PART A
GAS MIGRATION MONITORING PLAN

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SECTION VI – PART A
GAS MIGRATION MONITORING PLAN

1.0 INTRODUCTION

This Gas Migration Monitoring Plan has been prepared for the Waste Management Disposal Services of Maine, Inc. (WMDSM) - Crossroads Landfill facility located in Norridgewock, Maine in accordance with Chapter 401, Paragraph 4.C(11) of the State of Maine Solid Waste Management Regulations dated April 12, 2015. The objective of this plan is to provide guidance to landfill operations personnel to ensure compliance with regulatory and safety guidelines regarding the management of landfill gas. To meet this objective, the Gas Migration Monitoring Plan establishes a program to:

- Monitor for the migration of landfill gas by sampling locations between each landfill unit and site property lines. Should this monitoring plan indicate the potential for off-site landfill gas migration, additional monitoring will be performed to determine the extent and level of the gas; and
- Monitor for the presence of landfill gas, with respect to worker safety and health, within selected on-site structures at the WMDSM facility.

This plan provides site-specific information on the gas monitoring program, including locations of monitoring points, methods and procedures of monitoring, monitoring frequency, and reporting requirements. The WMDSM District Manager is responsible for ensuring the gas monitoring program is implemented and documented. This Gas Migration Monitoring Plan will be reviewed at least annually and updated as needed to incorporate any changes to the program.

2.0 BACKGROUND

2.1 GENERAL FACILITY INFORMATION

The WMDSM facility is located off Route 2 (Mercer Road) in Norridgewock, Maine (Somerset County). The Crossroads facility encompasses approximately 817 acres. A site plan is included as Appendix VIA-A.

2.2 OFF-SITE STRUCTURES

The nearest off-site structure is a house owned by WMDSM located approximately 850 feet northeast of the Asbestos Landfill. Aerial Survey and Photo, Inc., is the closest off-site structure not owned by WMDSM and is located approximately 1,850 feet northwest of the Asbestos Landfill. A list of abutting landowners is maintained at the main office.

2.3 LANDFILL UNITS AND ON-SITE STRUCTURES

Currently the WMDSM facility contains eight landfill units, including the closed Asbestos Landfill, and seven secure landfill units (Phase 1-6, Phase 7, Phase 8, Phase 9, Phase 10, Phase 11, and Phase 12). With the exception of Phase 8, the secure landfills at Crossroads are double-lined facilities, with leachate collection and removal systems. The Phase 8 Secure Landfill is a single composite-lined facility, with leachate collection and removal systems.

Permanent on-site structures utilized for work-related activities located within 500 feet of a landfill unit and not considered confined space entry areas, include the Commercial Transfer Station/ Material Recovery Facility and its associated fire protection pump vault; Maintenance Facility; and Office Trailer. These structures are equipped with combustible gas monitors. Additionally, the Phase 7, Phase 8A, Phase 8B, Phase 8C', Phase 9A, Phase 9B, Phase 9C, Phase 10A, Phase 10B, Phase 11A, Phase 11B, Phase 11C, Phase 12A, and Phase12B leachate pump houses, not considered confined space entry areas, are equipped with combustible gas and hydrogen sulfide monitors. The movable secure landfill attendant's building, which is skid mounted, is also equipped with a combustible gas monitor.

3.0 SITE GEOLOGIC AND HYDROGEOLOGIC SETTING

Site subsurface conditions are characterized by thick silt-clay glaciomarine deposits underlain by glacial till and bedrock. Groundwater is typically encountered close to the ground surface. Surface hydrologic conditions are characterized by a network of drainage ways/tributaries to Mill Stream that cross the southwestern portion of the site.

The fine-grained facies of the glaciomarine Presumpscot Formation constitutes the most abundant surficial deposit at the site. The Presumpscot Formation beneath the landfills is typically 30 to 40 feet thick, but ranges from 0 feet to over 70 feet across the site. The upper few feet of the Presumpscot Formation are generally weathered to an olive brown. It exhibits a wide range of post-depositional features that make the upper Presumpscot Formation more permeable than its unweathered counterpart at depth.

The unweathered Presumpscot Formation is generally gray in color, massive, devoid of secondary structures, and relatively impermeable. Experience and field testing suggest that horizontal hydraulic conductivities of 10^{-7} centimeters per second (cm/sec) are typical, but clay-rich facies may have permeabilities as low as 10^{-8} cm/sec. The long-term average groundwater table is at or near the transition between the olive and gray units of the Presumpscot Formation.

Glacial till, and the stratified sand and gravel interbedded within it, are a subsurface unit within the site boundaries. The till surfaces along portions of the two small tributaries that form the east and west boundaries of the site. Subsurface information indicates that the till underlying the site is essentially a blanket deposit of variable thickness covering the bedrock. The observed thickness of glacial till ranges from 8 feet to 33 feet. Results of past field permeability tests ranged from 8.0 x 10^{-6} cm/sec for the non-stratified components to 8.2 x 10^{-4} cm/sec for the washed zones.

The bedrock at the site is buried by overburden consisting of the glacial till and/or glaciomarine silt-clay deposits. Bedrock outcrops have not been observed on the site.

Monitoring of piezometers in the surficial, olive brown, weathered Presumpscot Formation, indicate that groundwater elevations in the majority of the site are within 5 feet of the ground surface. The effect of high water table and saturated soils promote landfill gas migration horizontally out of the sides of the landfills, rather than vertically. The "path of least resistance" is typically through cover materials or from the toe of the landfill, rather than vertical migration into surrounding soils. The placement of synthetic lining materials further restricts the vertical migration of landfill gas, promoting the movement of gas into the leachate and gas collection systems. Hydrologic features minimize the potential for horizontal gas migration.

4.0 OVERVIEW OF LANDFILLING ACTIVITIES

Waste Management has owned and operated WMDSM since October 1990. The previous owner, Consolidated Waste Services, Inc. (CWS), purchased the landfill property in 1983 from Elizabeth Lappi who had managed the site under the name of Consolidated Sanitary Landfill since 1976.

Four types of waste have been and continue to be disposed of in the landfill units at Crossroads. These include MSW, special waste, demolition debris, and asbestos waste. Presently, the Phase 8 Secure Landfill is active and accepts all four types of permitted wastes. The Phases 9, 11, and 12 landfills also accepted all of the permitted waste types. These three landfill units are essentially at their permitted capacity, have received interim geomembrane or final cover, and have active gas collection and control systems. The Phase 1-6, Phase 7, and Phase 10 Secure Landfills accepted primarily special waste, consisting predominately of ashes and sludges, with lesser amounts of asbestos waste and demolition debris. These landfill units are essentially at their permitted capacity and have received interim geomembrane or final cover. An overfill liner system associated with Phase 8A exists over the majority of Phase 1-6. The Phase 8 waste mass overfills Phases 1-6, 7, and 9 Secure Landfills. The Asbestos Landfill accepted primarily asbestos waste.

Section I - Part B of this Site Operations Manual lists acceptable and unacceptable wastes. Annual reports prepared by WMDSM itemize the wastes disposed of in the secure landfills.

4.1 FORMER MUNICIPAL SOLID WASTE LANDFILL

Municipal solid waste (MSW) disposal at this site began in 1976. Developed as a regional solid waste disposal facility by the Lappi family, the MSW Landfill was constructed with no liner or leachate collection system. This landfill was developed above grade, on an area of relatively low-permeability soils and high water table. Prior to 1988, infiltration was controlled by the application of intermediate clay cover. In 1988, a toe drain was installed around the perimeter of the MSW Landfill and the collected leachate was directed to the site leachate management system.

During 1989, an expansion of the MSW landfill was permitted. Prior to the completion of this expansion, a rotational failure of the underlying clays caused the movement of MSW laterally approximately 400 feet and vertically downward approximately 20 feet into the underlying clays. As a result, the MSW Landfill was closed. The closure utilized a four-foot-thick synthetic and soil composite cover system, with a passive gas flare system installed for the collection and removal of gases generated within the landfill.

Prior to initiating waste excavation/ relocation work associated with Phase 8 cell construction, the passive MSW landfill gas venting and flare system was converted to an active gas collection system with a centrally located flare/blower station. Phase 8B construction in 2004 included the excavation of the southwesterly half of the MSW Landfill and relocation of the waste to the Phase 8A landfill. Phase 8C' construction in 2005 included the excavation of the remainder of the MSW landfill and relocation of the waste to the Phase 8A/8B landfill. The active gas collection and control system was decommissioned as Phase 8B and 8C' construction progressed. The work was completed in accordance with the approved Phase 8 permit application documents and Phase 8B and 8C' construction documents. The MSW Landfill no longer exists.

4.2 ASBESTOS LANDFILL

Disposal in the unlined Asbestos Landfill began in the early 1980's. A toe drain system was installed around the north and east perimeter of the landfill to collect leachate, which was directed to the site leachate management system. The Asbestos Landfill ceased accepting waste in December 1992.

During the Fall of 1993, toe drains were installed along the west and south sides of the landfill. The collected leachate is directed to the site leachate management system. The Asbestos landfill was closed in 1994 utilizing a four-foot-thick synthetic and soil composite cover system. A limited passive gas vent system was incorporated into the closure design to collect and remove any gases that may have migrated from the then nearby MSW landfill. Based on the nature of the waste disposed of in the Asbestos Landfill (nonputrescible, inorganic asbestos waste and demolition debris), landfill gas generation is minimal.

4.3 SECURE LANDFILLS

The Phase 1-6 secure landfill was permitted in 1985. The design of this secure landfill unit included a double lining system (typically a compacted clay secondary and HDPE primary liner) with sand and pipe network leachate collection and detection systems. The development of the Phase 1-6 landfill unit consisted of the phased construction of five secure landfill phases, each phase having two or three cells. Phase 6 is the upper portion of Phases 1 through 5. Phase 1 of this landfill was constructed in 1985/1986 and was approved for the acceptance of waste in May 1986. The development of each additional phase (Phase 2 and 3) was completed as necessary to provide continuous disposal capacity. Improvements to the initial design were incorporated as each phase was constructed. Phases 4 and 5 were constructed in 1989/1990. In 1995 and 1996, the Phase 10 Secure Landfill liner system was constructed contiguous to and over the south end of Phase 1-6. The Phase 10 liner anchor trench, therefore, extends northerly adjacent to Phases 4 and 5. Final cap construction of a portion of the Phase 1-6 landfill commenced in 1995 and was completed in 1996. The remaining portion of the Phase 1-6 landfill was covered with interim geomembrane cover in 1999, subsequent to achieving final permitted waste grades. As part of Phase 8A construction in 2003, the Phase 8A overfill liner system was constructed over all but a small portion of the Phase 1-6 footprint (exclusive of the Phase 10 overfill liner area). The approximately 14,000-square-foot area not covered by the Phase 8A overfill liner is located in the southwest corner of the Phase 1-6 footprint and is bordered by the Phases 1-6, 8A, and 10 anchor trenches. The Phase 8A overfill liner system is tied-into the Phase 8A base liner to form one continuous lined area. The remaining portion of Phase 1-6 was final capped in 2012. Phase 1-6 is underlain by natural clay deposits.

The 4.5-acre Phase 7 Secure Landfill was constructed in 1993 and approved for operation in September of 1993. The landfill has a double composite lining system with leachate collection and detection systems. Waste within Phase 7 achieved approximate permitted final grades and received interim geomembrane cover in 1995. Portions of the interim geomembrane cover were sequentially removed from the north and east sideslopes and top area of Phase 7 as Phase 9 waste disposal activities overfilled much of the Phase 7 footprint. Subsequent to achieving permitted waste grades within Phase 7 and 9, interim geomembrane cover was installed in November 2003. In 2003, the Phase 8A Secure Landfill was constructed contiguous to the south end of the Phase 7 landfill, with the Phases 7 and 8A liner systems tied together at the phase division berm. As part of Phase 8A construction in 2003, the Phase 7 sump was extended southwesterly to the southwest corner of Phase 8A, where a new Phase 7 pump vault was constructed. Phase 7 is underlain by thick natural clay deposits.

The Phase 10 Secure Landfill was constructed in 1995 (Cell B) and 1996 (Cell A). Phase 10 is contiguous to Phases 4 and 5. Like Phase 7, the Phase 10 liner system is a double composite liner, with leachate collection and detection systems. Waste within Phase 10 is currently at permitted final grades. Interim geomembrane cover was installed in December 1998. In 2003, the Phase 8A Secure Landfill's overfill liner was constructed contiguous to the north end of the Phase 10 landfill, with the Phases 8A and 10 liner systems tied together at the phase division berm. Phase 10 was final capped in 2016. Phase 10 is underlain by silty glacial till deposits and, in limited areas, thin natural clay deposits.

In October 1997, WMDSM received approval of a 36-acre secure landfill expansion. The expansion consisted of three separate phases, designated Phases 9, 11, and 12. Phase 11 was constructed in 1998 and 1999. Phase 11, Cell A was approved for landfilling in November 1998 and Phase 11, Cells B and C were approved for operations in 1999. In 2001, the Phase 9 Secure Landfill was constructed contiguous to the north and east sides of the Phase 7 landfill, with the Phases 7 and 9 liner systems tied together along the phase division berm. Phase 9, Cells A through C were approved for operations in 2001. Phase 12, Cells A and B were constructed in 2002, with landfilling commencing in early 2003. Phases 9, 11, and 12 are double-composite-lined facilities with leachate collection and detection systems. Waste in Phase 11 achieved final permitted grades and interim geomembrane cover in early 2002. In accordance with the Phases 9, 11, and 12 license, Phase 9 waste disposal activities overfilled much of the Phase 7 footprint. Subsequent to achieving permitted waste grades within Phases 7 and 9, interim geomembrane cover was installed in November 2003. In 2003, the Phase 8A Secure Landfill was constructed contiguous to the south end of the Phase 9C landfill, with the Phases 8A and 9C liner systems tied together along the phase division berm. As part of Phase 8A construction in 2003, the Phase 9C sump was extended southwesterly to the southwest corner of Phase 8A, where a new Phase 9C pump vault was constructed. Waste in Phase 12 achieved final permitted grades and interim geomembrane cover in October 2004. Phase 12 was final capped in 2016. The three phases (9, 11, and 12) are underlain by thick natural clay deposits.

Phase 8A was constructed in 2003 and is located between Phase 1-6 and the south side of Phases 7 and 9C. The Phase 8A liner system extends over most of the Phase 1-6 landfill, as discussed above, and is tied to the Phases 7 and 9 liner systems. In 2004, the Phase 8B landfill was constructed in what was the southwesterly half of the former MSW Landfill. To achieve this, waste was excavated from the former MSW Landfill and relocated to the Phase 8A landfill. The Phase 8B liner system is tied to the Phases 8A and 9 liner systems to create a contiguous lined area. The Phase 8C' landfill was constructed in 2005 to the east of Phase 8B, in the remaining footprint of the former MSW Landfill. The remaining waste in the former MSW Landfill was excavated and relocated to the Phase 8A/8B landfill. The Phase 8C' liner system is tied to the Phases 8A and 8B liner systems to create a contiguous lined area. As noted above, the Phase 8 landfill has a single composite liner and leachate collection system. Phase 8 waste will eventually overfill the Phase 1-6, Phase 7, and Phase 9 landfills, thus forming a single Phase 8 waste mass. Interim geomembrane cover and gas collection and control systems have been installed over portions of Phase 8. Phase 8 is underlain by natural clay deposits.

The operation of the secure landfills is discussed in detail in Section II - Part A of this Site Operations Manual.

5.0 GAS MONITORING PROGRAM

5.1 OVERVIEW

Currently, the WMDSM gas monitoring system consists of:

- Permanent, continuous-read combustible gas monitors located in permanent on-site structures;
- Permanent Standard LFG Probe sampling locations around the landfill units on the site; and
- Screening of selected manhole structures to supplement the Permanent Standard LFG Probes.

5.1.1 On-Site Structure Monitoring (Combustible Gas Monitors)

As a result of the impermeable nature of the soils underlying and surrounding the landfill units, the high groundwater table, and the locations of streams and wetlands, it is unlikely that landfill gas will migrate and accumulate in on-site structures. Any gas from the secure landfills would likely surface and vent to the atmosphere in close proximity of the perimeter of the landfill unit, prior to reaching these structures. Regardless, permanent on-site structures located within about 500 feet of the secure landfill units are monitored for combustible gases (e.g. methane). Refer to Section 5.2.1 of this plan regarding the specifics of on-site structures equipped with permanent, continuous-read combustible gas monitors.

5.1.2 Gas Migration Monitoring (Permanent Standard LFG Probe Sampling and Screening of Selected Manhole Structures)

The high water table and low permeability of the soils at this site, restricts the vertical migration of gas. Therefore, any gas migration will likely be lateral. Therefore, Permanent Standard LFG Probes are used to effectively monitor gas migration at shallow depths in soil. In addition, selected manhole structures are screened.

5.2 MONITORING LOCATIONS, PROCEDURES, AND FREQUENCIES

Detailed monitoring procedures and suggested reporting forms are provided in Appendix VIA-C and VIA-E for structure monitoring and Permanent Standard LFG Probe sampling, respectively.

5.2.1 Structure Monitoring

The potential gas accumulation in on-site structures is monitored using permanent, continuous-read combustible gas monitors. Installation and operation instructions for these monitors are maintained on file at the main office. These combustible gas monitors are capable of detecting gas concentration levels of 0.5% by volume and an audible alarm sounds when the pre-set threshold value is exceeded.

The combustible gas monitors located in on-site structures are calibrated at least quarterly, or more frequently when necessary according to manufacturer recommendations. Calibration is completed utilizing the general procedures set forth in the equipment O&M manuals. Documentation forms are provided in Appendix VIA-E. The monitors are located in areas of each structure where air movement may be restricted.

The following buildings/structures are monitored for the presence of landfill gas. Refer to the sketches included in Appendix VIA-D for the location of each permanent combustible gas monitor.

Maintenance Facility - This single-story steel-frame building is located approximately 250 feet east of Phase 8C' landfill and about 500 feet northeast of the Phase 1-6 landfill. This structure has a concrete frost wall and slab-on-grade foundation, with a compacted gravel base overlying native soils. Electrical and phone utilities exist at this location.

Commercial Transfer Station/Material Recovery Facility - This single-story steel-frame building is located approximately 250 feet east of the Phase 1-6 landfill and approximately 250 feet southeast of Phase 8C'landfill. This structure has a concrete frost wall and slab-on-grade foundation, with a compacted gravel base overlying native soils. Electrical facilities exist at this location.

Commercial Transfer Station Pump Vault - This metal and wood structure sets on top of a ten-foot-deep concrete vault, and is located on the east side of the Commercial Transfer Station. It houses pumps and plumbing for the fire protection system for the transfer station. Electrical utilities exist at this location.

Office Trailer - This trailer is located approximately 100 feet south of Phase 8Aand serves as office space for construction/consultant personnel and for the storage of site files. Electrical and phone utilities exist at this location.

Leachate Pump Houses – The following leachate pump houses are located at the perimeter of the listed landfill cell:

- Phase 7 – southwest corner of Phase 8A
- Phase 8, Cell A (Phase 8A) – southwest side of Phase 8A
- Phase 8, Cell B (Phase 8B) – north end of Phase 8B
- Phase 8, Cell C (Phase 8C) – north end of Phase 8C'
- Phase 9, Cell A (Phase 9A) – west side of Phase 9A
- Phase 9, Cell B (Phase 9B) – east side of Phase 9B
- Phase 9, Cell C (Phase 9C) – southwest corner of Phase 8A
- Phase 10, Cell A (Phase 10A) – southwest corner of Phase 10
- Phase 10, Cell B (Phase 10B) – southeast corner of Phase 10
- Phase 11, Cell A (Phase 11A) – southwest corner of Phase 11A
- Phase 11, Cell B (Phase 11B) – west side of Phase 11B
- Phase 11, Cell C (Phase 11C) – northwest corner of Phase 11C
- Phase 12, Cell A (Phase 12A) – west side of Phase 12A
- Phase 12, Cell B (Phase 12B) – west side of Phase 12B

The leachate pump houses are concrete and wood-framed structures with steel doors, concrete frost wall and slab-on-grade foundations underlain by a compacted gravel base pad above native soils. Electrical utilities exist at these locations. In addition to combustible gases, the leachate pump houses are monitored for hydrogen sulfide utilizing permanent, continuous-read hydrogen sulfide meters.

WMDSM recognizes that there is the potential for the presence of landfill gases/explosive environments within manholes and catchbasins located on the site. Therefore, all such spaces are considered to be permit-required confined space entry areas and are clearly marked as such. Access to these areas is limited to trained personnel, requires a permit, and follows rigorous confined space entry procedures that include air monitoring and requirements for forced ventilation should elevated levels of methane or hydrogen sulfide, or depressed oxygen levels be detected.

5.2.2 Permanent Standard LFG Probe Sampling

Permanent Standard LFG Probe sampling is performed at 13 locations around the perimeter of the landfill units, between the limits of waste and the adjacent property boundary. The Permanent Standard LFG Probes are sampled quarterly. Sampling and documentation is completed by qualified WMDSM personnel utilizing the general procedures set forth in Appendix VIA-C. Refer to the plan provided in Appendix VIA-B for Permanent Standard LFG Probe locations and designations. The Permanent Standard LFG Probe locations are positioned close to the landfill units to provide the maximum warning time of any potential gas migration issues.

5.2.3 Manhole Structure Screening

The Permanent Standard LFG Probe program will be supplemented by screening 6 manholes using a hand-held multi-gas meter (O_2, LEL, CH_4, H_2S). The manholes will be screened quarterly. Because the manholes are permit-required confined spaces, screening and documentation will be completed by qualified WMDSM personnel using the general procedures set forth in Appendix VIA-C. Refer to the plan provided in Appendix VIA-B for manhole locations and designations.

5.3 MONITORING RESPONSIBILITIES

Manhole structure screening, and the calibration of combustible gas monitors within on-site structures and documentation of the monitoring device activity is the responsibility of WMDSM operations personnel. Permanent Standard LFG Probe device sampling is performed by qualified WMDSM personnel. These personnel have been trained on the operation, maintenance, and calibration of the appropriate monitoring equipment.

5.4 EVALUATION AND REPORTING

Documentation of the gas monitoring program will be on the appropriate forms and will be completed by WMDSM operations personnel. Typical formats of the reporting forms are provided in Appendix VIA-E. A summary of the monitoring program results for manhole structures and Permanent Standard LFG Probes will be presented as part of the tri-annual and/or annual water quality monitoring report.

Regulations state that the concentration of explosive gases generated by a solid waste facility shall not exceed: 1) 25 percent of the LEL for the gases in facility structures (excluding gas control or recovery system components); and 2) the LEL for the gases at the property boundary. As discussed in Subsection 6.1 below, methane is the major constituent of landfill gas. The LEL for methane is, therefore, conservatively used to set these limits/ monitoring thresholds. The LEL for methane is 5 percent by volume or 50,000 ppm; 25 percent of the LEL is, therefore, 1.25 percent by volume or 12,500 ppm.

Landfill gas concentrations exceeding the LEL of 5 percent for methane at a Permanent Standard LFG Probe location or exceeding the alarm level within an on-site structure (set by WM policy at 0.5 percent LEL or 5,000 ppm) will receive appropriate actions coordinated by site personnel. Additional monitoring will be undertaken to verify the results and an evaluation will be made to determine whether modifications to the monitoring program are appropriate. Should the additional monitoring suggest sustained readings in excess of the higher regulatory thresholds (25% LEL in on-site structures or 100% LEL at the property line), the monitoring results will be recorded and the MDEP notified. Further precautionary measures will be initiated as appropriate and a remediation plan will be developed.

6.0 SAFETY

WMDSM personnel shall perform all work in accordance with the safety and health program outlined in Section I – Part D of this Site Operations Manual. Consultant personnel should be knowledgeable of hazards presented by landfill gases and should complete their work in accordance with their own site-specific health and safety plan. The following presents a brief overview of the potential safety hazards and safety precautions related to the gas migration and monitoring plan.

6.1 POTENTIAL SAFETY HAZARDS

When monitoring landfill sites, WMDSM and consultant personnel should be alert to the hazards caused by the presence of potentially combustible landfill gas. Methane gas constitutes about 50 percent of the total volume of landfill gas. It is a flammable, colorless, odorless, and tasteless gas. Methane gas displaces oxygen and is, therefore, a simple asphyxiant without other significant physiological effects. Methane has a Lower Explosive Limit (LEL) of 5 percent by volume (50,000 ppm) and an Upper Explosive Limit of (UEL) of 15 percent by volume.

Hydrogen sulfide may also be present in landfill gas. Hydrogen sulfide is a colorless, very flammable gas that, in low concentrations, has an offensive odor similar to that of rotten eggs. An important characteristic of hydrogen sulfide is its ability to cause a decrease in one's ability to detect its presence by smell. So, although one can no longer smell it, it may be present in harmful concentrations. Hydrogen sulfide can be highly toxic. The symptoms of overexposure include headaches, dizziness, staggering, and nausea. Severe overexposure can cause respiratory failure, coma, and death. The following hazards may occur as a result of the presence of landfill gas:

- Fires and explosions as a result of minor, uncontrolled ignition sources (e.g. turning on a power switch that is not specifically manufactured and installed for explosive atmospheres).
- Oxygen deficient environments in trenches, vaults, conduits, and structures.
- Medical conditions ranging from mild illness to respiratory failure and death.

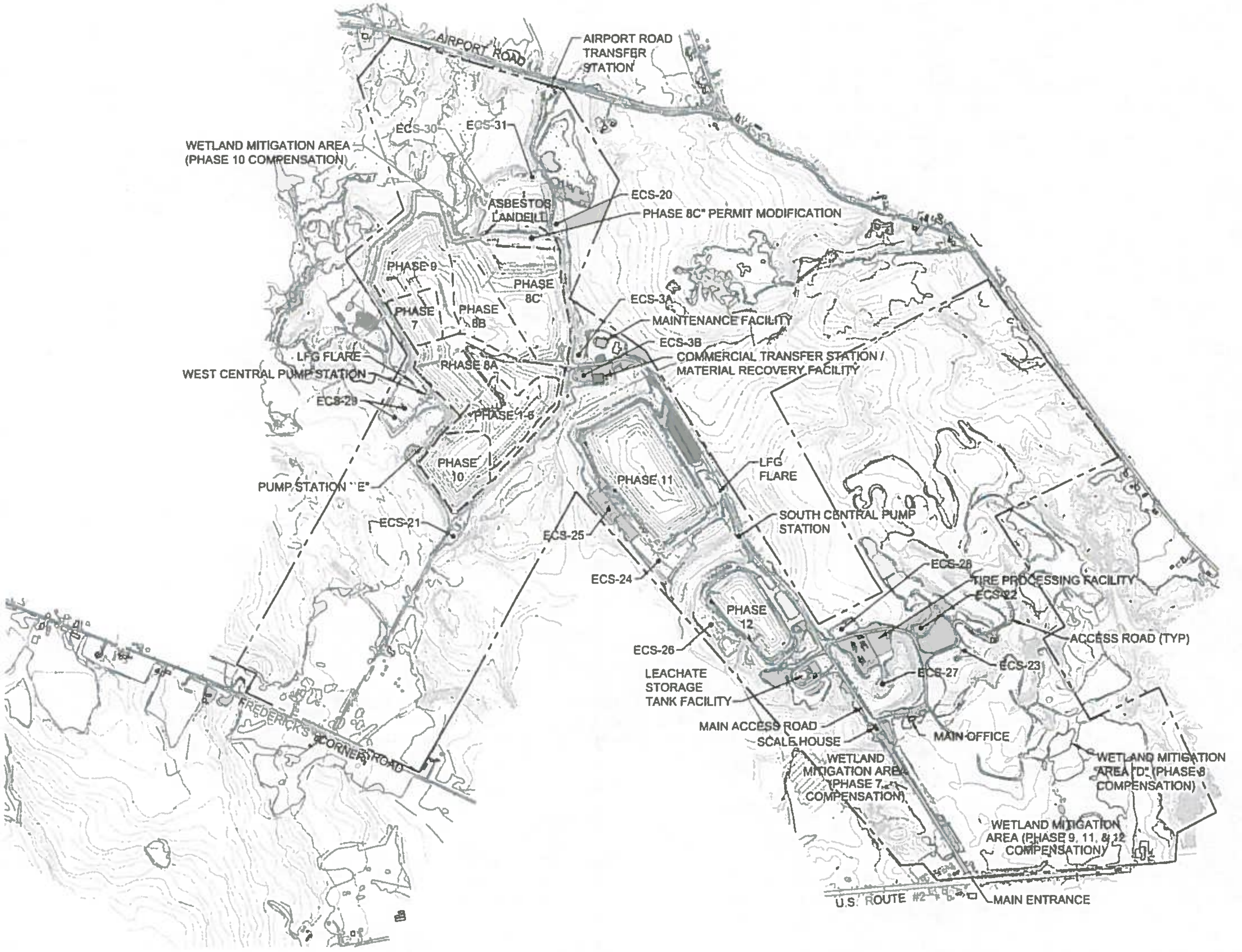
6.2 SAFETY PRECAUTIONS

The following safety precautions should be adhered to by personnel when monitoring for combustible gas:

- At least two people should be present at all times when monitoring for potentially explosive gas concentrations (buddy system) in areas that are not well ventilated.
- Sampling personnel must continually be aware of, and avoid all potential sources of ignition.
- Absolutely no smoking at any time.
- The WMDSM safety and health program should be followed.
- Permanent Standard LFG Probe installation/sampling should not be conducted near buildings unless:
    - Sub-grade utility lines are located and clearly marked prior to the monitoring event; a person with knowledge of all below-grade utility lines has cleared the monitoring locations; and monitoring personnel have access to an accurate site utility plan.
- Sampling personnel should be familiar with the sampling and reporting procedures outlined in Appendix VIA-C, particularly the emergency procedures.

APPENDIX VIA-A

SITE PLAN



N

LEGEND

———	GROUND SURFACE ELEVATION CONTOUR
▭	EXISTING BUILDINGS
— · — · —	PROPERTY BOUNDARY - WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
— — —	PHASE LIMITS

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM AERIAL SURVEYS COMPILED BY BOYNTON AND PICKET LLC AND CONDUCTED ON 29 SEPTEMBER 2016, 31 MARCH 2016, 31 MARCH 2015, AND 29 JUNE 2014.

0 500' 1000'

SCALE IN FEET

SITE PLAN
CROSSROADS LANDFILL
NORRDIGEWOCK, MAINE

Geosyntec consultants

FIGURE
1

PROJECT NO: BE0201

DECEMBER2016

L:\B\BOSTON JOBS\CROSSROADS\FIGURES\SITE PLAN – DEC 2016\0201 P003A (SITE PLAN)

APPENDIX VIA-B

MONITORING LOCATION PLANS

APPENDIX VIA-C

MONITORING AND REPORTING PROCEDURES

MONITORING AND REPORTING PROCEDURES

Permanent Standard LFG Probe Sampling

WMDSM has 13 Permanent Standard LFG Probe locations. Each probe must have a proper sampling port installed to allow readings for methane without air intrusion. The Permanent Standard LFG Probes are depicted in Appendix VIA-B. Waste Management's Gas Collection and Control System (GCCS) Design & Installation Guidance Manual details procedures for probe monitoring as follows:

1. All migration monitoring probes shall be designated as "Probes" within the Landfill Gas Management System (LMGS).

2. Upload relevant site probe IDs to the GEM in Gas Analyzer (GA) mode prior to departure to the field.

3. Calibrate the GEM (or other approved instrument) in accordance with manufacturer's recommendations. For GEM devices, use 15% methane calibration gas, as this provides increased low range accuracy.

4. After calibration is complete, document calibration zero and span accuracy by taking a reading using the calibration gas and fresh air and uploading these readings to LGMS. Configure specific "Sample Port" IDs in LGMS for this purpose.

5. Set the GEM to GGA mode for all probe measurements. This mode measures and stores the relative pressure within the probe prior to starting the sampling so an accurate pressure measurement can be obtained. Do not use the GEM mode when measuring probes. A water trap and new (each day) carbon filter are required to protect instrumentation from damage and to remove trace compounds such as ethane that can cause inaccurately high methane measurements.

6. Inspect the probe and area around the probe for hazards or issues such as broken or worn components, damage, safety hazards, or signs of subsurface LFG migration. Include any issues in the reading comments.

7. Connect the sample hose (with carbon filter and water trap) to the instrument. Purge the instrument and sample hose with fresh air and select the appropriate probe ID.

8. Connect the sample hose to the probe sample point and ensure the hose is securely attached to the fitting. Do not connect the sample hose to the sampling point of the probe before connecting to the instrument as this could release pressure and LFG from the probe and prevent proper monitoring.

9. Open the petcock valve on the sample point. As soon as the valve is opened, the relative/static pressure reading will be displayed on the instrument. Allow 5-10 seconds for the pressure to stabilize before starting the sample pump. The instrument (in GA mode) automatically stores the relative pressure before starting the sample pump. The

relative pressure reading will not change while the sample is taken. When the pressure is stabilized, start the pump.

10. Observe the methane values visible on the GEM (if any) and allow readings to stabilize. It will usually take about 30 to 45 seconds for the sample to reach the instrument and for the instrument to respond. It is important to note the methane values initially measured by the GEM sensors will often spike before accurate and stable readings are displayed. A stable reading does not vary more than 0.5 percent by volume on the meter's scale. A stable reading should occur within 90 seconds.

11. Review the data and upload it to LGMS at the end of the monitoring event or each day if multiple days are required. If methane concentrations of 5% by volume (100% of the LEL) or greater were measured, promptly notify site management.

12. DO NOT resume monitoring of LFG wells until another calibration of the device is performed using 50% methane.

Manhole Structure Screening

To supplement the Permanent Standard LFG Probe sampling program, selected manhole structures will be screened for certain landfill gas constituents. Specifically, a hand-held multi-gas meter will be used to screen the selected structures for percent oxygen, percent lower explosive limit, methane, and hydrogen sulfide. Six (6) of the manhole structures located along the sitewide leachate transfer system have been selected for screening. These are depicted in Appendix VIA-B. Because the manhole structures on the site are permit-required confined spaces, screening and documentation will be completed by qualified WMDSM operations personnel. Manhole structure screening will be completed quarterly concurrently with the monitoring of Permanent Standard LFG Probes. Site operations personnel will document the manhole structure screening on the form that is included in Appendix VIA-E.

The following general procedures will be used by site operations personnel to screen the selected manhole structures. Manhole structure screening will be accomplished from the exterior of the structure. As such, actual entry into the confined spaces (manhole structures) will not be necessary. However, due to the possibility for a hazardous environment, all appropriate standard confined space entry procedures will necessarily be followed to accomplish the screening process.

Prior to opening the manhole cover, the air immediately above and surrounding the manhole cover will be screened utilizing confined space entry procedures to assure a safe environment. The sampling port of a hand-held multi-gas meter (currently the site utilizes a GX-86 or GEM 5000) will be fitted with an approximately three to four foot length of flexible tubing. As the cover of the structure is removed, the tubing will be inserted to a depth of about 6 inches below the top of the manhole cover and meter readings observed. Operations personnel responsible for the screening will record the peak, and the 1 and 5 minute readings of percent oxygen, percent lower explosive limit, methane, and hydrogen sulfide. The 1 and 5 minute readings will be timed starting when the cover is fully removed to allow for a consistent ventilation process. In addition to recording the peak, 1 and 5 minute readings of percent oxygen, percent lower explosive limit, methane, and hydrogen sulfide, the date, time, temperature, and barometric pressure will be recorded.

On-Site Structure Monitoring (Combustible Gas Monitors)

Selected on-site structures are monitored by permanently installed gas monitors. As continuous monitoring devices, these detectors have a built-in-alarm system which sounds if gas concentration exceed a pre-set threshold value.

The Sierra Model 2001 Combustible Gas Monitor or similar devise, is calibrated to sound an alarm when combustible gas concentrations reach or exceed by volume 0.5 percent methane (5,000 ppm), will be used for structure monitoring. The monitors will be installed where combustible gas is most likely to accumulate within a structure (e.g. corners, baseboards, crawlspaces, or any location where air movement is restricted). Review of the instruction manual is recommended prior to installation and/or testing. The gas monitors will be calibrated regularly and documentation will be recorded on the attached from.

Personnel should be aware the monitors are calibrated to alarm at 0.5 percent methane and that the lower explosive limit is five percent. Therefore, a safety margin is provided.

If inside a structure when the alarm sounds, the following procedures should be followed to ensure safety:

1. DO NOT turn on or off, unplug or operate any electrical items (i.e. lights, fans, overhead doors, drills).
2. Open all available doors and windows to ventilate the structure. The monitor will continue to alarm until methane concentrations drop below 0.5 percent methane.
3. Evacuate all personnel from the structure.
4. Notify the Operations Supervisor and/or District Manager if the alarm continues, even after ventilating the area. Designated personnel using gas detection equipment will be called in to determine where the infiltration of methane gas is occurring (i.e. floor drains, foundation cracks, underground utility connections).
5. The District Manager and District Engineer should be notified of the situation. An assessment will then be performed in an attempt to prevent any future occurrence.

If the alarm is sounding when you arrive at a leachate pump house, DO NOT enter or open any doors. Activate the pump house's ventilation system using the switch located on the exterior of the pump house. Note that the electrical systems for all of the pump houses are intrinsically safe. Immediately notify your supervisor for further directions.

If the alarm is sounding when you arrive at a structure other than a leachate pump house, DO NOT enter the building or open any doors or windows. Immediately notify your supervisor for further directions.

Care should be taken in the placement of the monitors, because they will be affected by the following:

a) High concentrations of carbon monoxide.

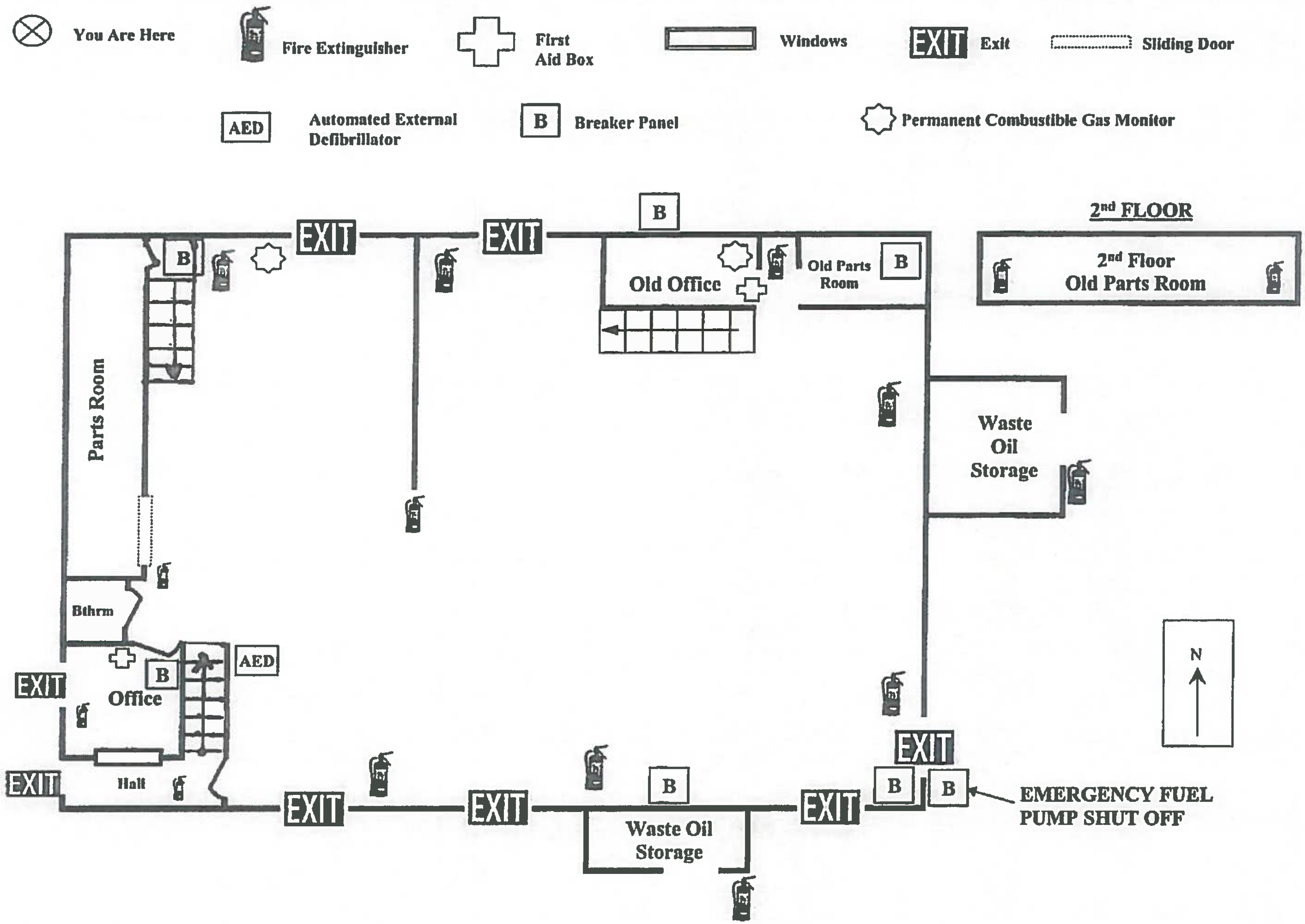
b) Paint thinner, gasoline fumes, and other similar vapor emitting components.

c) Aerosol spray or cleaners.

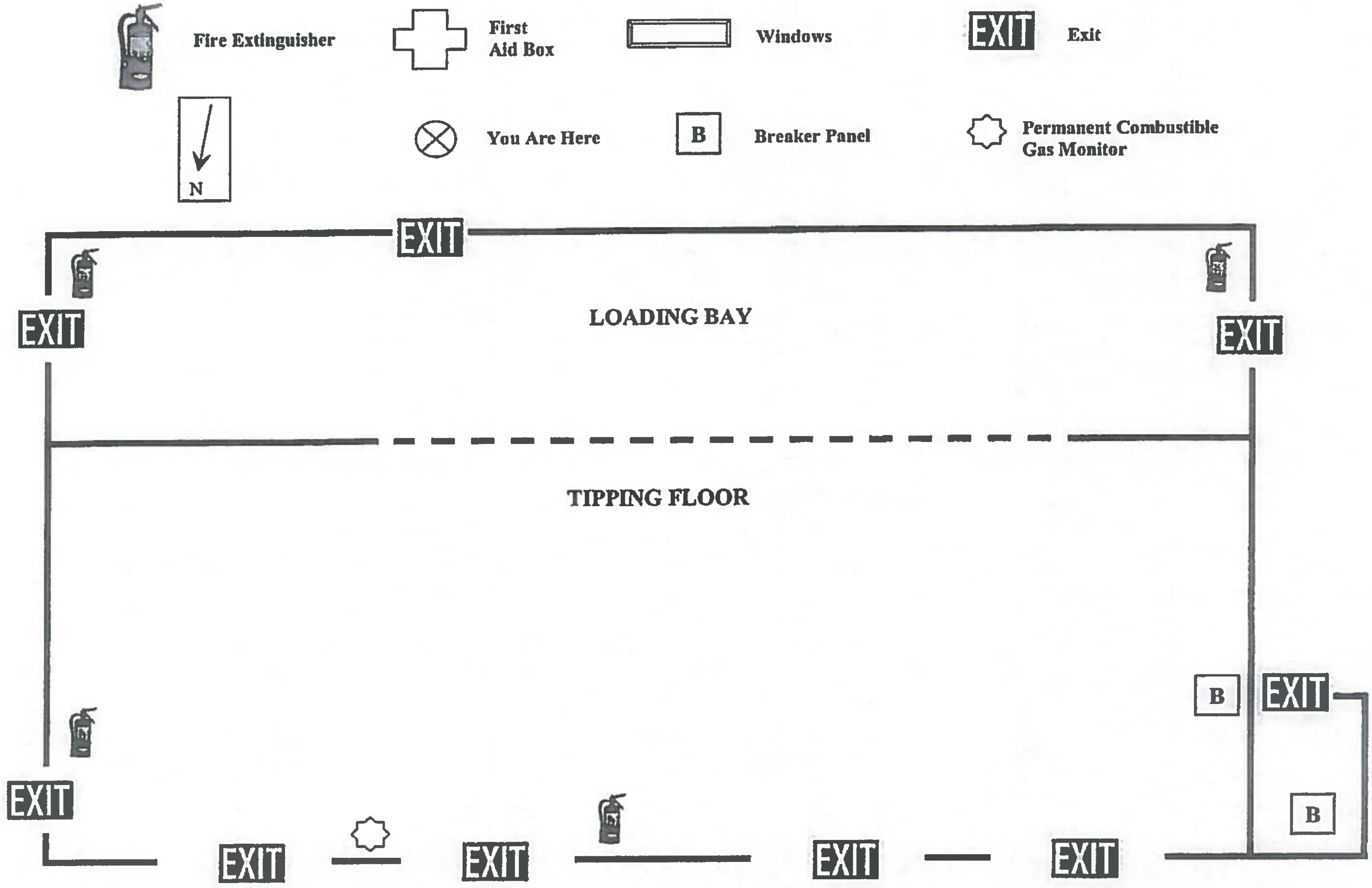
APPENDIX VIA-D

PERMANENT COMBUSTIBLE GAS MONITOR LOCATIONS

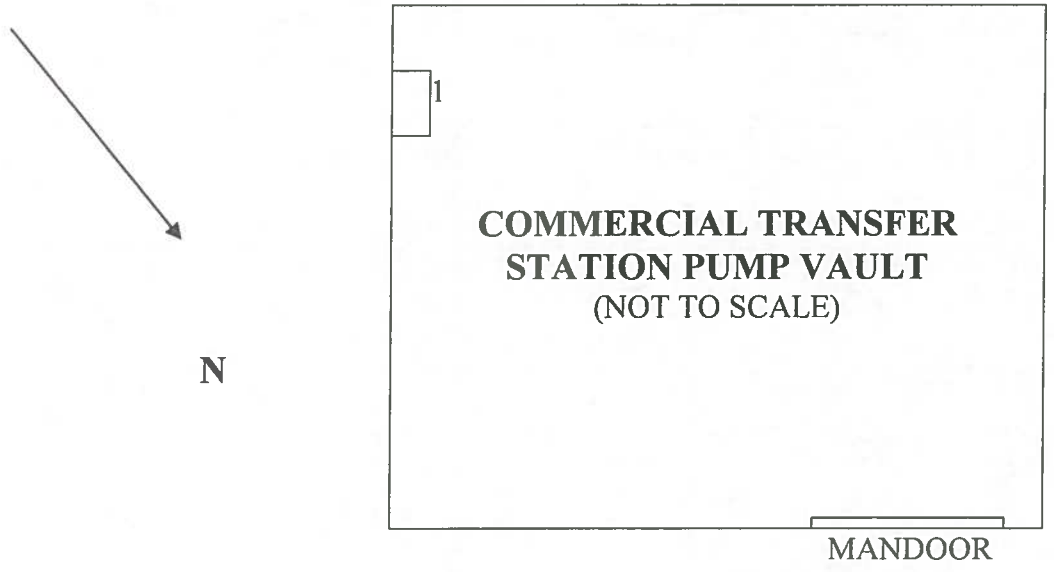
WMDSM - MAINTENANCE FACILITY 1ST FLOOR



WMDSM - COMMERCIAL TRANSFER STATION BUILDING

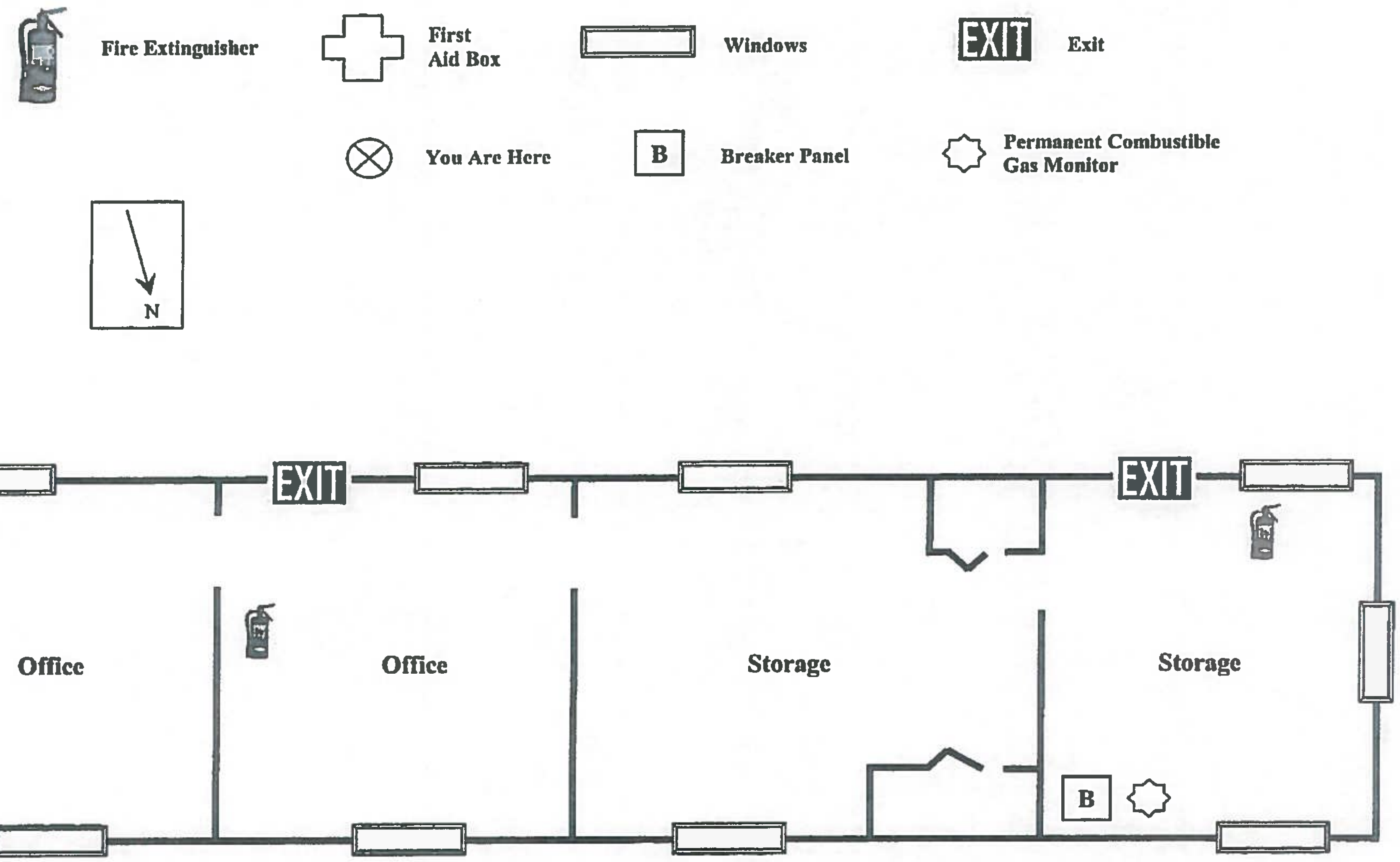


GAS MONITOR LOCATIONS
COMMERCIAL TRANSFER STATION PUMP VAULT

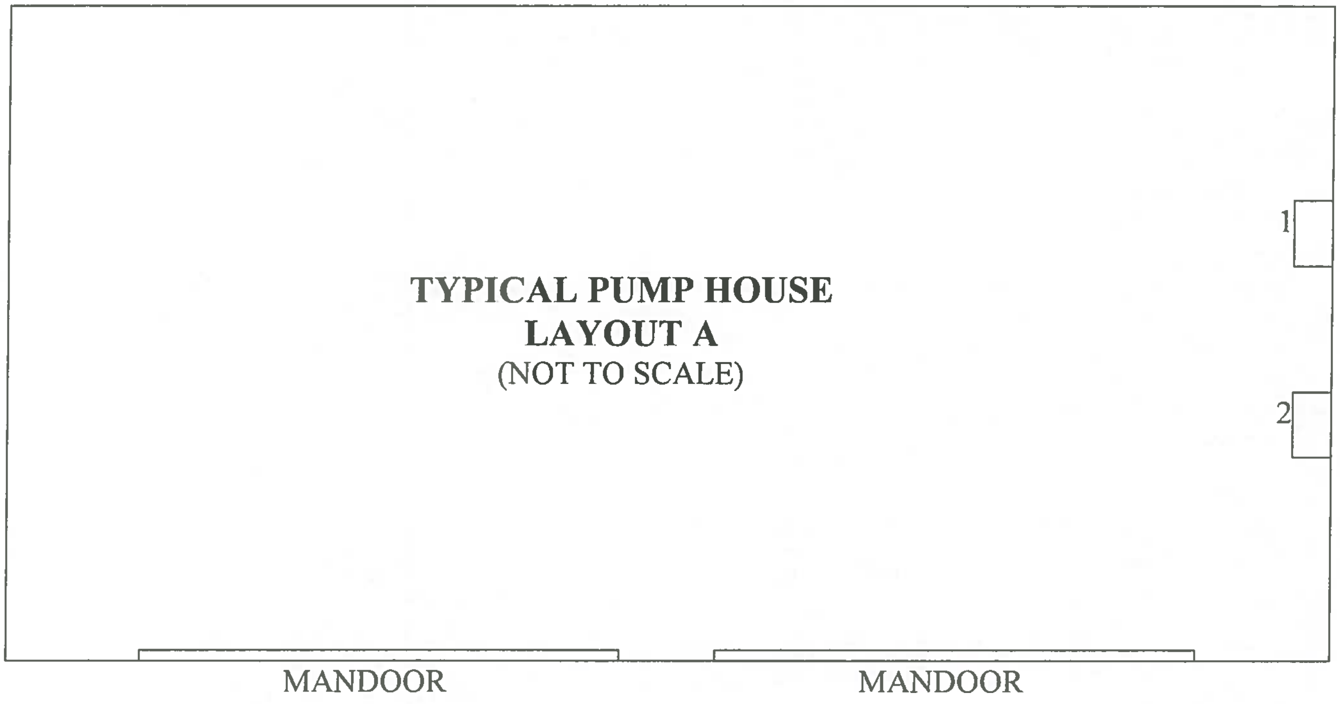


1: Combustible Gas Meter

WMDSM - OFFICE TRAILER



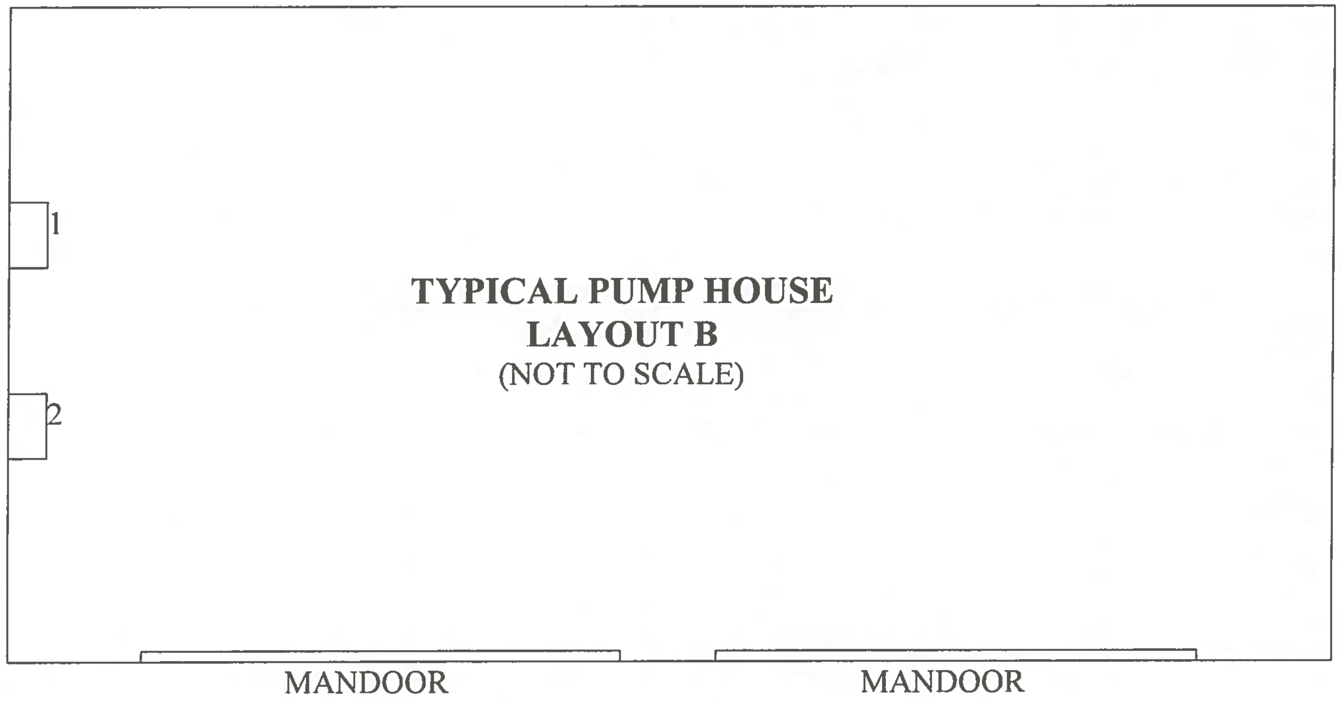
GAS MONITOR LOCATIONS
SECURE LANDFILL PUMP HOUSES



LAYOUT A APPLIES TO:
PHASE 10, CELL A
PHASE 10, CELL B

1: Combustible Gas Meter
2: Hydrogen Sulfide Meter

GAS MONITOR LOCATIONS
SECURE LANDFILL PUMP HOUSES

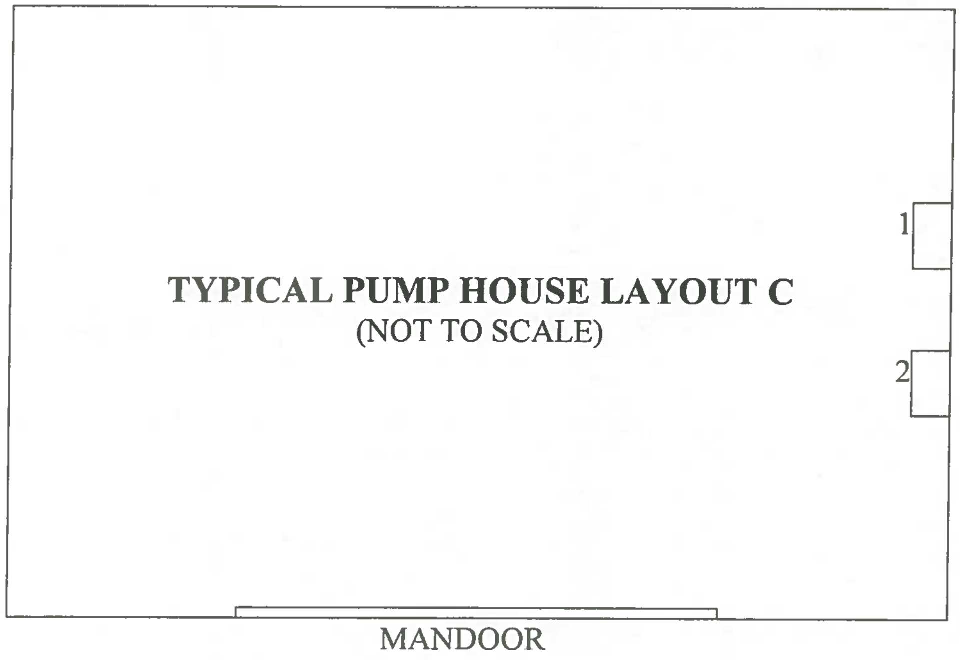


LAYOUT B APPLIES TO:

- PHASE 8, CELLS B and C
- PHASE 9, CELLS A and B
- PHASE 11, CELLS A, B, and C
- PHASE 12, CELLS A and B

1: Combustible Gas Meter
2: Hydrogen Sulfide Meter

GAS MONITOR LOCATIONS
SECURE LANDFILL PUMP HOUSES



LAYOUT C APPLIES TO:
- PHASE 7
- PHASE 8, CELL A
- PHASE 9, CELL C

1: Combustible Gas Meter
2: Hydrogen Sulfide Meter

APPENDIX VIA-E

SUGGESTED REPORTED FORMS

MANHOLE STRUCTURE SCREENING REPORT

Date of Manhole Structure Screening: ____________________________

Screening and Documentation by: ____________________________

Multi-Meter Type: ____________________________

Multi-Meter Serial Number: ____________________________

Date Last Calibrated: ____________________________

Weather (note precipitation, wind, and relative humidity): ____________________________

____

Manhole structure: **CO-9F (Phs 9A NW)**		Temperature:		
Time:		Barometric Pressure:		
READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				
Comments:				

Manhole structure: **LHM-8G (NW WCPS area)**		Temperature:		
Time:		Barometric Pressure:		
READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				
Comments:				

Manhole structure: **LHM-8F (MSE Berm C)**		Temperature:		
Time:		Barometric Pressure:		
READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				
Comments:				

MANHOLE STRUCTURE SCREENING REPORT

Manhole structure: **Leak detect MH#7**
Temperature:
Time:
Barometric Pressure:

READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				

Comments:

Manhole structure: **Containment MH#1**
Temperature:
Time:
Barometric Pressure:

READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				

Comments:

Manhole structure: **LD-12C (Phs 12A NW)**
Temperature:
Time:
Barometric Pressure:

READINGS	% O_2	% LEL	CH_4	H_2S
Peak reading				
1-minute reading				
5-minute reading				

Comments:

PERMANENT COMBUSTIBLE GAS MONITORS
MONTHLY CALIBRATION DOCUMENTATION

LOCATION	SERIAL #	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS
Maintenance Facility – Bay #1	9820075						
Maintenance Facility – Bay #2	001122						
MRF / Commercial Transfer Station Bldg.	062620373M						
Transfer Sta. Bldg. Pump House	14555						
Office Trailer	0409101037M						
Phase 7 Pump House	0320902857M						
Phase 8, Cell A Pump House	011621						
Phase 8, Cell B Pump House	14558						
Phase 8, Cell C Pump House	0517902365M						
Phase 9, Cell A Pump House	011619						
Phase 9, Cell B Pump House	011620						
Phase 9, Cell C Pump House	9819857						
Phase 10, Cell A Pump House	13922						
Phase 10, Cell B Pump House	17789						
Phase 11, Cell A Pump House	0529303813M						
Phase 11, Cell B Pump House	001123						
Phase 11, Cell C Pump House	16161						
Phase 12, Cell A Pump House	021658						
Phase 12, Cell B Pump House	021659						
Special Waste Attendants Building	0517902367M						

COMMENTS: List updated by WMDSM: 12/31/16

Spare: 1106101033M, 1104500862M

PERMANENT HYDROGEN SULFIDE GAS MONITORS
MONTHLY CALIBRATION DOCUMENTATION

LOCATION	SERIAL #	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS	DATE/ INITIALS
Phase 7 Pump House	0320902856M						
Phase 8, Cell A Pump House	0517902366M						
Phase 8, Cell B Pump House	0409101036M						
Phase 8, Cell C Pump House	0517902363M						
Phase 9, Cell A Pump House	0517902364M						
Phase 9, Cell B Pump House	0510301397M						
Phase 9, Cell C Pump House	0525003192M						
Phase 10, Cell A Pump House	0626203735M						
Phase 10, Cell B Pump House	0525003193M						
Phase 11, Cell A Pump House	0525003191M						
Phase 11, Cell B Pump House	052603308M						
Phase 11, Cell C Pump House	0510301398M						
Phase 12, Cell A Pump House	021001						
Phase 12, Cell B Pump House	021002						

COMMENTS:

SECTION VI – PART B

GAS COLLECTION AND CONTROL SYSTEM OPERATIONS AND MONITORING PLAN

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	Dec. 01	New	Developed for recently installed Phase 11 LFG control system	WMDSM/SCS
1	Dec. 02	All	Updated to incorporate Phase 9 GCCS	WMDSM/SCS
2	Dec. 03	All	Updated to incorporate MSW LFG collection system	WMDSM/SCS
3	Dec. 04	All	Updated to incorporate Phase 8A and 12 GCCS and delete MSW LFG collection system	WMDSM/SCS
4	Dec. 05	All (edits tracked)	Accepted 2003 and 2004 edits; 2005 annual review - updated to incorporate Phase 8B and revised Phase 8A GCCS	WMDSM/SCS
4A	April 07	All (edits tracked)	Reviewed; additional edits to address 2006 modifications to GCCS; primarily affected Subsections 3.4 and 3.5 (Phases 9 and 8 LFG collection systems, respectively)	WMDSM/SCS
5	Jan. 08	All (edits tracked)	Accepted edits from Revisions 4 and 4A; narrative reviewed and edited for clarity and consistency; narrative updated to reflect modifications to GCCS in 2007	WMDSM/SHA
6	April 10	All (edits tracked)	Accepted edits from revisions, update per modifications in 2008-2009	WMSDM/SCS
7	January 2013	All (edits tracked)	Updated the text per modification in 2009-2010. Simplified text, added List of Collectors in Appendix A.	WMSDM/SCS
8	Dec. 2016	All (edits tracked)	Accept 2013 edits; 2016 annual update	WMSDM/SCS
	* "TOC" refers to the Table of Contents			

SECTION VI – PART B

GAS COLLECTION AND CONTROL SYSTEM OPERATIONS AND MONITORING PLAN

TABLE OF CONTENTS

APPENDIX

SECTION VI – PART B

GAS COLLECTION AND CONTROL SYSTEM OPERATIONS AND MONITORING PLAN

1. INTRODUCTION

This Gas Collection and Control System (GCCS) Operations and Monitoring Plan (O&M Plan) was developed for Waste Management Disposal Services of Maine, Inc. (WMDSM) - Crossroads Landfill. The purpose of the O&M Plan is:

- To document the goals of the GCCS;
- To describe the GCCS;
- To specify operational and monitoring requirements; and
- To specify record keeping and reporting requirements.

Detailed operating and maintenance instructions and manufacturer's information for the flares, blowers, engines, control panels, and peripheral equipment are contained in separate manuals provided by the flare and engine manufacturers.

This O&M Plan was prepared to be a technical guide for the owner and operator, who should become familiar with and follow the information contained herein, including safety precautions, monitoring procedures, and instructions for system operation. A routine operation and monitoring program is required to adequately maintain efficient landfill gas (LFG) collection and control. Over time, adjustments to the extraction rates may be necessary. The need for adjustment is indicated through routine monitoring of the collection devices. Measurements may also reveal operational problems such as obstructions in the LFG conveyance or condensate drainage pipes or issues with the mechanical components of the system. Additionally, the operator should remain alert to activities and changing conditions at the landfill that could decrease the effectiveness of the GCCS.

This O&M Plan is also intended to establish specific LFG construction activities to be undertaken by operations personnel which do not warrant submission of construction documents (i.e. drawings and specifications) for review and approval by the Maine Department of Environmental Protection. These construction activities are generally dictated by the performance of the existing LFG collection system, which may occasionally require additional infrastructure installation to minimize potential LFG emissions, and may consists of:

- Horizontal collectors and tie-in;
- Toe collectors and tie-in;
- Surface Water Collectors and tie-in;
- Leachate Cleanout Collectors and tie-in; and

- Passive Vents and tie-in.

The MDEP will be verbally notified prior to these LFG construction activities occurring. Upon completion, WMDSM will provide to the Department a description of the work performed, associated construction photos, and a surveyed as-built drawing within 45-days. These activities are in addition to LFG construction that typically occurs annually and performed by a qualified LFG contractor, overseen by a Construction Quality Assurance consultant, and approved by the Department.

1.1 Operational Goals

The goals of the GCCS are as follows:

- Extract LFG at a sufficient rate to prevent odors;
- Extract LFG at a sufficient rate to prevent migration off-site; and
- Extract LFG of a sufficient quality and quantity to enable combustion at the engines or flares without the use of supplemental fuel

1.2 Site Background

Currently, the WMDSM facility consists of eight landfill units, including the closed Asbestos Landfill and seven secure landfill units (Phase 1-6, Phase 7, Phase 8, Phase 9, Phase 10, Phase 11, and Phase 12). The secure landfills at Crossroads are single- or double-lined facilities, with leachate collection and removal systems. The Asbestos landfill was closed in accordance with Maine Department of Environmental Protection (Maine DEP) approved construction documents in 1994. The closure design incorporated a passive gas collection and venting system. WMDSM personnel maintain record documents that include as-built surveys, results of construction material testing, geosynthetic panel layout plans and other pertinent construction documentation.

MSW was not disposed of in Phases 1-7, Phase 10, or the Asbestos Landfill. Little or no LFG generation takes place in these areas due to the lack of MSW. Phase 8, Phase 9, Phase 11, and Phase 12 do contain MSW and hence, generate LFG. This O&M Plan was developed as a result of installation of GCCSs at Phase 8, Phase 9, Phase 11 and Phase 12. This O&M Plan should be revised to reflect modifications and/or expansions to the GCCS, as necessary.

The Phase 8, Phase 9, Phase 11, and Phase 12 GCCSs include collection devices, blowers, flares, and condensate management components. Supporting the GCCSs is a landfill gas to energy (LFGTE) facility, consisting of two engines, operational in March 2009. The Phase 8 and 9 systems collect LFG from surface water collectors, leachate cleanout collectors, toe collectors, horizontal collectors, and vertical extraction wells. The Phase 11 and 12 systems collect LFG from a series of vertical extraction wells, surface water collectors, passive vent collectors, and horizontal collectors. The blowers create a vacuum to draw LFG from the landfills through these collection points to the engines or the flares. The condensate management system handles the liquid condensate resulting from both the cooling of the extracted LFG as it passes through the conveyance pipe and by pressure changes induced by the blower.

2. REFERENCES

Documents referenced in this O&M Plan are listed below. The section headings are used as an abbreviation for each full reference in the subsequent sections.

2.1 Record Drawings

The original Phase 8A, 8B, and 8C GCCS was designed by SCS Engineers (SCS). Modifications to the Phase 8 GCCS from August 2007 through December 2008 were designed by Sanborn, Head & Associates, Inc. (SHA) and by SCS from 2009 through 2016. Record drawings are maintained by Sackett & Brake Survey, Inc. or Boynton & Pickett LLC as portions of the LFG system are installed.

The Phase 9 LFG Management System was designed by SCS. Record drawings were prepared by Geosyntec and submitted to MDEP.

The Phase 11 LFG Management System was designed by SCS. Record Drawings were prepared by Weston & Sampson Engineers, Inc. who served as the Construction Quality Assurance representative for this project. Modifications to the Phase 11 GCCS in 2008 were designed by SHA. Record drawings were prepared by Sackett and Brake for the SHA modifications. The Record Drawings were submitted to the MDEP.

The Phase 12 LFG Management System was designed by SCS. Record drawings were prepared by Geosyntec and submitted to MDEP.

2.2 Manufacturer O&M Manuals

The Operating Manual for LFG Specialties Flare System contains manufacturer information for the blower, flare, and other components located at the Phase 11/12 blower/flare station (LFG Specialties Phase 11/12 O&M Manual). The manual is located in the Gas Technician's office at the main office.

The Operating Manual for LFG Specialties Flare System contains manufacturer information for the blower, flare, and other components located at the Phase 8/9 blower/flare station (LFG Specialties Phase 8/9 O&M Manual). The manual is located in the Gas Technician's office at the main office.

Operating manuals for the LFGTE facility equipment including the blower skid, engines, generator and instrumentation are located at the LFGTE plant.

3. FACILITIES DESCRIPTION

Phase 11/12 GCCS

The Phase 11/12 GCCS consists of three major components: the collection system (vertical extraction wells, surface water collectors, horizontal collectors, passive vent collectors, and conveyance pipe), the control system (blower/flare station and LFGTE facility), and the condensate management system. LFG is collected through a series of vertical wells and horizontal collectors placed in the waste mass, as well as through connections to the surface water collectors. Passive vent collectors were installed in Phase 12 prior to placement of the final cover in 2016 as a conservative measure to collect gas should it be present below the cap. The wells and collectors, excluding the passive vent collector, are interconnected by a conveyance pipe loop with branches to the individual collection points. The pipe system conveys the collected LFG to the blower/flare station or the LFGTE facility for combustion. Condensate formed in the extraction system is drained to individual wells, surface water collectors, horizontal collectors, passive vent collectors, or the South Central Pump Station. General descriptions of the individual components of the collection and control system follow.

3.1 Phase 11 LFG Collection System

The collection system for Phase 11 consists of vertical extraction wells, surface water collectors, horizontal collectors, valves, condensate traps, and a conveyance pipe connecting the collection devices to the blower/flare station or the LFGTE facility. A list of collectors is provided in Appendix VIB-A.

3.1.1 Vertical Extraction Wells

The gas collection system for Phase 11 consists of LFG vertical extraction wells installed in the waste mass. The wells were installed in 2001 and were constructed with Schedule 80 PVC pipe. Each well includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.1.2 Surface Water Collectors

Surface water collectors are tied into the LFG collection system. The surface water collector piping is perforated piping located within the leachate protection layer above the liner and allows drainage of surface water that contacts waste. Each connection includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.1.3 Horizontal Collectors

Horizontal collectors were installed in the Phase 11 landfill. Horizontal collectors are constructed of 4-inch or 6-inch perforated pipe in a 2-foot by 2-foot gravel-filled or tire chipped-filled trench. Each horizontal collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.1.4 Conveyance Pipe

The Phase 11 landfill conveyance pipe consist of a header that was installed as a loop with branches (laterals) to the individual collection points. A 10-inch header was installed from the north corner of the loop header to the LFGTE facility. Jumpers have also been installed on the 10-inch header to reroute gas around damaged portions of the header. The pipe material is SDR-17 high-density polyethylene (HDPE). At road crossing, the conveyance pipe is protected by a larger diameter PE pipe. The collected LFG is conveyed through the pipe to the inlet of the moisture separator at the blower/flare station located at the southeast corner of Phase 11 or from the north corner of Phase 11 to the LFGTE facility. Butterfly valves were installed along the conveyance pipe to allow different sections of the LFG collection system to be isolated. By closing the appropriate butterfly valve, malfunctioning or damaged components can be isolated, investigated, and repaired without shutting down the entire system. The monitoring port on the upstream side of the butterfly valves allow for measurement of pressure and gas composition.

3.2 Phase 12 LFG Collection System

The collection system for Phase 12 consists of vertical extraction wells, surface water collectors, a horizontal collector, passive vents, valves, condensate traps, and a conveyance pipe connecting the collection devices to the blower/flare station at Phase 11 or the LFGTE facility. A list of collectors is provided in Appendix VIB-A.

3.2.1 Vertical Extraction Wells

The collection system for Phase 12 consists of LFG vertical extraction wells installed in the waste mass. The wells were installed in 2004 and were constructed with Schedule 80 PVC pipe. Each well includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.2.2 Surface Water Collectors

Surface water collectors were tied into the LFG collection system. All surface water collectors were abandoned during the 2016 Final Capping project.

3.2.3 Horizontal Collectors

A horizontal collector was installed in the Phase 12 landfill. The horizontal collector consists of 6-inch perforated pipe in a 2-foot by 1 1/2-foot gravel-filled or tire-chipped filled trench. The horizontal collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.2.4 Passive Vents

Passive vent collectors were installed in Phase 12 landfill during installation of the final cap in an area where gas venting sand was not present. The vents will be capped during operation of the Phase 12 active gas extraction system and the vent caps removed during passive operation, as necessary.

3.2.5 Conveyance Pipe

The Phase 12 landfill conveyance pipe consist of a header that was installed as a loop with branches (laterals) to the individual collection points. The pipe material is SDR-17 HDPE. At road crossing, the conveyance pipe is protected by a larger diameter PE pipe within the landfill and by a larger diameter corrugated metal pipe outside the landfill limits. The collected LFG is conveyed through the pipe to the inlet of the moisture separator at the blower/flare station located at the southeast corner of Phase 11. Phase 12 LFG can also be diverted at the Phase 11 blower/flare station into the Phase 11 loop header and conveyed to the LFGTE facility. Butterfly valves were installed along the conveyance pipe to allow different sections of the LFG collection system to be isolated. By closing the appropriate butterfly valves, malfunctioning or damaged components can be isolated, investigated, and repaired without shutting down the entire system. The monitoring port on the upstream side of the butterfly valves allows for measurement of pressure and gas composition.

3.3 Phase 11/12 Blower/Flare Station

The blower/flare station is located at the southeast corner of Phase 11 outside the landfill perimeter stability berm. The Phase 11/12 control system contains components that are discussed in more detail below.

3.3.1 Flare

The Phase 11/12 flare is an 8-inch utility flare, manufactured by LFG Specialties, Inc. The flare has an 8-inch burner tip and reaches an overall height of 28-feet. It has a maximum rated control capacity of 1,800 standard cubic feet per minute (scfm) of LFG at 30-50 percent methane. Additionally, the flare is equipped with a propane pilot assembly with an automatic igniter system. A thermocouple exists within the flare which monitors for a flame and will shutdown the Blower/Flare station if a flame is not present.

3.3.2 Blower

There is one LFG blower at the Phase 11/12 Blower/Flare Station. The blower provides vacuum to the collection system for withdrawing LFG from the landfill and pressure to supply the gas to the flare.

The single blower at the Phase 11/12 Blower/Flare Station is a direct-drive centrifugal blower, manufactured by Lamson, model 813. The blower is capable of producing 50 inches of water column (in-w.c.) inlet vacuum and 15 in-w.c outlet pressure, while moving 1,800 scfm of LFG

3.3.3 Moisture Trap

A moisture trap was included to remove moisture and particulates from the LFG before it is drawn through the blower. The resultant condensate from the moisture trap is combined with condensate from the blower casing and drained to the South Central Pump Station.

3.3.4 Automatic Shut-off Valve

The automatic shut-off valve is located on the LFG conveyance pipe between the blower outlet and the flame arrester, and is controlled electrically. The valve will open when prompted by the flare control panel. The valve will close as directed by the safeties of the system including loss of electrical power.

3.3.5 Blower/Flare Controls

Controls for the blower and flare are housed in a control panel enclosure at the blower skid. The control panel allows manual or automatic operation of the blowers and flare.

Basic instrumentation features include the following:

- LFG flow meter and recorder.
- Safeties that cause system shutdown, including:
  - Blower motor over- and under-current
  - Flame failure
  - Pilot ignition failure
  - High temperature flashback
  - High blower bearing temperature
  - High liquid level

- Control panel to provide access and/or to indicate:
  - Alarm and shutdown indicator lights
  - Blower motor current meter
  - Blower running time meter
  - LFG flow indication
  - Hand/Off/Auto switches for the blower and the flare
  - Run indicators for the blower
  - Emergency shutdown switch

- Local gauges, including:
  - Knockout pot and flame arrester differential pressure
  - Blower inlet and outlet temperature and pressure
  - Knockout pot inlet vacuum

- Basic electrical features include the following:
  - Utility-provided electric service of 460-volt, 3-phase, 60 hertz

- Step-down transformer to provide 110-volt, single phase power
- Main disconnect switch

3.3.6 Flow Meter

Collection of flow data is important to monitor the performance of the system. A flow meter displays instantaneous and total LFG flow through the flare inlet pipe. Also, the system flow is continuously and permanently recorded by Yokogawa paperless recorder.

Phase 8/9 GCCS

The Phase 8 landfill overfills the Phase 9 landfill and the LFG collection system is considered a contiguous system. The Phase 8/9 landfill LFG collection system currently consists of three major components: the collection system (vertical extraction wells, surface water collectors, leachate cleanout collectors, surface collectors, horizontal collectors, toe collectors, and conveyance pipe), the control system (blower/flare station and LFGTE facility), and the condensate management system. LFG is collected through a series of vertical extraction wells and horizontal collectors placed in the waste mass, as well as through connections to the leachate cleanout collectors, surface water collectors, surface collectors, and toe collectors. The collectors were interconnected by a conveyance pipe which conveys the collected LFG to the Phase 8/9 blower/flare station or the LFGTE facility. Condensate formed in the extraction system is drained to individual wells, surface water collectors, toe collectors, and stone pits via traps located at the end of the horizontal collectors. General descriptions of the individual components of the collection and control system follow.

3.4 PHASE 8/9 LFG Collection System

The collection system for Phase 8/9 consists of surface water collector connections, surface collectors, horizontal collectors toe collector connections, leachate cleanout connections, vertical extraction wells, and a conveyance pipe that connects the collection devices to the blower/flare station or LFGTE facility.

3.4.1 Surface Water Collectors

Surface water collectors are tied into the Phase 8/9 LFG collection system. Each surface water collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.4.2 Surface Collectors

Surface collectors are tied into the Phase 8/9 LFG collection system. The surface collectors consist of 6-inch slotted corrugated pipe in a 2.5-foot by 2-foot stone trench approximately 6-inches below grade or a 1-inch by 12-inch perforated corrugated pipe in a 6-inch thick sand bedding layer just below the cover system. Each surface collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.4.3 Horizontal Collectors

Horizontal collectors were installed in the Phase 8/9 landfill. The collectors consist of 6-inch slotted pipe in a 2-foot by 2-foot gravel or tire chip-filled trench. Each horizontal collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements. Condensate traps were installed between the collector and the conveyance pipe at selected collectors.

3.4.4 Toe Collectors

Toe collectors were tied into the Phase 8/9 LFG collection system. The collector consists of 6-inch slotted pipe in a tire chip-filled trench, located just inside the anchor trench. Each toe collector includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.4.5 Leachate Cleanouts

Leachate cleanouts are tied into the LFG collection system. The leachate cleanout pipe was connected to the Phase 8/9 LFG collection system through remote wellheads.

3.4.6 Vertical Extraction Wells

LFG vertical extraction wells were installed in the waste mass in Phase 8/9. The wells were constructed with Schedule 80 PVC pipe. Each vertical extraction well includes a wellhead assembly connected to a vacuum lateral with ports for LFG quality and flow measurements.

3.4.7 Conveyance Pipe

Phase 8 landfill conveyance pipe consisting of headers were installed with branches (laterals) to the individual collection points. An 18-inch LFG conveyance pipe was installed from the east side of the Phase 8 landfill, down the MSE berm access road, and to the LFGTE facility. The pipe material is SDR-17 HDPE. Butterfly valves were installed along the conveyance pipe to allow different sections of the LFG collection system to be isolated. By closing the appropriate butterfly valves, malfunctioning or damaged components can be isolated, investigated, and repaired without shutting down the entire system.

3.5 Phase 8/9 Blower/Flare Station

The Phase 8/9 blower/flare station is located south of the Phase 8 landfill, near the West Central Pump Station. The Phase 8/9 control system contains components that are discussed in more detail below.

3.5.1 Flare

The Phase 8/9 flare is a 10-inch utility flare, manufactured by LFG Specialties, Inc. The flare has a 10-inch burner tip and reaches an overall height of 28-feet. It has a maximum rated control capacity of 1,800 scfm of LFG at 30-50 percent methane Additionally, the flare is equipped with a propane pilot assembly with an automatic igniter system. A thermocouple exists within the flare which monitors for a flame and will shutdown the blower/flare station if a flame is not present.

3.5.2 Blower

There is one LFG blower at the Phase 8/9 Blower/Flare Station, which provides vacuum to the collection system for withdrawing LFG from the landfill and pressure to supply the gas to the flare.

The single blower at the Phase 8/9 Blower/Flare Station is a direct-drive centrifugal blower, manufactured by American Fan Company, model VO6-08F-25A.

3.5.3 Moisture Trap

A moisture trap was included to remove moisture and particulates from the LFG before it is drawn through the blower. The resultant condensate is drained from the moisture trap into the West Central Pump Station.

3.5.4 Automatic Shut-off Valve

The automatic shut-off valve is located on the LFG conveyance pipe between the blower outlet and the flame arrester. The valve will open when prompted by the flare control panel. The valve will close as directed by the safeties of the system including loss of electrical power.

3.5.5 Blower/Flare Controls

Controls for the blower and flare are housed in a control panel enclosure at the blower skid. The control panel allows manual or automatic operation of the blowers and flare.

Basic instrumentation features include the following:

- LFG flow meter and recorder.
- Safeties that cause system shutdown, including:
    - Blower motor over- and under-current
    - Flame failure
    - Pilot ignition failure
    - High temperature flashback
    - High blower bearing temperature
    - High liquid level

- Control panel to provide access and/or to indicate:
    - Alarm and shutdown indicator lights
    - Blower motor current meter
    - Blower running time meter
    - LFG flow indication
    - Hand/Off/Auto switches for the blower and the flare

    - Run indicators for the blower
    - Emergency shutdown switch

- Local gauges, including:
    - Knockout pot and flame arrester differential pressure
    - Blower inlet and outlet temperature and pressure
    - Knockout pot inlet vacuum

- Basic electrical features include the following:
    - Utility-provided electric service of 460-volt, 3-phase, 60 hertz
    - Step-down transformer to provide 110-volt, single phase power
    - Main disconnect switch

3.5.6 Flow Meter

Collection of flow data is important to monitor the performance of the system. A flow meter displays instantaneous and total LFG flow through the flare inlet pipe. Also, the system flow is continuously and permanently recorded by Yokogawa paperless recorder and the Golderwatch system.

3.6 Landfill Gas to Energy Facility

The LFGTE facility consists of engine generators, compressor skid, control room and appurtenances, which are housed in a metal building located east of the Phase 8 landfill. The facility commenced operations in March 2009. The LFGTE facility contains systems that are discussed in more detail below.

3.6.1 Compression System

The compression system applies a constant vacuum to the Phase 8/9 and Phase 11/12 landfill gas collection systems. The LFG enters the moisture separator on the gas skid to remove entrained liquid droplets by a mist eliminator within the moisture separator. Condensate collected at the moisture separator is pumped to the condensate knockout and pump station discussed below.

From the moisture separator, the LFG enters the blowers to compress the gas. The compressed LFG then passes through a regulated valve and enters a coalescing filter to remove additional condensate formed as a result of the increased LFG pressure and decreased temperature. The moisture from the coalescing filters is returned to the moisture separator on the gas skid.

3.6.2 Engines

Two (2) internal combustion reciprocating engine generator units (Caterpillar G3520C 1,600 KW) rated 17.6 MMBtu/hr were installed to combust the landfill gas conveyed from the landfill. The engines are spark ignited, internal combustion engines, lean burn, turbo charged, and suitable for low-pressure landfill gas. The two engines operate simultaneously from a common

LFG compression system. Radiators and ancillary equipment for generating and controlling the delivery of energy to the purchaser are located adjacent to the metal building.

Combustion exhaust is emitted through a muffler and exhaust stack. The engines are cooled by a jacket water system, with heat expelled to the atmosphere through air-cooled radiators. Each engine produces shaft power to drive an integral synchronous electric generator and generates electricity for in-house use and for delivery to the local power grid.

Under normal conditions, the engines are expected to operate continuously at 100 percent capacity, 24 hours per day, seven days per week. The engines require periodic scheduled maintenance for lubrication, oil changes and parts replacement, with top-end engine overhauls anticipated every year and major bottom-end engine overhauls anticipated approximately every three years. Daily operations are conducted with one full time operator. All operating conditions and engine performance parameters are capable of being monitored continuously via remote monitoring and control.

3.6.3 Condensate Knockout and Pump Station

A 60-inch diameter condensate knockout and pump station is installed on the 18-inch main header that conveys LFG from the Phase 8/9 and 11/12 landfills. The pump station removes condensate from the main header and accepts condensate generated and collected in the LFGTE facility. The pump station has butterfly valves on the inlet and outlet piping and a bypass header. A Blackhawk electrically actuated pump is installed and pumps condensate to Manhole No. 6, of the Leachate Management System.

3.6.4 LFGTE Electrical and Instrumentation Design

Controls for the LFGTE facility are housed in a control room in the metal building. The control system allows for manual or automatic operation of the LFGTE facility.

Basic instrumentation includes the following:

- LFG flow meter and recorder.

- Safeties that cause system shutdown, including:
  - High outlet temperature
  - High outlet pressure
  - Low outlet pressure
  - High inlet temperature
  - High inlet pressure
  - High blower vibration
  - High motor vibration
  - Numerous engine specific safeties
  - Emergency stop buttons
  - Fire alarm pull stations

- Control panel to provide access and/or to indicate:

  - Engine start/stop
  - Common engine warnings
  - Fuel Btu value
  - Engine lead control
  - Engine vitals

- Local gauges, including:
  - Engine – jacket water in/out, auxiliary in/out temperature, oil day tank levels, turbo bypass, and differential pressure
  - Compressor – compressed air pressure, inlet pressure, outlet pressure, outlet temperature, oil pressure, oil temperature, and oil level

- Basic electrical features include the following:
  - 480 V, 3 phase service into building
  - Motor control center
  - Main breaker panels
  - Ventilation control panel
  - Switch gear to transfer generated power to utility
  - Multiple transformer switches

4. GENERAL SAFETY PRECAUTIONS

LFG can collect in manholes, valve boxes, electric panel boxes, the condensate management system, and above- or below-grade enclosures on or near the landfill or LFG system components. The LFG conveyance pipe probably may contain LFG whether or not the blowers are operating.

LFG migration and accumulation can create a hazard, because methane present in LFG is flammable. Methane is a colorless, odorless gas that is explosive at concentrations between 5 and 15 percent by volume in air and when in the presence of a source of ignition.

Because methane is flammable, the guiding criteria when working in areas where the presence of LFG is suspected is to exercise caution, use methane detection instrumentation, and avoid producing a spark in these areas. Smoking should not be permitted while working on or within 25 feet of any LFG system component. Personnel should use intrinsically safe flashlights or mirrors, never matches or lighters, to assist in visual inspection. When repairing GCCS components, the operator should isolate the repair area from LFG by closing appropriate valves, plugging the pipes, and/or shutting down portions of the system.

Hydrogen sulfide is present in the LFG. Hydrogen sulfide concentrations have distinct characteristics that will alert site personnel to its presence before concentrations reach harmful levels. Indicators of hydrogen sulfide include rotten egg smell, mild eye irritation, and/or mild difficulty in breathing. Smell should not be used solely as olfactory senses may become desensitized. In the event that the presence of hydrogen sulfide is suspected, a hydrogen sulfide meter should be used to monitor concentrations of this gas. The OSHA Permissible Exposure Limit (PEL) for hydrogen sulfide is 10 ppm/8 hour day (time weighted average), and a short-term exposure limit (STEL) of 15 ppm for 15-minutes.

5. SYSTEM OPERATION

5.1 Blower/Flare Stations

Normal startup and operation of the blower/flare stations are automated. Automatic startup is accomplished by turning the CONTROL MODE and BLOWER #1 selector switches to AUTO on the inside panel of the control enclosure, and turning the MASTER selector switch to ON on the front panel of the control enclosure. The full logic sequence, including permissive conditions for each sequence step, is described in the LFG Specialties O&M Manuals.

Manual operation of the Blower/Flare Station is available. However, THE BLOWER AND FLARE SHOULD NOT BE LEFT OPERATING UNATTENDED IN MANUAL MODE, AS ALL SYSTEM SAFETY SHUTDOWNS ARE BYPASSED.

The E-STOP button can be depressed at any time to shut down the blower and flare.

Valves at the Blower/Flare Station should be 100 percent open to achieve the maximum rated capacity of the blower and flare. If LFG recovery is less than the maximum rated capacity, then the blower inlet valve may be throttled to reduce the vacuum applied to the LFG collection system, and thereby allow better throttling capabilities at each wellhead.

The gas quality, temperature, and static pressure at the blower inlet should be within the specified ranges listed in Table 1 below. If a value is outside the specified range, monitoring within the LFG collection system should be undertaken as described in Section 6 to locate the potential problem. Additionally, if the methane content and/or static pressure differ from the previous reading by more than 20 percent, then monitoring within the LFG collection system should be undertaken.

The differential pressure across the demister and the flame arrestor should be less than 5 in-w.c. If exceeded, the system should be taken off-line to clean the demister and/or the flame arrestor.

Liquid should not be observed in the moisture trap sight glass. If observed, the condensate drain pipe should be checked for a possible blockage.

5.2 LFG Collection System

Valve adjustments at the collection points are necessary to extract the maximum amount of LFG while maintaining good gas quality and minimizing air infiltration. Due to the complex nature of LFG generation, ongoing adjustments may be needed to maximize the collection system's effectiveness.

Each collector should be adjusted to the maximum flow rate possible while maintaining the gas quality, temperature, and static pressure within the specified target ranges listed in Table 1. Wells with parameters that cannot be maintained within the acceptable ranges, despite repeated adjustment, shall be further analyzed for possible operation outside of the ranges listed, as allowed by 40 CFR Part 60 Subpart WWW.

TABLE 1

ADJUSTMENT PARAMETERS FOR COLLECTION POINTS

Parameter	Acceptable Range	Target Range
Temperature	< 130°F	<= 130°F
Static Pressure	<= 0-in-w.c.	<= 0-in-w.c.
Methane	> 35% vol.	>= 50% vol.
Oxygen	< 5% vol.	< 2.5% vol.
Balance Gas (Nitrogen)	< 20% vol.	<= 10% vol.

5.3 Landfill Gas to Energy Facility

The LFGTE facility should be operated in accordance with the manufacturer's recommendations and as specified in the operating documents located at the facility.

6. MONITORING

This Section discusses monitoring requirements for the components of the GCCS. Monitoring is necessary to verify that the GCCS is operating effectively.

A meter capable of monitoring methane, oxygen, and carbon dioxide concentration as percent by volume is required to provide necessary operational data. The Landtec GEM-5000 is required to be used for this application. The data collection personnel should become familiar with the operation of the monitoring equipment. A calibration and maintenance schedule for the gas monitoring equipment should be followed so that collected data is as accurate as possible. The gas monitoring equipment should be calibrated with known concentrations of calibration gas prior to beginning each monitoring round. Routine cleaning and maintenance of field monitoring equipment should be performed at the factory as recommended by the manufacturer. Calibration checks, and zero and span adjustments should be recorded.

Landfill personnel should routinely monitor for odors on a daily basis during operations. If odors are detected, then the GCCS should be inspected and monitored as described below for proper operation.

Monitoring data should be recorded on a data form and/or stored in memory on the meter and subsequently downloaded (see Appendix B for a sample of the data recorded and stored by the meter).

6.1 Blower/flare Stations

The Blower/Flare Stations should be monitored once each workday when they operate. Monitoring should include visual inspection of the pipe and station components. Required repairs should be noted. Records of the time, length, and reason for not operating should be kept.

The following parameters should be measured and recorded weekly on the *Blower/Flare Station Monitoring Data Form* (see Appendix B for monitoring forms with sample data). The information may be gathered at the individual components, or at the station control panel.

- General:
    - Date and Time
    - Weather conditions and barometric pressure
    - Monitoring personnel
- Header line inlet:
    - Inlet vacuum Gas quality (methane, carbon dioxide, oxygen, and balance gas; see Table 1 in Section 5 for operating ranges)
    - Sight glass level on the condensate knockout (no liquid should be present)
    - Demister pressure differential
- Blower:
    - Blower status and amperage Total operating hours
    - Blower inlet vacuum
    - Blower outlet pressure
    - Blower bearing temperatures (to be supplied by blower manufacturer)
    - Inlet and outlet gas temperatures
    - Inlet valve position
- Flare:
    - Flare and pilot status
    - Stack temperature
    - Gas flow rate and quality Pressure differential across flame arrestor

6.2 LFG Collection Systems

The collection systems should be monitored and adjusted at least once each month to verify that the collection devices are operating properly to control odors while minimizing air infiltration into the landfill. All wells are required to be monitored at least monthly while some wells require more frequent monitoring. New collectors will initially be monitored on a weekly basis for a minimum of 90-days. At the discretion of the LFG Technician, these collectors will be read bi-weekly for a period of time until transitioning to monthly monitoring. Monitoring should be performed using a properly calibrated and maintained GEM-5000 Infrared LFG Analyzer. Monitoring and maintenance of the collection system should include the following tasks:

1. Observe the condition of above ground pipe, including conveyance pipe and branches, wellheads, and flexible connections. Note repairs needed, such as loose fitting, cracked, worn, or damaged pipe.
2. Observe the condition of the various wellhead components, including monitoring ports, valves, dust caps, and thermometers. Note repairs needed.
3. Immediately repair damaged pipe or wellhead components that are needed to collect monitoring information from the monitoring point. Repairs could include such items as replacement of monitoring ports or thermometers, or repair of damaged pipe. Record repairs made.
4. Observe the condition of the area surrounding the monitoring point. Note the occurrence of settlement, ponded water, cracking or erosion of the surface cover, or distressed vegetation.
5. Collect the following information from each monitoring point:
    - Gas quality, including methane, carbon dioxide, oxygen and balance gas (nitrogen)
    - Wellhead static pressure (inches of water column)
    - System pressure (inches of water column) and/or gas flow rate (SCFM) (if possible)
    - Gas temperature

Collection Point Adjustments

Please refer to Section 5 for guidance on operation and adjustment at each collection point.

6.3 Recording Data

Instructions applicable to the data forms are itemized below:

1. Fill in the appropriate "blanks" on the data form being used. Omitting information could affect analysis of the data, should troubleshooting be required.
2. Record general observations and/or significant occurrences that could affect system operation on the data forms. Such observations include work on the LFG system, power outages, malfunctions, modifications or repairs to the system, heavy precipitation, or incidences that could cause changes in the system operation.
3. Record and include calibration checks and zero and span adjustments conducted on monitoring equipment with the data monitoring sheets.
4. If the data storage capabilities of the GEM-5000 are used, download the internally stored data. All data from the GEM 5000 are downloaded to Landfill Gas Management System (LGMS) including collector readings, calibrations, permanent probe and manhole readings. All major system maintenance activities including but not limited to well raising, fixing leaks, orifice plate changes can also be recorded in LGMS.

5. Immediately report conditions that require attention (such as significant changes in the gas composition, system damage, etc.) to the Gas Operations Manager, Operations Manager or District Engineer.
6. Forward data to the District Engineer who should review and analyze the data to make recommendations for system adjustments. Data will be sent to the Maine Department of Environmental Protection (MDEP) upon receipt.

WMDSM should maintain legible copies of completed data forms for reference.

6.4 Landfill Gas to Energy Facility

The LFGTE facility should be monitored once each workday. Monitoring should include visual inspection of the pipe and station components. Required repairs should be noted. Records of the time, length, and reason for any downtime should be kept.

WMDSM maintains an inventory of parts on-site or has the ability to obtain parts within a short period of time for repairs. In the event of a major malfunction of the engine/compressor stations that would render the engines non-operational for an extended period of time, the flares may be used to control LFG emissions and odors.

The following parameters should be measured and recorded weekly on the Crossroads Gas Recovery Log (see Appendix B for monitoring forms). The log will be uploaded to LGMS and submitted to the MDEP on a weekly basis.

- Gas Recovery Logs
- Weekly Operating Report
- Monthly Operating Report

The information may be gathered at the individual components, or at the station control panel. Expected operating ranges are given in parentheses. If operating values are outside of the given range, actions identified in Section 5 should be undertaken or troubleshooting should be initiated.

- General:
  - Date and Time
  - Weather conditions and barometric pressure
  - Monitoring personnel
- Header line inlet:
  - Inlet vacuum
  - Gas quality (methane, carbon dioxide, oxygen, and balance gas)
  - Hydrogen sulfide concentration
  - Plant gas flow
- Compressor Skid:
- Engines:

- Kilowatt hours
- Hours of operation
- Downtime
- Maintenance performed

7. RECORD KEEPING

WMDSM will provide monitoring data electronically to the MDEP. A central logbook is maintained on LGMS. Monitoring data and maintenance records are inserted into the logbook on an on-going basis.

APPENDIX VIB-A

PHASE 11/12 AND PHASE 8/9 LIST OF COLLECTORS

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 11 and 12 LFG COLLECTORS (DECEMBER 2016)

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
PHASE 11 VERTICAL EXTRACTION WELLS			
C11EW001	ABANDONED		
C11EW002	ACTIVE	2001	
C11EW003	ABANDONED		
C11EW004	ABANDONED		
C11EW005	ACTIVE	2001	
C11EW006	ABANDONED		
C11EW007	ACTIVE	2001	
C11EW008	ABANDONED		
C11EW009	ACTIVE	2001	
C11EW010	ABANDONED		
C11EW011	ACTIVE	2001	
C11EW012	ACTIVE	2001	
C11EW013	ABANDONED		
C11EW014	ABANDONED		
PHASE 11 HORIZONTAL COLLECTORS			
C11HC001	INACTIVE		
C11HC006	INACTIVE		
C11HC007	ACTIVE	2001	
C11HC008	INACTIVE		
C11HC009	INACTIVE		
C11HC010	INACTIVE		
C11HC011	INACTIVE		
C11HC012	INACTIVE		
C11HC013	INACTIVE		
C11HC014	INACTIVE		
C11HC015	ACTIVE	2001	
C11HC016	INACTIVE		
C11HC017	ACTIVE	2001	
C11HC019	ACTIVE	2001	
C11HC020	ABANDONED		
PHASE 11 SURFACE WATER COLLECTORS			
C11SW001	ACTIVE	2001	
C11SW002	ACTIVE	2001	
C11SW003	ACTIVE	2001	
C11SW004	INACTIVE		
C11SW005	INACTIVE		
C11SW006	ACTIVE	2001	
C11SW007	INACTIVE		

C11SW008	ACTIVE	2001	
C11SW009	ACTIVE	2001	
C11SW010	ACTIVE	2001	
PHASE 12 VERTICAL EXTRACTION WELLS			
EW-12A	ACTIVE	2004	
EW-12B	ABANDONED	2004	during 2016 cap construction
EW-12C	ABANDONED	2004	during 2016 cap construction
EW-12D	ABANDONED	2004	during 2016 cap construction
EW-12E	ABANDONED	2004	during 2016 cap construction
EW-12F	ACTIVE	2004	
EW-12G	ABANDONED	2004	during 2016 cap construction
EW-12H	ABANDONED	2004	during 2016 cap construction
EW-12I	ACTIVE	2004	
EW-12J	ABANDONED	2004	during 2016 cap construction
EW-12K	ACTIVE	2004	
EW-12L	ABANDONED	2004	during 2016 cap construction
PHASE 12 HORIZONTAL COLLECTORS			
HC-121	ACTIVE	2004	
PHASE 12 SURFACE WATER COLLECTORS			
SW-122	ABANDONED	2004	during 2016 cap construction
SW-123	ABANDONED	2004	during 2016 cap construction
SW-124	ABANDONED	2004	during 2016 cap construction
SW-125	ABANDONED	2004	during 2016 cap construction
PHASE 12 PASSIVE VENTS			
PV-12-01	CAPPED	2016	capped while actively collecting
PV-12-02	CAPPED	2016	capped while actively collecting
PV-12-03	CAPPED	2016	capped while actively collecting

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8 LFG COLLECTORS (DECEMBER 2016)

PHASE 8 VERTICAL EXTRACTION WELLS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
EW-801	ACTIVE	2010	
EW-802	ACTIVE	2010	
EW-803	ACTIVE	2010	
EW-804	INACTIVE	2010	per WMDSM conference call in March 2013.
EW-805	ABANDONED	2010	per WMDSM conference call in June 2015.
EW-806	ABANDONED	2010	per WMDSM conference call in June 2015. Re-drilled in 2014.
EW-806R	ACTIVE	2014	
EW-807	ABANDONED	2010	per WMDSM email from D. Files on 4/7/14.
EW-808	ACTIVE	2011	
EW-809	ACTIVE	2011	
EW-810	ABANDONED	2011	re-drilled in 2014.
EW-810R	ACTIVE	2014	
EW-811	ACTIVE	2011	
EW-812	ACTIVE	2011	
EW-813	ACTIVE	2011	
EW-814	ACTIVE	2011	
EW-815	ACTIVE	2011	
EW-816	ACTIVE	2011	
EW-817	ACTIVE	2011	
EW-819	ACTIVE	2013	
EW-820	ACTIVE	2013	
EW-821	ACTIVE	2013	
EW-822	ACTIVE	2013	
EW-823	ACTIVE	2013	
EW-824	ACTIVE	2013	
EW-825	ACTIVE	2014	
EW-826	ACTIVE	2014	
EW-827	ACTIVE	2014	
EW-828	ACTIVE	2014	
EW-829	ACTIVE	2014	
EW-830	ACTIVE	2014	
EW-831	ACTIVE	2014	
EW-832	ACTIVE	2014	
EW-833	ACTIVE	2015	slip casing installed.
EW-834	ACTIVE	2015	
EW-835	ACTIVE	2015	
EW-836	ACTIVE	2015	slip casing installed.
EW-837	ACTIVE	2015	slip casing installed.
EW-838	ACTIVE	2015	
EW-844	ACTIVE	2016	slip casing installed.
EW-845	ACTIVE	2016	slip casing installed.
EW-853	ACTIVE	2016	slip casing installed.
EW-855	ACTIVE	2016	slip casing installed.

DEFINITIONS:

1. ACTIVE: VACUUM APPLIED AND WELLHEAD VALVE OPEN.
2. INACTIVE: WELLHEAD VALVE CLOSED, NO VACUUM APPLIED OR DISCONNECTED FROM RISER.
3. ABANDONED: WELLHEAD REMOVED AND RISER CUT/CAPPED BELOW GRADE.

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8 and 9 LFG COLLECTORS (DECEMBER 2016)

PHASE 8 and 9 HORIZONTAL COLLECTORS			
COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
HC-801	ABANDONED		
HC-801A	ABANDONED		
HC-802	ABANDONED		per WMDSM email from J. Rowbottom on 12/20/12.
HC-803	ABANDONED		
HC-804	ABANDONED		
HC-805	ABANDONED		
HC-806	ABANDONED		
HC-807	ABANDONED		per J. Rowbottom in 2011.
HC-808	ACTIVE		
HC-808S	ACTIVE		
HC-809	ACTIVE		
HC-809S	ACTIVE		
HC-809N	INACTIVE		per WMDSM conference call in March 2013.
HC-810	ABANDONED		per WMDSM email from J. Rowbottom on 12/20/12.
HC-810S	ACTIVE		
HC-812	ABANDONED		
HC-813S	ACTIVE		
HC-814N	ABANDONED		per WMDSM email from J. Rowbottom on 12/20/12.
HC-815S	INACTIVE		per WMDSM conference call in March 2013.
HC-816N	ABANDONED		
HC-816S	ABANDONED		per J. Rowbottom in 2011.
HC-817S	ABANDONED		per J. Rowbottom in 2011.
HC-818	ABANDONED		per WMDSM email from D. Files on 12/15/15.
HC-819	ABANDONED		per WMDSM email from D. Files on 4/7/14.
HC-820	ABANDONED		per WMDSM email from D. Files on 4/7/14.
HC-821	ABANDONED		per D. Files (cut/capped on 11/10/16).
HC-822	ABANDONED		
HC-823	ABANDONED		per J. Rowbottom in 2011.
HC-824	ABANDONED		per J. Rowbottom in 9/23/10.
HC-825	INACTIVE		
HC-826	ACTIVE		
HC-827	ABANDONED		per WMDSM email from D. Files on 4/7/14.
HC-828	ABANDONED		per D. Files (cut/capped on 11/10/16).
HC-829	ACTIVE		
HC-830	ABANDONED		per WMDSM email from D. Files on 4/7/14.
HC-831	ABANDONED		per WMDSM email from D. Files on 4/7/14.
HC-832	INACTIVE		
HC-833	INACTIVE		
HC-834	ABANDONED		per WMDSM (cut/capped on November 2014).
HC-835	ABANDONED		per J. Rowbottom in 2011.
HC-836	ABANDONED		per WMDSM email from D. Files in June 2014.
HC-837	INACTIVE		

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8 and 9 LFG COLLECTORS (DECEMBER 2016)

PHASE 8 and 9 HORIZONTAL COLLECTORS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
HC-838	INACTIVE		
HC-839	ABANDONED	2008	per WMDSM email from D. Files on 4/7/14.
HC-840	ABANDONED	2008	per WMDSM email from D. Files on 4/7/14.
HC-841	ABANDONED	2008	per WMDSM email from D. Files on 4/7/14.
HC-842	ABANDONED	2008	per WMDSM email from D. Files on 4/7/14.
HC-843	ABANDONED	2008	per J. Rowbottom in 2011.
HC-844	ABANDONED	2008	per J. Rowbottom in 2011.
HC-845	ACTIVE	2008	per WMDSM email from J. Rowbottom on 12/20/12.
HC-846	ABANDONED	2008	per J. Rowbottom in 2011.
HC-847	ABANDONED	2008	per J. Rowbottom on 9/23/2010.
HC-848	ACTIVE	2008	
HC-849	ABANDONED	2008	per WMDSM email from D. Files on 12/15/15.
HC-850	ACTIVE	2010	
HC-851	ACTIVE	2010	
HC-853	ACTIVE	2012	converted to leachate recirculation collector in 2012.
HC-854	ACTIVE	2011	
HC-855	ACTIVE	2011	converted to leachate recirculation collector in 2012.
HC-856	ACTIVE	2009	
HC-857	ACTIVE	2009	
HC-858	ACTIVE	2009	
HC-859	ABANDONED	2009	cut/capped in September 2014.
HC-860	ACTIVE	2009	
HC-861	ABANDONED	2009	per WMDSM email from D. Files on 4/7/14.
HC-862	ACTIVE	2009	
HC-863	ACTIVE	2010	
HC-865	ACTIVE	2012	converted to leachate recirculation collector in 2012.
HC-866	ACTIVE	2012	
HC-873 (old HC-867)	ACTIVE	2012	
HC-867	INACTIVE	2013	
HC-868	ACTIVE	2013	
HC-869	INACTIVE	2013	
HC-870	ACTIVE	2013	
HC-871	ACTIVE	2013	
HC-872	ACTIVE	2013	
HC-874	ACTIVE	2014	
HC-875	ACTIVE	2014	
HC-878	ACTIVE	2015	
HC-876	ACTIVE	2016	
HC-877	ACTIVE	2016	
HC-901	ABANDONED		per J. Rowbottom in 2011.
HC-902	ABANDONED		per J. Rowbottom in 2011.
HC-903	ABANDONED		abandoned in 2014
HC-904	ABANDONED		abandoned in 2014
HC-905	ABANDONED		abandoned in 2014
HC-906	ABANDONED		per J. Rowbottom in 2011.
HC-907	ABANDONED		
HC-908	ABANDONED		abandoned in 2014

DEFINITIONS:

1. ACTIVE: VACUUM APPLIED AND WELLHEAD VALVE OPEN.
2. INACTIVE: WELLHEAD VALVE CLOSED, NO VACUUM APPLIED OR DISCONNECTED FROM RISER.
3. ABANDONED: WELLHEAD REMOVED AND RISER CUT/CAPPED BELOW GRADE.

CROSSROADS LANDFILL-NORRIDGEWOCK, ME
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8, 9 and 10 LFG COLLECTORS (DECEMBER 2016)

PHASE 8 and 10 SURFACE COLLECTORS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
SC-801	ABANDONED		per J. Rowbottom in 2011.
SC-802	ABANDONED		per J. Rowbottom in 2011.
SC-804	ABANDONED		per J. Rowbottom in 2011.
SC-805	ABANDONED		per J. Rowbottom in 2011.
SC-804	ACTIVE	2012	
SC-805	ACTIVE	2012	
SC-806N	ABANDONED		per J. Rowbottom in 2011.
SC-806S	ABANDONED		per J. Rowbottom in 2011.
SC-807N	ACTIVE		
SC-807S	ACTIVE		
SC-808	ABANDONED		per WMDSM email from J. Rowbottom on 12/20/12.
SC-809	ACTIVE		
SC-810	ACTIVE	2011	
SC-811	INACTIVE	2013	
SC-812	ACTIVE	2014	beneath Phase 8 final cap.
SC-813	ACTIVE	2014	beneath Phase 8 final cap.
SC-814	ACTIVE	2014	installed by WMDSM.
SC-1001	ACTIVE	2016	beneath Phase 10 final cap.

PHASE 8 and 9 LEACHATE CLEANOUT COLLECTORS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
LC-801	ACTIVE		
LC-802	ACTIVE	2013	
LC-803	ACTIVE		
LC-804	ACTIVE		
LC-807	ACTIVE	2015	
LC-808	ACTIVE	2012	
LC-809	ACTIVE	2012	
LC-901	ABANDONED		

PHASE 8 and 9 SURFACE WATER COLLECTORS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
SW-801	ABANDONED		per J. Rowbottom in 2011.
SW-802	ABANDONED		
SW-803	ABANDONED		
SW-805	ACTIVE	2012	
SW-806	ACTIVE	2015	
SW-901	ABANDONED		per J. Rowbottom in 2011.
SW-902	ABANDONED		abandoned in 2014.
SW-903	ACTIVE		
SW-904	INACTIVE		per WMDSM conference call in March 2013.
SW-905	ABANDONED		abandoned in 2014.
SW-906	ABANDONED		abandoned in 2014.
SW-907	ABANDONED		abandoned in 2014.
SW-908	ABANDONED		abandoned in 2014.

CROSSROADS LANDFILL-NORRIDGEWOCK, ME
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8, 9 and 10 LFG COLLECTORS (DECEMBER 2016)

PHASE 8 and 9 TOE COLLECTORS

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
TC-801	ABANDONED		per J. Rowbottom in 2011.
TC-901	ABANDONED		per J. Rowbottom in 2011.
TC-902	ABANDONED		cut and capped in 2014.
TC-903	ABANDONED		cut and capped in 2014.
TC-904	ABANDONED		cut and capped in 2014.
TC-905	ABANDONED		cut and capped in 2014.
TC-906	ACTIVE	2015	
TC-907	ABANDONED		
TC-908	ACTIVE	2016	installed by WMDSM.

PHASE 8 MISCELLENOUS COLLECTOR

COLLECTOR ID	STATUS	INSTALLATION DATE	NOTES
UD-801	ACTIVE		

DEFINITIONS:

1. ACTIVE: VACUUM APPLIED AND WELLHEAD VALVE OPEN.
2. INACTIVE: WELLHEAD VALVE CLOSED, NO VACUUM APPLIED OR DISCONNECTED FROM RISER.
3. ABANDONED: WELLHEAD REMOVED AND RISER CUT/CAPPED BELOW GRADE.

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL

LIST OF PHASE 8 and 9 LFG VALVES/MONITORING PORTS (DECEMBER 2016)

PHASE 8 and 9 VALVES AND MONITORING POINTS

V-801	ACTIVE		on 18-inch header (MP-802).
V-802	REMOVED		per WMDSM email from J. Rowbottom on 12/20/12.
V-803	ACTIVE		on 14-inch header (MP-803).
V-804	REMOVED		
V-805	ACTIVE		on 12-inch header.
V-806	ABANDONED		
V-807	REMOVED		
V-808	ACTIVE		header capped north of valve.
V-809	ACTIVE	2011	on 12-inch header below final cap.
V-810	ACTIVE		on 12-inch header above final cap (MP-806).
V-811	ACTIVE		on 14-inch header above final cap (MP-807).
V-812	ACTIVE	2012	on 12-inch bypass header (MP-808).
V-813	ACTIVE	2012	on 14-inch header (MP-809).
V-814	ACTIVE	2013	on 2013 10-inch header (MP-814).
V-815	ACTIVE	2013	on 2013 14-inch header (MP-815).
V-816	ACTIVE	2014	on 2014 8-inch header (MP-816).
V-817	ACTIVE	2015	on 2015 10-inch header (MP-817).
V-901	ABANDONED		
V-902		2014	relocated from 2011 12-inch header to above final cap 2014 12-inch header (MP-901).
MP-801(4)	ABANDONED		
MP-802(4)	ACTIVE		on 18-inch header (V-801).
MP-803(4)	ACTIVE		on 14-inch header (V-803).
MP-804(4)	REMOVED	2012	per WMDSM email from J. Rowbottom on 12/20/12.
MP-805	ACTIVE		
MP-806	ACTIVE		on 12-inch header above final cap (V-810).
MP-807	ACTIVE		on 14-inch header above final cap (V-811).
MP-808	ACTIVE	2012	on 12-inch bypass header (V-812).
MP-809	ACTIVE	2012	on 14-inch header above final cap (V-813).
MP-814	ACTIVE	2013	on 10-inch header (V-814).
MP-815	ACTIVE	2013	on 14-inch header (V-815).
MP-816	ACTIVE	2014	on 8-inch header (V-816).
MP-817	ACTIVE	2015	on 10-inch header (V-817).
MP-901	ACTIVE	2014	Relocated from 2011 12-inch header to above final cap 2014 12-inch header (V-902).

DEFINITIONS:

1. ACTIVE: VACUUM APPLIED AND WELLHEAD VALVE OPEN.
2. INACTIVE: WELLHEAD VALVE CLOSED, NO VACUUM APPLIED OR DISCONNECTED FROM RISER.
3. ABANDONED: WELLHEAD REMOVED AND RISER CUT/CAPPED BELOW GRADE.
4. LOCATION OF MONITORING PORTS PROVIDED BY WMDSM VIA E-MAIL DATED 2/24/2011.

APPENDIX VIB-B

BLOWER/FLARE STATION, LFGTE FACILITY AND EXTRACTION SYSTEM MONITORING DATA FORMS

Greenhouse Gas Reporting - Monthly LFG Volume Record Form

Rev. 5/12/2014

Site Name:	Crossroads	**Site Number:**	2128

Total LFG Volume											Operating Period	
				Measurement Period Start			Measurement Period End					
Measurement Location	Measurement Location Description	Flow Meter Description	Flow Meter Serial No.	Measurement Period Start Date	Measurement Period Start Time	Totalizer Reading At Measurement Period Start (MSCF)	Measurement Period End Date	Measurement Period End Time	Totalizer Reading At Measurement Period End (MSCF)	Total Volume Consumed During Period (MSCF)	LFG Flowing Hours	Complete GCCS Outage Hours
1	Engine Plant	Orifice Plate	23317150	11/3/2016	12:00AM	0.0	12/1/2016	12:00AM	34,564.0	34,564.0	684.4	
2	Phase 8/9 Flare	Thermal Instruments 62-9	98216	11/3/2016	12:00 AM	278.7	12/1/2016	12:00AM	278.7	0.0	0.0	
3	Phase 11/12 Flare	Thermal Instruments 62-9	2007414	11/3/2016	12:00AM	569.4	12/1/2016	12:00AM	569.4	0.0	0.0	
4										0.0		
5										0.0		
6										0.0		
7										0.0		
8										0.0		
9										0.0		
10										0.0		

Comments:

8/9 Flare did not run 11/12 Flare did run

Monitoring Performed By:

Name:	Darren Files	Telephone:	207.634.2714
Title:	Landfill Gas Technician	Contact Email:	dfiles@wm.com
Signature:		Date:	12/2/16

Greenhouse Gas Reporting - Monthly LFG Composition Record Form

Rev. 5/12/2014

Site Name:	Crossroads	Site Number:	2128

Field Calibration - Gas Composition Meter

Meter Information				Field Calibration		
Manufacturer	Model No.	Serial No.	Date of Most Recent Factory Calibration	Field Calibration Date	Field Calibration Time	Performed By
Landtec	GEM-5000	G503094	6/3/2016	12/1/2016	7:47 AM	Darren Files

Calibration Gas

Zero Gas Composition				Manufactured By:	Manufacture Date:	Expiration Date:	Lot/ID Number	Comments
CH4 (%)	CO2 (%)	N2 (%)	O2 (%)					
0.0 (Fresh Air)	0.0 (Fresh Air)	79.1 (Fresh Air)	0.0 (CH4/CO2/N2 Span Gas)	Fresh Air	NA	NA	NA	Span gas used as zero gas for O2 sensor.
Span Gas Composition				**Manufactured By:**	**Manufacture Date:**	**Expiration Date:**	**Lot/ID Number**	**Comments**
CH4 (%)	CO2 (%)	N2 (%)	O2 (%)					
50.0	35.0	15.0	20.9 (Fresh Air)	Landtec	NA	6/1/2018	1819700	Fresh air used as span gas for O2 sensor.

Check Reading After Calibration

Fresh Air Reading			Calibration Gas Reading		
CH4 (%)	CO2 (%)	O2 (%)	CH4 (%)	CO2 (%)	O2 (%)
0.0	0.0	20.9	49.6	35.0	0.0

GHG Measurement Location - LFG Composition

Measurement Location	Measurement Location Description	LGMS Sample Port ID	Measurement Date	Measurement Time	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	LFG Pressure @ Flowmeter (" H_2O)	LFG Temperature @ Flowmeter (°F)	LFG Flow Rate (SCFM)
1	Engine Plant	CPLANT01	12/1/2016	7:56 AM	54.4	36.6	0.1	8.8	91.4	99	884
2	8/9 Flare	C09FL001									
3	11/12 Flare	C11FL001									
4											
5											
6											
7											
8											
9											
10											

Comments:

11/12 Flare did not run 8/9 Flare did not run

Monitoring Performed By:

Name:	Darren Files	Telephone:	207.634.2714
Title:	Landfill Gas Technician	Contact Email:	dfiles@wm.com
Signature:		Date:	December 2, 2016

Convert WMDSM GEMS Data Files into MEDEP EDD Format

Instructions: Copy raw data from GEMS unit on the Raw Data worksheet. Then fill in the fields in yellow on the Format worksheet. Click Build and the EDD File will be built on the EDDFormat worksheet. The workbook can then be submitted to MEDEP staff.
(Do not insert rows, columns or make any other formatting changes to the Format page.)

Parameters are in row #: 5
Data Starts in row #: 6

	Column	Units
Well:	1	
Date/Time:	2	
CH4:	3	%
CO2:	4	%
O2:	5	%
Bal:	6	%
Impact/Diff Pressure:	7	In H2O
Temp	8	DEG F
Static Pressure:	9	In H2O
REF SCFM Flow:	10	SCFM
Adjusted SCFM Flow:	11	SCFM
H2S	13	PPM
Comments:	12	

Build

Week of:

Well	Date/Time	CH4	CO2	Oxygen Gas	Bal	Impact	Temp	Static	REF Flow	ADJ Flow	Comments
C08EW001	11/28/2016 15:26	48	35.7	0	16.3	0.85	67.3	-0.14	3	3	No Adj. Made
C08EW003	11/28/2016 15:37	44.8	32.1	0	23.1	0	51	-0.19	1.2	0	Fully Closed;Dec. Flow/Vac.
C08EW008	11/30/2016 13:41	50.7	31.7	0	17.6	2.83	69.3	-1.47	3.5	3.6	No Adj. Made
C08EW009	11/30/2016 13:49	53.3	35	0	11.7	0.36	94.1	-0.56	7.8	8.1	No Adj. Made
C08EW011	11/30/2016 14:15	52.9	34.8	0	12.3	2.88	88.7	-3.77	5.5	5.5	No Adj. Made
C08EW012	11/30/2016 14:19	58.9	22.3	0	18.8	3.5	79.3	-1.24	0	6.5	No Adj. Made
C08EW013	11/30/2016 14:22	49.4	29.7	0	20.9	1.94	116.9	-10.2	37.6	30.6	Dec. Flow/Vac.
C08EW013	12/1/2016 13:52	50.4	30	0.1	19.5	1.48	116.9	-8.38	32.8	26.9	Dec. Flow/Vac.
C08EW014	11/30/2016 14:30	48.5	30.7	0	20.8	2.21	106.8	-2.23	15.4	10.8	Dec. Flow/Vac.
C08EW014	12/1/2016 13:56	48.2	30.6	0	21.2	0	106.6	-0.02	11.2	0	Fully Closed;Dec. Flow/Vac.
C08EW016	11/30/2016 14:03	46.5	36.6	0	16.9	0.06	59.3	-1.75	0.8	0.8	No Adj. Made
C08EW017	11/30/2016 14:54	61.9	38.2	0	-0.1	1.08	46	-25.1	2.3	2.2	Fully Open;No Adj. Made
C08EW019	11/28/2016 14:37	50.2	34.9	0.2	14.7	1.64	112.9	-16.8	73.6	73.6	No Adj. Made
C08EW020	11/28/2016 14:41	58.4	41.6	0	0	0.28	57.6	-0.02	0.1	1.8	Inc. Flow/Vac.
C08EW021	11/28/2016 14:44	48.8	35.5	0	15.7	2.03	111.7	-1.22	18.7	18.7	No Adj. Made
C08EW022	11/28/2016 14:57	48.5	33	0	18.5	0.87	81	-0.65	3.4	3	Dec. Flow/Vac.
C08EW023	11/28/2016 14:54	36.6	28.9	0	34.5	-0.06	47.8	-0.02	0.4	0	Fully Closed;Dec. Flow/Vac.
C08EW024	11/28/2016 14:49	46.4	35.1	0	18.5	0.02	100	-1.66	6.5	2.7	Dec. Flow/Vac.
C08EW025	11/30/2016 9:55	58	39.1	0	2.9	0.92	112.3	-23.8	25.9	27.9	Fully Open;No Adj. Made
C08EW027	11/30/2016 14:46	55.3	44.7	0	0	6.72	70.9	-0.73	15	19.1	Inc. Flow/Vac.
C08EW029	11/30/2016 14:01	48.8	37	0	14.2	1.22	109.1	-4.02	23.6	24.2	No Adj. Made
C08EW030	11/30/2016 14:12	46.4	36	0	17.6	1.27	107.6	-5.04	36.2	33.1	Dec. Flow/Vac.
C08EW031	11/30/2016 14:33	1.3	1.1	21.4	76.2	0	49.5	-0.04	0	0	Fully Closed;No Adj. Made
C08EW034	11/30/2016 10:07	58.6	41.4	0	0	0.6	74.8	-4.06	1.8	10.3	Inc. Flow/Vac.
C08EW035	11/30/2016 9:58	56.3	40.2	0	3.5	0.36	113.6	-21.7	12.9	12.9	Fully Open;No Adj. Made
C08EW036	11/30/2016 9:46	58.3	41.7	0	0	0.73	58.5	0.06	3.7	6.5	Inc. Flow/Vac.
C08EW037	11/30/2016 10:11	56.5	43.5	0	0	2.39	87.8	-0.06	12.8	20.4	Inc. Flow/Vac.
C08EW038	11/30/2016 10:25	57.9	42.1	0	0	7.87	87.1	-0.55	14.5	20.6	Inc. Flow/Vac.
C08EW06R	11/30/2016 14:37	47.4	32.7	0	19.9	0.11	91.4	-1.3	2.4	2.5	Dec. Flow/Vac.

Well	Date/Time	CH4	CO2	Oxygen Gas	Bal	Impact	Temp	Static	REF Flow	ADJ Flow	Comments
C08HC026	11/30/2016 14:44	1.3	0.9	21.4	76.4	0	41.6	-16.6	0	0	Fully Closed;No Adj. Made
C08HC029	11/30/2016 14:40	40.5	28.8	2	28.7	-0.01	47.7	-0.02	0.2	0	Fully Closed;No Adj. Made
C08HC045	11/28/2016 15:00	56.1	33.7	0	10.2	0.02	41.9	0.05	0.5	0.5	No Adj. Made
C08HC048	11/30/2016 14:52	65.4	34.2	0.4	0	0.38	43.5	-26.6	1.2	1.3	Fully Open;No Adj. Made
C08HC050	11/30/2016 13:46	39.4	22.7	3.5	34.4	0	49.4	0.01	0.8	0	Fully Closed;Dec. Flow/Vac.
C08HC051	11/28/2016 15:24	46.1	32.6	0	21.3	0.34	68.3	-0.91	23.9	18.1	Dec. Flow/Vac.
C08HC051	12/1/2016 14:14	50	33.9	0	16.1	0.32	69.1	-0.39	15.7	17.6	No Adj. Made
C08HC053	11/28/2016 15:16	44.8	25.9	0	29.3	1.15	62.6	-0.49	30.1	15	Dec. Flow/Vac.
C08HC053	12/1/2016 14:10	51.9	26.3	0	21.8	-0.01	61.2	0.03	10.7	0	Fully Closed;Dec. Flow/Vac.
C08HC054	11/28/2016 15:09	51	34.1	0	14.9	0.01	45	0.02	0	0.2	Barely Open;Inc. Flow/Vac.
C08HC055	11/28/2016 15:06	30.5	24.7	0.6	44.2	-0.02	45.9	-0.01	0	0	No Adj. Made
C08HC056	11/30/2016 13:53	59.8	40.2	0	0	0.22	41.1	-25.7	1	1	Fully Open;No Adj. Made
C08HC057	11/30/2016 13:55	58.8	41.2	0	0	0.31	95.6	-24.8	4.4	3.9	Fully Open;No Adj. Made
C08HC058	11/30/2016 13:58	55	37.9	0	7.1	0.15	90.3	0.07	2.8	2.8	No Adj. Made
C08HC062	11/30/2016 14:08	60.5	39.6	0	-0.1	1.26	45.3	-0.43	0.6	0.6	No Adj. Made
C08HC063	11/30/2016 14:05	60.4	39.3	0.3	0	4.74	69.2	-11.3	4.4	4.5	Fully Open;No Adj. Made
C08HC065	11/28/2016 15:21	47.3	32.9	0.1	19.7	2.13	68.5	-0.05	6.5	4.8	Dec. Flow/Vac.
C08HC068	11/30/2016 10:01	60	40.1	0	-0.1	2.92	93.5	-20.6	5.3	5.4	Fully Open;No Adj. Made
C08HC073	11/30/2016 14:09	49.7	36.2	0	14.1	0.68	99.8	-1.1	10.7	10.9	Fully Open;No Adj. Made
C08HC078	11/30/2016 10:22	54	42.1	0	3.9	7.88	119.7	-9.92	79.8	81	Inc. Flow/Vac.
C08HC08S	11/28/2016 15:33	61.4	36.2	0	2.4	7.38	79.8	-16.8	5.5	5.6	Fully Open;No Adj. Made
C08HC09S	11/28/2016 15:30	53.3	33.2	0	13.5	8.55	90.4	-13.7	23	21.4	Fully Open;No Adj. Made
C08HC70E	11/28/2016 14:51	48.8	35.6	0	15.6	0.03	73.2	-0.28	1.2	1.2	No Adj. Made
C08LC002	11/30/2016 10:35	52.7	32.7	0	14.6	0.85	82.7	-2.14	55.9	56.3	No Adj. Made
C08LC007	11/30/2016 10:39	53.9	38	0	8.1	1.88	63.9	-0.78	29.7	31.6	Inc. Flow/Vac.
C08SC004	11/28/2016 15:03	40.4	23.9	1.8	33.9	0	43.3	0	0.3	0	Fully Closed;No Adj. Made

Well	Date/Time	CH4	CO2	Oxygen Gas	Bal	Impact	Temp	Static	REF Flow	ADJ Flow	Comments
C08SC005	11/28/2016 15:18	11.6	17.6	0	70.8	-0.01	46.3	-0.1	0.9	0	Fully Closed;Dec. Flow/Vac.
C08SC013	11/30/2016 14:28	36.1	22.7	0.6	40.6	0	49.3	0	0.1	0	Fully Closed;No Adj. Made
C08SC07N	11/28/2016 15:11	46.5	31	0	22.5	-0.01	44.7	-3.03	7	0	Fully Closed;Dec. Flow/Vac.
C08UD001	11/30/2016 10:33	53.1	40.1	0	6.8	1.55	45.2	-0.27	1	2.6	Inc. Flow/Vac.
C11EW002	11/30/2016 12:15	63.5	36	0.1	0.4	0.12	41.6	0.07	0.1	1.2	Inc. Flow/Vac.
C11EW005	11/30/2016 12:34	43.4	25.8	0	30.8	-0.01	42.1	0.02	1.2	0	Fully Closed;Dec. Flow/Vac.
C11EW007	11/30/2016 12:39	53.1	31.7	0	15.2	0.04	48.8	-0.07	1.4	1.5	No Adj. Made
C11EW009	11/30/2016 12:48	65.5	33	0	1.5	0.44	40.2	-0.04	0.3	1.5	Inc. Flow/Vac.
C11EW011	11/30/2016 12:52	51.2	31.6	0	17.2	0.08	88.5	-2.37	0	6.3	No Adj. Made
C11EW012	11/30/2016 12:21	1.1	9.3	19.3	70.3	-0.03	40.6	0.22	0	0	Fully Closed;No Adj. Made
C11HC007	11/30/2016 12:09	27.5	20.6	0.6	51.3	0	49.5	0	0	0	Fully Closed;No Adj. Made
C11HC015	11/30/2016 12:18	45.6	29.6	0	24.8	0	41	0.07	0	0	Fully Closed;No Adj. Made
C11HC017	11/30/2016 12:28	48	30.2	0	21.8	0	46.1	-0.01	0	0	Fully Closed;No Adj. Made
C11HC019	11/30/2016 12:56	49.2	26.5	0	24.3	0	46.4	-0.01	0.4	0	Fully Closed;Dec. Flow/Vac.
C11SW001	11/30/2016 12:12	54.5	19.4	0	26.1	-0.01	41.6	0.26	0	0	Fully Closed;No Adj. Made
C11SW002	11/30/2016 12:24	49.4	31.8	0	18.8	1.25	49.5	-0.03	3.7	3.8	No Adj. Made
C11SW003	11/30/2016 12:30	33.9	24.6	0	41.5	-0.02	41	0.06	0	0	Fully Closed;No Adj. Made
C11SW006	11/30/2016 12:46	56.9	20.7	0	22.4	0	40	0.2	0	0	Fully Closed;No Adj. Made
C11SW008	11/30/2016 12:37	66.1	33.9	0	0	0.14	41.2	0.1	0	3	Inc. Flow/Vac.
C11SW009	11/30/2016 13:05	58.1	28.5	0.2	13.2	0.02	44.6	-0.03	1.1	1.2	No Adj. Made
C11SW010	11/30/2016 12:41	56.6	29.3	0	14.1	0.05	41.8	-0.06	0.5	0.5	No Adj. Made
C12EW12A	11/30/2016 10:49	51.4	13.9	0	34.7	0	40.2	0.01	0.5	0	Fully Closed;Dec. Flow/Vac.
C12EW12F	11/30/2016 11:03	69.4	30	0.6	0	0.16	40.7	0.08	0.9	0.9	No Adj. Made
C12EW12I	11/30/2016 10:59	80.9	19.3	0	-0.2	0.13	39.3	0.06	0.8	0.9	Inc. Flow/Vac.
C12EW12K	11/30/2016 10:54	72.7	23.2	0	4.1	0.15	39.4	0.04	0.6	0.9	Inc. Flow/Vac.
C12HC121	11/30/2016 11:07	76.1	22.5	0	1.4	0.2	41.2	0.04	0	1.1	Inc. Flow/Vac.

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08EW001	11/28/2016	15:26	CH4	48	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	CO2	35.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	Bal	16.3	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	Impact	0.85	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	Temp	67.3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	Static	-0.14	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	REF Flow	3	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW001	11/28/2016	15:26	ADJ Flow	3	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	CH4	44.8	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	CO2	32.1	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	Bal	23.1	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	Temp	51	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	Static	-0.19	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	REF Flow	1.2	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW003	11/28/2016	15:37	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed;Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	CH4	50.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	CO2	31.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	Bal	17.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	Impact	2.83	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	Temp	69.3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	Static	-1.47	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	REF Flow	3.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW008	11/30/2016	13:41	ADJ Flow	3.6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	CH4	53.3	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	CO2	35	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	Bal	11.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	Impact	0.36	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	Temp	94.1	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	Static	-0.56	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	REF Flow	7.6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW009	11/30/2016	13:49	ADJ Flow	8.1	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	CH4	52.9	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	CO2	34.8	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	Bal	12.3	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	Impact	2.88	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	Temp	88.7	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	Static	-3.77	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	REF Flow	5.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW011	11/30/2016	14:15	ADJ Flow	5.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	CH4	58.9	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	CO2	22.3	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	Bal	18.8	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	Impact	3.5	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	Temp	79.3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	Static	-1.24	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	REF Flow	0	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW012	11/30/2016	14:19	ADJ Flow	6.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	CH4	49.4	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	CO2	29.7	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	Oxygen Gas	0	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	Bal	20.9	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	Impact	1.94	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	Temp	116.9	DEG F			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	Static	-10.15	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	REF Flow	37.6	SCFM			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	11/30/2016	14:22	ADJ Flow	30.6	SCFM			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	CH4	50.4	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	CO2	30	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	Oxygen Gas	0.1	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	Bal	19.5	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	Impact	1.48	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13:52	Temp	116.9	DEG F			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08EW013	12/1/2016	13 52	Static	-8 38	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13 52	REF Flow	32 8	SCFM			LFGF	LFG	FT	Dec. Flow/Vac.		TRG	FIELD
WMDSM	C08EW013	12/1/2016	13 52	ADJ Flow	26 9	SCFM			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	CH4	48 5	%			LFGF	LFG	FT	Dec. Flow/Vac.		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	CO2	30 7	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	Oxygen Gas	0	%			LFGF	LFG	FT	Dec Flow/Vac.		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	Bal	20 8	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	Impact	2 21	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	Temp	106 8	DEG F			LFGF	LFG	FT	Dec Flow/Vac.		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	Static	-2 23	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	REF Flow	15 4	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW014	11/30/2016	14 30	ADJ Flow	10 8	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	CH4	48 2	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	CO2	30 6	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	Bal	21.2	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	Temp	106 6	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	Static	-0 02	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	REF Flow	11 2	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW014	12/1/2016	13 56	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	CH4	46 5	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	CO2	36 6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	Bal	16 9	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	Impact	0 06	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	Temp	59 3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	Static	-1.75	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14 03	REF Flow	0 8	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW016	11/30/2016	14:03	ADJ Flow	0 8	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	CH4	61 9	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	CO2	38 2	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	Bal	-0 1	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	Impact	1 08	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	Temp	46	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	Static	-25 06	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	REF Flow	2 3	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW017	11/30/2016	14 54	ADJ Flow	2 2	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	CH4	50 2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	CO2	34 9	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	Oxygen Gas	0 2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	Bal	14 7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	Impact	1 64	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	Temp	112 9	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	Static	-16 82	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	REF Flow	73 6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW019	11/28/2016	14 37	ADJ Flow	73 6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	CH4	58.4	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	CO2	41 6	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	Bal	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	Impact	0 28	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	Temp	57 6	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	Static	-0 02	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	REF Flow	0 1	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW020	11/28/2016	14 41	ADJ Flow	1.8	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	CH4	48 6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	CO2	35.5	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	Bal	15.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	Impact	2 03	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	Temp	111 7	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	Static	-1.22	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	REF Flow	18.7	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW021	11/28/2016	14 44	ADJ Flow	18 7	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	CH4	48 5	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	CO2	33	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	Oxygen Gas	0	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08EW022	11/28/2016	14 57	Bal	18.5	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	Impact	0 87	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	Temp	81	DEG F			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	Static	-0 65	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	REF Flow	3 4	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW022	11/28/2016	14 57	ADJ Flow	3	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	CH4	36 6	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	CO2	28 9	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	Bal	34.5	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	Impact	-0.06	In H2O			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	Temp	47 8	DEG F			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	Static	-0 02	In H2O			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	REF Flow	0 4	SCFM			LFGF	LFG	FT	Fully Closed Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW023	11/28/2016	14 54	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	CH4	46 4	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	CO2	35.1	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	Oxygen Gas	0	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	Bal	18 5	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	Impact	0 02	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	Temp	100	DEG F			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	Static	-1 66	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	REF Flow	6 5	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW024	11/28/2016	14 49	ADJ Flow	2.7	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	CH4	58	%			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	CO2	39 1	%			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 56	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	Bal	2.9	%			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	Impact	0 92	In H2O			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	Temp	112 3	DEG F			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 56	Static	-23 83	In H2O			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	REF Flow	25 9	SCFM			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW025	11/30/2016	9 55	ADJ Flow	27 9	SCFM			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	CH4	55 3	%			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	CO2	44 7	%			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	Bal	0	%			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	Impact	6 72	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	Temp	70 9	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	Static	-0 73	In H2O			LFGF	LFG	FT	Inc Flow/Vac		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	REF Flow	15	SCFM			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW027	11/30/2016	14 46	ADJ Flow	19 1	SCFM			LFGF	LFG	FT	Inc Flow/Vac		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	CH4	46 8	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	CO2	37	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	Bal	14.2	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	Impact	1.22	In H2O			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	Temp	109 1	DEG F			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	Static	-4 02	In H2O			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	REF Flow	23 6	SCFM			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW029	11/30/2016	14 01	ADJ Flow	24 2	SCFM			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	CH4	46 4	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	CO2	36	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	Oxygen Gas	0	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	Bal	17 6	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	Impact	1 27	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	Temp	107 6	DEG F			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	Static	-5 04	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	REF Flow	36 2	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW030	11/30/2016	14 12	ADJ Flow	33 1	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	CH4	1 3	%			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	CO2	1.1	%			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	Oxygen Gas	21 4	%			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	Bal	76 2	%			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	Temp	49 5	DEG F			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	Static	-0 04	In H2O			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD
WMDSM	C08EW031	11/30/2016	14 33	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj Made		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08EW034	11/30/2016	10 07	CH4	58 6	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10 07	CO2	41 4	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10 07	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10 07	Bal	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10.07	Impact	0 6	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10 07	Temp	74 8	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10.07	Static	-4 06	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10.07	REF Flow	1.8	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW034	11/30/2016	10.07	ADJ Flow	10 3	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	CH4	56 3	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	CO2	40.2	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	Bal	3 5	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	Impact	0 38	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	Temp	113 6	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	Static	-21 65	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	REF Flow	12.9	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW035	11/30/2016	9 58	ADJ Flow	12.9	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	CH4	58 3	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	CO2	41.7	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	Bal	0	%			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	Impact	0 73	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	Temp	58.5	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	Static	0 06	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	REF Flow	3.7	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW036	11/30/2016	9 46	ADJ Flow	6 5	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	CH4	56 5	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	CO2	43 5	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	Bal	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	Impact	2.39	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	Temp	87.8	DEG F			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	Static	-0 06	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	REF Flow	12 8	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW037	11/30/2016	10 11	ADJ Flow	20 4	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	CH4	57.9	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	CO2	42.1	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	Bal	0	%			LFGF	LFG	FT	Inc Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10.25	Impact	7 67	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10.25	Temp	87.1	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10.25	Static	-0 55	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	REF Flow	14 5	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08EW038	11/30/2016	10 25	ADJ Flow	20 6	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	CH4	47 4	%			LFGF	LFG	FT	Dec. Flow/Vac.		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	CO2	32.7	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	Oxygen Gas	0	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	Bal	19 9	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	Impact	0.11	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	Temp	91.4	DEG F			LFGF	LFG	FT	Dec Flow/Vac.		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	Static	-1 3	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	REF Flow	2 4	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08EW06R	11/30/2016	14 37	ADJ Flow	2 5	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	CH4	1 3	%			LFGF	LFG	FT	Fully Closed No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	CO2	0 9	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	Oxygen Gas	21 4	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	Bal	76 4	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	Temp	41 6	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	Static	-16 58	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14.44	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC026	11/30/2016	14 44	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	CH4	40 5	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	CO2	28 8	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	Oxygen Gas	2	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	Bal	28 7	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	Impact	-0 01	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	Temp	47 7	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUA	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08HC029	11/30/2016	14 40	Static	-0 02	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	REF Flow	0 2	SCFM			LFGF	LFG	FT	Fully Closed;No Adj. Made		TRG	FIELD
WMDSM	C08HC029	11/30/2016	14 40	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15 00	CH4	56 1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15:00	CO2	33 7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15:00	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15 00	Bal	10 2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15:00	Impact	0.02	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15 00	Temp	41 9	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15 00	Static	0 05	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15.00	REF Flow	0 5	SCFM			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC045	11/28/2016	15:00	ADJ Flow	0 5	SCFM			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14:52	CH4	65 4	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	CO2	34 2	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	Oxygen Gas	0 4	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	Bal	0	%			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	Impact	0 38	In H2O			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	Temp	43 5	DEG F			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	Static	-26.58	In H2O			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14 52	REF Flow	1.2	SCFM			LFGF	LFG	FT	Fully Open No Adj Made		TRG	FIELD
WMDSM	C08HC048	11/30/2016	14.52	ADJ Flow	1.3	SCFM			LFGF	LFG	FT	Fully Open,No Adj Made		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	CH4	39 4	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	CO2	22 7	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	Oxygen Gas	3 5	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	Bal	34 4	%			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	Temp	49 4	DEG F			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13.46	Static	0 01	In H2O			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	REF Flow	0 8	SCFM			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC050	11/30/2016	13 46	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	CH4	46 1	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	CO2	32 6	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	Oxygen Gas	0	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	Bal	21 3	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	Impact	0 34	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	Temp	68 3	DEG F			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	Static	-0 91	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	REF Flow	23 9	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	11/28/2016	15 24	ADJ Flow	18 1	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	CH4	50	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	CO2	33 9	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	Bal	16 1	%			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	Impact	0 32	In H2O			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	Temp	69 1	DEG F			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	Static	-0 39	In H2O			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	REF Flow	15 7	SCFM			LFGF	LFG	FT	No Adj Made		TRG	FIELD
WMDSM	C08HC051	12/1/2016	14 14	ADJ Flow	17 6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	CH4	44 8	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	CO2	25 9	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	Oxygen Gas	0	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	Bal	29 3	%			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	Impact	1 15	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	Temp	62 6	DEG F			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	Static	-0 49	In H2O			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	REF Flow	30 1	SCFM			LFGF	LFG	FT	Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	11/28/2016	15 16	ADJ Flow	15	SCFM			LFGF	LFG	FT	Dec Flow/Vac.		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	CH4	51 9	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	CO2	26 3	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	Bal	21 8	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	Impact	-0 01	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	Temp	61 2	DEG F			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	Static	0 03	In H2O			LFGF	LFG	FT	Fully Closed Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	REF Flow	10 7	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC053	12/1/2016	14 10	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec Flow/Vac		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	CH4	51	%			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	CO2	34 1	%			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac		TRG	FIELD
WMDSM	C08HC054	11/25/2016	15 09	Oxygen Gas	0	%			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_¯	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08HC054	11/28/2016	15 09	Bal	14 9	%			LFGF	LFG	FT	Barely Open;Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	Impact	0 01	In H2O			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	Temp	45	DEG F			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	Static	0 02	In H2O			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	REF Flow	0	SCFM			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC054	11/28/2016	15 09	ADJ Flow	0 2	SCFM			LFGF	LFG	FT	Barely Open,Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	CH4	30 5	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	CO2	24 7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	Oxygen Gas	0 6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15:06	Bal	44 2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	Impact	-0 02	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	Temp	45 9	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	Static	-0 01	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	REF Flow	0	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC055	11/28/2016	15 06	ADJ Flow	0	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	CH4	59 8	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	CO2	40 2	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	Bal	0	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	Impact	0 22	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	Temp	41 1	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	Static	-25 66	In H2O			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	REF Flow	1	SCFM			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC056	11/30/2016	13 53	ADJ Flow	1	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	CH4	58 8	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	CO2	41.2	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	Bal	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	Impact	0 31	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	Temp	95 6	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	Static	-24 78	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	REF Flow	4 4	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC057	11/30/2016	13 55	ADJ Flow	3 9	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	CH4	55	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	CO2	37 9	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	Bal	7.1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	Impact	0 15	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	Temp	90 3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	Static	0 07	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	REF Flow	2 8	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC058	11/30/2016	13 58	ADJ Flow	2.8	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	CH4	60 5	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	CO2	39 6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	Bal	-0 1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	Impact	1.26	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	Temp	45.3	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	Static	-0 43	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	REF Flow	0 6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC062	11/30/2016	14 08	ADJ Flow	0 6	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	CH4	60 4	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	CO2	39 3	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	Oxygen Gas	0 3	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	Bal	0	%			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14.05	Impact	4 74	In H2O			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	Temp	69 2	DEG F			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	Static	-11 33	In H2O			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	REF Flow	4 4	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC063	11/30/2016	14 05	ADJ Flow	4 5	SCFM			LFGF	LFG	FT	Fully Open;No Adj. Made		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15.21	CH4	47 3	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	CO2	32.9	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	Oxygen Gas	0 1	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	Bal	19 7	%			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	Impact	2.13	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	Temp	68.5	DEG F			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	Static	-0 05	In H2O			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	REF Flow	6 5	SCFM			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD
WMDSM	C08HC065	11/28/2016	15 21	ADJ Flow	4 8	SCFM			LFGF	LFG	FT	Dec. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08HC068	11/30/2016	10:01	CH4	60	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	CO2	40.1	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	Bal	-0.1	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	Impact	2.92	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	Temp	93.5	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	Static	-20.57	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	REF Flow	5.3	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC068	11/30/2016	10:01	ADJ Flow	5.4	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	CH4	49.7	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	CO2	36.2	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	Bal	14.1	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	Impact	0.68	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	Temp	99.8	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	Static	-1.1	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	REF Flow	10.7	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC073	11/30/2016	14:09	ADJ Flow	10.9	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	CH4	54	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	CO2	42.1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	Bal	3.9	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	Impact	7.88	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	Temp	119.7	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	Static	-9.92	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	REF Flow	79.8	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC078	11/30/2016	10:22	ADJ Flow	81	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	CH4	61.4	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	CO2	36.2	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	Bal	2.4	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	Impact	7.38	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	Temp	79.8	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	Static	-16.75	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	REF Flow	5.5	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC08S	11/28/2016	15:33	ADJ Flow	5.6	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	CH4	53.3	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	CO2	33.2	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	Bal	13.5	%			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	Impact	8.55	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	Temp	90.4	DEG F			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	Static	-13.71	In H2O			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	REF Flow	23	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC09S	11/28/2016	15:30	ADJ Flow	21.4	SCFM			LFGF	LFG	FT	Fully Open,No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	CH4	48.8	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	CO2	35.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	Bal	15.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	Impact	0.03	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	Temp	73.2	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	Static	-0.28	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	REF Flow	1.2	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08HC70E	11/28/2016	14:51	ADJ Flow	1.2	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	CH4	52.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	CO2	32.7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	Bal	14.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	Impact	0.85	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	Temp	82.7	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	Static	-2.14	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	REF Flow	55.9	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC002	11/30/2016	10:35	ADJ Flow	56.3	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	CH4	53.9	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	CO2	38	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	Bal	8.1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	Impact	1.88	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10:39	Temp	63.9	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C08LC007	11/30/2016	10 39	Static	-0 78	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10 39	REF Flow	29 7	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08LC007	11/30/2016	10 39	ADJ Flow	31.6	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	CH4	40 4	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	CO2	23 9	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	Oxygen Gas	1.8	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	Bal	33 9	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	Temp	43 3	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	Static	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	REF Flow	0 3	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC004	11/28/2016	15 03	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	CH4	11.6	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	CO2	17.6	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	Bal	70 8	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	Impact	-0 01	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	Temp	46 3	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	Static	-0 1	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	REF Flow	0 9	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC005	11/28/2016	15 18	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	CH4	36 1	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	CO2	22 7	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	Oxygen Gas	0 6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	Bal	40 6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	Temp	49 3	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	Static	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	REF Flow	0 1	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC013	11/30/2016	14 28	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	CH4	46 5	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	CO2	31	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	Bal	22 5	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	Impact	-0.01	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	Temp	44 7	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	Static	-3 03	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	REF Flow	7	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08SC07N	11/28/2016	15 11	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	CH4	53.1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	CO2	40 1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	Bal	6 8	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	Impact	1 55	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	Temp	45 2	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	Static	-0.27	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	REF Flow	1	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C08UD001	11/30/2016	10 33	ADJ Flow	2 6	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	CH4	63 5	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	CO2	36	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	Oxygen Gas	0 1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	Bal	0 4	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	Impact	0 12	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	Temp	41.6	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	Static	0 07	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	REF Flow	0 1	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW002	11/30/2016	12 15	ADJ Flow	1 2	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	CH4	43 4	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	CO2	25 8	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	Bal	30 8	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	Impact	-0 01	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	Temp	42 1	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	Static	0 02	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	REF Flow	1 2	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW005	11/30/2016	12 34	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12 39	CH4	53 1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12 39	CO2	31 7	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12 39	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUA	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C11EW007	11/30/2016	12:39	Bal	15.2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12:39	Impact	0.04	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12:39	Temp	48.8	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12:39	Static	-0.07	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12:39	REF Flow	1.4	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW007	11/30/2016	12:39	ADJ Flow	1.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	CH4	65.5	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	CO2	33	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	Bal	1.5	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	Impact	0.44	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	Temp	40.2	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	Static	-0.04	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	REF Flow	0.3	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW009	11/30/2016	12:48	ADJ Flow	1.5	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	CH4	51.2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	CO2	31.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	Bal	17.2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	Impact	0.08	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	Temp	68.5	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	Static	-2.37	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	REF Flow	0	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW011	11/30/2016	12:52	ADJ Flow	6.3	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	CH4	1.1	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	CO2	9.3	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	Oxygen Gas	19.3	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	Bal	70.3	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	Impact	-0.03	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	Temp	40.6	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	Static	0.22	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11EW012	11/30/2016	12:21	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	CH4	27.5	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	CO2	20.6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	Oxygen Gas	0.6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	Bal	51.3	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	Temp	49.5	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	Static	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC007	11/30/2016	12:09	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	CH4	45.6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	CO2	29.6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	Bal	24.8	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	Temp	41	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	Static	0.07	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC015	11/30/2016	12:18	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	CH4	48	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	CO2	30.2	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	Bal	21.8	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	Temp	48.1	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	Static	-0.01	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC017	11/30/2016	12:28	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	CH4	49.2	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	CO2	25.5	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	Bal	24.3	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	Temp	48.4	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	Static	-0.01	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	REF Flow	0.4	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C11HC019	11/30/2016	12:56	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C11SW001	11/30/2016	12:12	CH4	54.5	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	CO2	19.4	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	Bal	26.1	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	Impact	-0.01	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	Temp	41.6	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	Static	0.26	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW001	11/30/2016	12:12	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	CH4	49.4	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	CO2	31.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	Bal	18.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	Impact	1.25	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	Temp	49.5	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	Static	-0.03	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	REF Flow	3.7	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW002	11/30/2016	12:24	ADJ Flow	3.8	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	CH4	33.9	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	CO2	24.6	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	Bal	41.5	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	Impact	-0.02	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	Temp	41	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	Static	0.06	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW003	11/30/2016	12:30	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	CH4	56.9	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	CO2	20.7	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	Bal	22.4	%			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	Temp	40	DEG F			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	Static	0.2	In H2O			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	REF Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW006	11/30/2016	12:46	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed,No Adj. Made		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	CH4	66.1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	CO2	33.9	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	Bal	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	Impact	0.14	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	Temp	41.2	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	Static	0.1	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	REF Flow	0	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW008	11/30/2016	12:37	ADJ Flow	3	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	CH4	58.1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	CO2	28.5	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	Oxygen Gas	0.2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	Bal	13.2	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	Impact	0.02	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	Temp	44.6	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	Static	-0.03	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	REF Flow	1.1	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW009	11/30/2016	13:05	ADJ Flow	1.2	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	CH4	56.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	CO2	29.3	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	Oxygen Gas	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	Bal	14.1	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	Impact	0.05	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	Temp	41.8	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	Static	-0.06	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	REF Flow	0.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C11SW010	11/30/2016	12:41	ADJ Flow	0.5	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	CH4	51.4	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	CO2	13.9	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	Oxygen Gas	0	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	Bal	34.7	%			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	Impact	0	In H2O			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	Temp	40.2	DEG F			LFGF	LFG	FT	Fully Closed,Dec. Flow/Vac		TRG	FIELD

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAI	QUANTITA	SAMPLE_(	SAMPLE_	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	RESULT_TYPE_CODE	TEST
WMDSM	C12EW12A	11/30/2016	10:49	Static	0.01	In H2O			LFGF	LFG	FT	Fully Closed;Dec	Flow/Vac	TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	REF Flow	0.5	SCFM			LFGF	LFG	FT	Fully Closed;Dec	Flow/Vac	TRG	FIELD
WMDSM	C12EW12A	11/30/2016	10:49	ADJ Flow	0	SCFM			LFGF	LFG	FT	Fully Closed;Dec	Flow/Vac	TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	CH4	69.4	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	CO2	30	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	Oxygen Gas	0.6	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	Bal	0	%			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	Impact	0.16	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	Temp	40.7	DEG F			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	Static	0.08	In H2O			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	REF Flow	0.9	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12F	11/30/2016	11:03	ADJ Flow	0.9	SCFM			LFGF	LFG	FT	No Adj. Made		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	CH4	80.9	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	CO2	19.3	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	Bal	-0.2	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	Impact	0.13	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	Temp	39.3	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	Static	0.06	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	REF Flow	0.8	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12I	11/30/2016	10:59	ADJ Flow	0.9	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	CH4	72.7	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	CO2	23.2	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	Bal	4.1	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	Impact	0.15	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	Temp	39.4	DEG F			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	Static	0.04	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	REF Flow	0.6	SCFM			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12EW12K	11/30/2016	10:54	ADJ Flow	0.9	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	CH4	76.1	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	CO2	22.5	%			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	Oxygen Gas	0	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	Bal	1.4	%			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	Impact	0.2	In H2O			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	Temp	41.2	DEG F			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	Static	0.04	In H2O			LFGF	LFG	FT	Inc. Flow/Vac.		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	REF Flow	0	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD
WMDSM	C12HC121	11/30/2016	11:07	ADJ Flow	1.1	SCFM			LFGF	LFG	FT	Inc. Flow/Vac		TRG	FIELD

Convert WMDSM Plant Data Files into MEDEP EDD Format

Instructions: Fill in raw data table on the Raw Data worksheet. Click Build and the EDD File will be built on the EDDFormat worksheet. The workbook can then be submitted to MEDEP staff.
(Do not insert rows, columns or make any other formatting changes to the Format page.)

Parameters are in row #:	3
Data Starts in row #:	4

	Column	Units
Well:	1	
Date/Time:	2	
CH4:	3	%
CO2:	4	%
Bal:	5	%
O2	6	%
H2S	7	PPM
Temp	8	DEG F
Vacuum (Static Pressure):	9	In H2O
ADJ SCFM Flow:	10	SCFM
Comments:	13	

Build

Weekly Operating Report **Week Ending:** ________

Location	Date/Time:	Methane:	CO2:	Bal:	O2:	H2S:	Temp:	Vacuum (Static Pressure):	ADJ SCF	KW:	Downtime/Description:	Comments:
PLANT	11/10/16 0:00	51.4	35.1	13.0	0.5	240.0	85.0	31.0	886			
PLANT	11/11/16 0:00	50.9	35.4	13.1	0.6	240.0	85.0	28.0	895			
PLANT	11/14/16 0:00	49.5	34.8	15.1	0.6	290.0	90.0	30.0	899			
PLANT	11/15/16 0:00	49.7	34.9	15.0	0.5	300.0	90.0	29.0	896			
PLANT	11/16/16 0:00	51.3	35.5	12.8	0.4	260.0	90.0	27.0	869			

PROJECT/SIT	SAMPLE_POINT_ID	SAMPLE_DATE	SAMPLE_TIME	PARAMETER_NAME	CONCENT	PARAMET	LAB_QUAL	QUANTITA	SAMPLE_(	SAMPLE_'	ANALYSIS	SAMPLE_(	SAMPLE_TYPE_QUALIFIER	
WMDSM	PLANT	11/10/2016	0:00	Methane:	51 38	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	CO_2:	35.1	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	Bal:	13.01	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	O_2:	0.5	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	H_2S:	240	PPM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	Temp:	85	DEG F			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	Vacuum (Static Pressure):	31	In H_2O			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/10/2016	0:00	ADJ SCFM:	886 4499	SCFM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	Methane:	50 93	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	CO_2:	35 35	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	Bal:	13.08	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	O_2:	0 64	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	H_2S:	240	PPM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	Temp:	85	DEG F			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	Vacuum (Static Pressure):	28	In H_2O			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/11/2016	0:00	ADJ SCFM:	894 8667	SCFM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	Methane:	49 53	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	CO_2:	34 8	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	Bal:	15 07	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	O_2:	0.61	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	H_2S:	290	PPM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	Temp:	90	DEG F			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	Vacuum (Static Pressure):	30	In H_2O			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/14/2016	0:00	ADJ SCFM:	899 2035	SCFM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	Methane:	49 67	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	CO_2:	34.85	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	Bal:	14.97	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	O_2:	0 5	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	H_2S:	300	PPM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	Temp:	90	DEG F			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	Vacuum (Static Pressure):	29	In H_2O			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/15/2016	0:00	ADJ SCFM:	896 3493	SCFM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	Methane:	51 32	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	CO_2:	35 48	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	Bal:	12 8	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	O_2:	0 39	%			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	H_2S:	260	PPM			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	Temp:	90	DEG F			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	Vacuum (Static Pressure):	27	In H_2O			LFGF	LFG	FT		TRG	FIELD
WMDSM	PLANT	11/16/2016	0:00	ADJ SCFM:	868 6521	SCFM			LFGF	LFG	FT		TRG	FIELD

Crossroads Gas Recovery Log

DATE	TIME	CH4 %	CO2%	N2%	O2%	H2S	PLANT FLOW SCFM

CROSSROADS

MONTHLY OPERATING REPORT

MONTH:

DAYS IN MONTH:

NO. OF UNITS

DATE:

OPERATOR: ______________________

1) PERCENT ON-LINE TIME

	RUNTIME HOURS	PERCENT ON-LINE	
Unit #1		#DIV/0!	% ON-LINE
Unit #2		#DIV/0!	% ON-LINE
TOTAL		**#DIV/0!**	**% ON-LINE**

2) TOTAL LANDFILL GAS CONSUMED, MSCF

TOTAL ________ **MSCF**

3) TOTAL BTU'S CONSUMED, MMBTU

TOTAL ________ **MMBTU**

4) TOTAL PLANT KWHR'S SOLD

		ON-PEAK		OFF-PEAK
THIS MONTH FINAL READING				
LAST MONTH FINAL READING				0.00
DIFFERENCE	-	0.00		0.00
Meter multiplier (If applicable)	x			
TOTAL KWHR'S SOLD	=	0	+	0
	=	0	**TOTAL KWHR'S SOLD**	

	Beginning	Ending	Month total
Engine #1 kwhr			-
Engine #2 kwhr			-
Engine #3 kwhr		-	-
Engine #4 kwhr	-	-	-
		Total Kwhrs Produced	-

Total Kwhr Loss -

Site specific information:

5) MAINTENANCE PERFORMED

Unit #1

Downtime

Unit #2

Downtime

Unit #3

Downtime 0.00

Unit #4

Downtime 0.00

6) OPERATIONAL DIFFICULTIES

UNIT # 1

Downtime

UNIT #2

Downtime

UNIT #3

Downtime 0.0

UNIT #4

Downtime 0.0

F.G.C.

7) MAINTENANCE PERFORMED

F.G.C. #1

Downtime 0.0

F.G.C. #2

Downtime 0.0

---

8) OPERATIONAL DIFFICULTIES

F.G.C. #1

Downtime

F.G.C. #2

Downtime 0.0

GAS PLANT MONTHLY PERFORMANCE RECORD

				Eng / Gen # 1			Eng / Gen # 2			Eng / Gen # 3			Eng / Gen # 4			Utility Meter
Date	Time	Temp	Scfm	Kw	Kwhrs	Hours	Kw	Kwhrs	Hours	Kw	Kwhrs	Hours	Kw	Kwhrs	Hours	Kwhrs
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
24																
25																
26																
27																
28																
29																
30																
31																
1																
Totals					0	0		0	0		0	0		0	0	

Utility Kwhr Meter:	End this month:	0
	End last month:	0
	Kwhrs sold:	0

Weekly Operating Report

Week: ____________

	Methane:	Nitrogen:	O2:	Vacuum:	SCFM:	Baseload:	Downtime/Description:
Friday:							
Saturday:							
Sunday:							
Monday:							
Tuesday:							
Wednesday:							
Thursday:							

Prepared for

Waste Management Disposal Services of Maine
357 Mercer Rd.
Norridgewock, Maine 04957

SECTION VII – STABILITY MONITORING PLAN

Prepared by

Geosyntec
consultants

engineers | scientists | innovators

125 Community Drive, Suite 202
Augusta, Maine 04330

Project Number BE0180D

Updated: December 2016

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APPENDICES

1. PLAN DESCRIPTION

The purpose of this Stability Monitoring Plan (SMP) is to describe procedures and requirements for monitoring the stability of the landfill units at the Waste Management Disposal Services of Maine, Inc. (WMDSM) – Crossroads facility in Norridgewock, Maine. This plan was prepared by Nicholas Yafrate, P.E. and Scott Luettich, P.E. both of Geosyntec Consultants, the designer of several disposal units at Crossroads, as well as Richard (Dick) Reynolds, P.E., independent geotechnical consultant to WMDSM, with input from WMDSM.

WMDSM utilizes various instruments to monitor the stability of landfills at this facility. Generally, a technician reads the non-automated instrumentation at a prescribed frequency and reports the results to the landfill designer (LFD) and/or a geotechnical engineer (GT) for interpretation. For automated instrumentation, the LFD and/or GT download the data at the prescribed frequency and interpret the results. The LFD and GT, in conjunction with WMDSM personnel, evaluate the data and compare the results against established threshold values to assess whether landfill operations can continue as planned or if modifications to the filling operations need to be made to ensure stability of the landfill units. If the data indicates the established threshold values have been exceeded, WMDSM is required to notify the Maine Department of Environmental Protection (MEDEP). The SMP, as described below, provides further details on the stability monitoring process, and outlines the required work protocols, action levels, and responses.

This version of the SMP provides stability monitoring protocols for Phases 7, 8, 9, 11, and 12. This SMP replaces the previous version dated April 2014.

2. ROLES AND RESPONSIBILITIES (CHAIN OF COMMAND)

2.1 Key Personnel

The following is a summary of key personnel involved with the execution of the SMP:

Party	Contact	Contact Information
Owner	Sherwood McKenney – District Engineer WMDSM	207-634-2714 ext. 223 207-240-9787 (cell) 357 Mercer Rd. Norridgewock, ME 04957 smckenney@wm.com
Landfill Designer (LFD)	Scott Luettich, P.E. Geosyntec Consultants (Geosyntec)	207-446-0140 (cell) 125 Community Drive, Suite 202 Augusta, ME 04330 sluettich@geosyntec.com
Geotechnical Engineer (GT)	Dick Reynolds, P.E. Consulting Geotechnical Engineer	617-314-6200 1 Torrey Hill Road Freeport, ME 04032 RTR@softsoil.com
Technician	Darren Files WMDSM	207-877-4242 (cell) 357 Mercer Rd. Norridgewock, ME 04957 dfiles@wm.com
Regulatory Agency	Linda Butler MEDEP Or Kathy Tarbuck MEDEP	207-287-7688 17 State House Station Augusta, Maine 04333-0017 linda.j.butler@maine.gov 207-287-9931 17 State House Station Augusta, Maine 04333-0017 kathy.tarbuck@maine.gov
Technical Reviewer	Tony Hersh, P.E. S.W. Cole Engineers	207-848-5714 37 Liberty Drive Bangor, ME 04401

2.2 Roles and Responsibilities

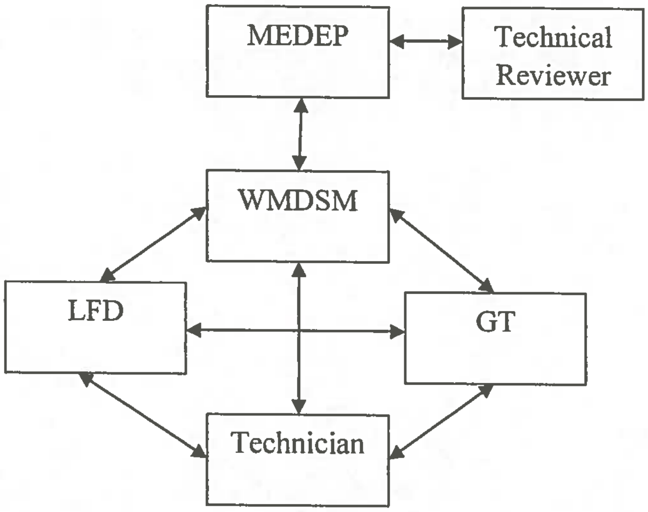
The following is a summary of the roles and responsibilities of each of the parties involved with the execution of the SMP:

Party	Responsibilities	Alternate
Owner - WMDSM	▪ Ensure all parties necessary for the implementation of the stability monitoring plan are in-place and complete their respective responsibilities in a timely manner. ▪ Communicate directly with MEDEP (reporting action level exceedances, general discussions, etc.). ▪ Ensure that WMDSM personnel are tracking and recording daily waste placement and leachate recirculation information and forwarding it to the LFD and/or GT for review. ▪ Provide a summary of proposed landfill activities to GT/LFD, as necessary. ▪ Authority to stop or modify work.	Geosyntec or Dick Reynolds
Landfill Designer (LFD) - Geosyntec	▪ Confirm technician's assessment of monitoring requirements based upon description of work activities and protocol outlined in this plan. ▪ Confirm required instrument readings are obtained by technician for non-automated instruments at the frequency outlined in this SMP. ▪ As requested, download the monitoring data from the automated instruments at the frequency outlined in this SMP. ▪ Reduce and review data, and evaluate stability. ▪ Coordinate additional monitoring based upon data. ▪ Notify WMDSM if action levels are exceeded in the Slope Inclinometers (SI's). ▪ Provide recommendations to WMDSM for modifying operations (if necessary). ▪ Provide periodic inspections of the landfill and activities occurring at the site, as necessary. ▪ Review monitoring data and establish SISG areas. ▪ Prepare yearly stability monitoring report and post data to web portal as required by this plan. ▪ Reports directly to WMDSM representative.	Dick Reynolds

Geotechnical Engineer (GT) - Dick Reynolds	▪ Complete independent review of monitoring data. ▪ Download the monitoring data from the automated instruments at the frequency outlined in this plan. ▪ Notify WMDSM and LFD of exceedances/alerts that occur with Slope Accelerometer Arrays (SAAs). ▪ Notify WMDSM and LFD of increases in pore pressure deemed significant by the GT. ▪ Provide recommendations to WMDSM for modifying operations (if necessary). ▪ Review monitoring data and establish SISG areas. ▪ Provide periodic inspections of the landfill and activities occurring at the site. ▪ Recommend or carry out maintenance on automated instrumentation. ▪ Reports directly to WMDSM representative.	Geosyntec
Technician - WMDSM	▪ Monitor instrumentation in accordance with the plan and complete preliminary review of data; obtain re-reads as required by the plan or by GT, LFD, or WMDSM. ▪ Transmit data to LFD and GT in a timely manner. ▪ Notify WMDSM, LFD, and GT if action levels are exceeded. ▪ Notify WMDSM, LFD, and GT if manually read instrumentation is not functioning properly. ▪ Report to LFD, GT, and WMDSM representative.	WMDSM staff or experienced personnel from LFD/GT
Regulatory Agency - MEDEP	▪ Provide regulatory oversight to ensure compliance with state and federal laws and regulations. ▪ Communicate with WMDSM representative on project and operation related issues.	Linda Butler and Kathy Tarbuck
Technical Reviewer - S.W. Cole Engineers	▪ Provide technical review of monitoring data and other stability related submittals. ▪ Report to MEDEP.	MEDEP

2.3 Chain of Command - Communication

Communications related to the SMP will be in accordance with the following diagram:



3. STABILITY MONITORING INSTRUMENTATION

3.1 Stability Monitoring Instrumentation

In order to evaluate the stability of the landfill units as filling progresses, WMDSM installed instrumentation to monitor displacements and pore water pressures within the subsurface soils.

Figures 1, 2, and 3 depict the approximate locations of the instrumentation that is installed and currently in-service at the site. Not all of the instrumentation shown on the figures is monitored as part of the SMP described herein; however, Table 1 presents a list of the instrumentation that is monitored as part of the SMP.

The following are general descriptions of the instrumentation that is utilized as part of the SMP:

- **Slope Inclinometers (SI)** - These devices consist of vertical, 2.75-inch diameter, machine-grooved, plastic casings that are grouted in a borehole that is drilled into till at the toe of landfill slopes. The horizontal displacement of the casing is measured with an inclinometer probe that is raised and lowered in the casing. Measurements of horizontal displacement are used to assess strain and strain rate in order to provide information regarding slope stability. These instruments are not automated and are monitored by a Technician.
- **Vibrating Wire Piezometers (PZ)** - These pressure sensing devices are used to monitor the pore pressure at a specific depth in the soil stratum. The vibrating wire piezometers measure the pore pressures within the Presumpscot clay below or adjacent to the landfill units. The data are used to evaluate the stability of the slopes and strength gain in the

clay due to consolidation. The instruments are installed in clusters so that pore pressure measurements can be obtained from different depths within the same clay profile. At each PZ location, four to six piezometers were installed at various depths throughout the soil profile. These instruments can be read manually by a technician or automatically with a data logger.

- **Shape Accelerometer Arrays (SAA)** - These devices are automated versions of the slope inclinometers described above. The SAA consists of a small diameter (1-inch) vertical PVC plastic casing that is secured with compacted sand in an existing inclinometer casing or in a borehole that is drilled into till at the toe of landfill slopes. A continuous string of one foot spaced sensors (accelerometers) is placed in the casing and the horizontal and vertical movement of each sensor is measured electronically. The data are transmitted to a data logger at the ground surface. The data logger is contacted via a wireless cell phone connection for data retrieval. The amount of strain and the rate of strain are monitored to provide information regarding slope stability. SAA casings have been installed within the vicinity of several of the SI locations. The SAA monitoring devices will be routinely moved between the various SAA casings throughout the site depending on the schedule of landfill operations (e.g., waste filling, leachate recirculation), and construction related projects (e.g., final cap, cell construction).

3.2 Other Instrumentation

As indicated above, some instrumentation at the site is not monitored as part of the stability monitoring program. Such instrumentation, the locations of which are shown on Figures 1, 2, and 3, consists of piezometers, settlement plates, and extensometers. Information from these instruments is used by the GT and LFD as part of on-going geotechnical assessment work at the site. This data may be used to augment data collected as part of the SMP and aid in the interpretation and understanding of stability-related aspects of the site. Since these instruments are not monitored as part of the SMP, they are not discussed in detail in this plan. Refer to Appendix A for a listing of all instrumentation that is currently active at the site.

3.3 Instrumentation Damage and Repair

If instruments are damaged as a result of the on-going operations or are observed to be malfunctioning, the Technician, GT and/or LFD will assess the problem. The GT and/or LFD will provide recommendations to WMDSM for repair/replacement of the instrument on a case-by-case basis depending on the location of the instrument, significance of the data that it provides, and the proposed schedule of on-going activities in the area of the instrument.

WMDSM operations personnel are responsible for repairs associated with stability monitoring instrumentation. Such activity will be supervised by WMDSM personnel or qualified personnel designated by WMDSM. The GT and LFD will be notified prior to WMDSM personnel undertaking any repairs in order to provide comments, and GT/LFD will be involved with repairs as desired by WMDSM. The GT, LFD, and MEDEP will be informed prior to decommissioning or relocating any instrumentation.

General repair procedures for the instruments are provided in Appendix B. It is recommended that manufacturer's guidelines for equipment repair be referred to during repair procedures.

4. AREAS OF SHEAR INDUCED STRENGTH GAIN (SISG)

The clay foundation soils that underlie the site gain strength when vertically consolidated. Geotechnical testing and analyses have shown that the clay gains additional strength when subjected to controlled amounts of drained shear. This is referred to as Shear Induced Strength Gain (SISG). The GT and LFD designate areas where SISG has or is expected to occur based on analyses of data obtained from the instrumentation, results of laboratory testing conducted on clay samples obtained from the site, and analyses of the planned landfill loading sequence. Threshold action levels for SISG areas are different than for non-SISG areas because in SISG areas the clay properties are different. Generally, in areas where SISG has been identified, the SISG criteria are applied to depths that correspond to the computed soil shear zone plus 10 feet above and below. Table 2 presents a summary of the SI and SAA locations with the shear zones (including 10 ft offsets) identified. The different threshold action levels are presented in Section 6.

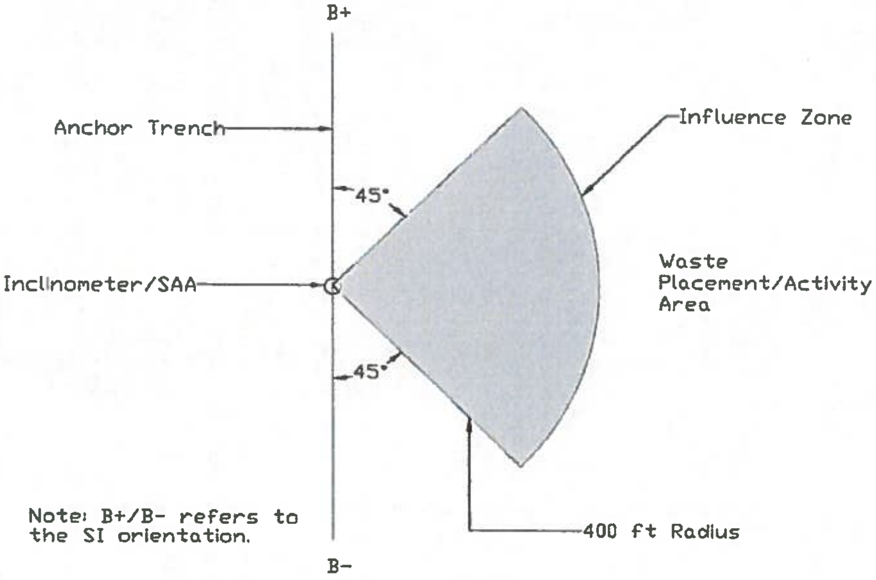
Table 3 presents a list of the SIs/SAAs monitored as part of the SMP, along with current designations of which areas are considered to be SISG or non-SISG areas. These designations will change over time depending on the loading conditions of the various areas. Before starting any new activities (as defined in Section 5), the GT and LFD will review the available monitoring data, laboratory testing data, and the planned landfill loading sequence in order to determine which portions of the site are considered SISG areas (i.e. designate which SIs/SAAs will be monitored according to the SISG threshold action criteria).

The GT and LFD, at their discretion and upon WMDSM's concurrence, may designate an area as having SISG at any time if the sequence of fill placement is altered from the plan or if their review of the monitoring/laboratory data indicates a change is warranted. If the SISG status of an area is changed, new versions of Tables 2 and 3 will be incorporated into the next update of this SMP and the technician will be notified of the change.

5. ROUTINE MONITORING FREQUENCY

5.1 Frequency of Readings

Measurements will be taken with the instruments included in the SMP (Table 1) on a routine schedule based on the activities undertaken (past, present, or future) within the influence zone of the SI/SAAs installed at the site. The influence zone of an SI/SAA is generally described as the quarter-circle area defined in the sketch below:



The radius of the influence zone is 400 ft in the direction of the Activity Area. The influence zone of each SI/SAA included in the stability monitoring program is shown graphically on Figures 4, 5, and 6. The waste placement grid for each landfill phase area has also been included on the referenced figures to aid in determining and tracking where landfill activities (past, present, or future) are undertaken (see Section 5.2).

"Activity" is defined to include waste placement, leachate recirculation, construction activity (including excavation at the toe of the slope), or waste relocation.

The Technician is responsible for obtaining readings on the SIs and their associated PZs, while the GT and/or LFD is responsible for downloading the data obtained from the SAAs and their associated PZs.

Refer to the attached Chart 1 for a graphical diagram of the frequency at which SIs and or SAAs and their associated piezometers are required to be read. The monitoring frequency determinations were established by the GT and LFD in coordination with WMDSM representatives, and are based on the occurrence of any activity (past, present, or future) undertaken within the influence zone of the SI/SAA. The intent of the reading schedule is to gather background data within a given influence zone with increasing frequency in advance of activity occurring, monitor it at a high frequency when activities are occurring, and then taper off the readings once activity has ceased.

SAAs will primarily be used in areas of active waste filling, leachate recirculation, and or cap construction. In locations where SAA casings have been installed, it is WMDSM's intent to install an SAA in the casing approximately four weeks prior to undertaking activity within the influence zone of the SAA casing. When SAAs are used, a data logger will be set-up to automatically take and record measurements one or more times per day. The GT and/or LFD will download the data and review it in accordance with the schedule on Chart 1. Table 1 includes a summary of which SI is associated with each SAA.

At the request of the GT or LFD, supplemental readings of the SIs may be performed if the initial results reveal questionable data related to instrumentation errors/equipment problems or if threshold action levels are exceeded (See Section 6.1).

Stockpiling of materials (such as cover materials) within the influence zone of SIs/SAAs to levels below the waste placement grades that have been approved by MEDEP does not constitute an activity as defined above. In the event WMDSM elects to temporarily stockpile materials at the site within the influence zone of an SI/SAA above waste placement grades, they shall notify the GT/LFD, and one reading of the SI/SAA in question shall be obtained. The data will be reviewed by the GT/LFD and additional readings may be requested.

5.2 Tracking of Activity and Coordination

On a routine basis (typically daily), WMDSM personnel will electronically record which grids activity occurred in (referencing the waste placement grids shown on Figures 4, 5, and 6) and the approximate elevation of the waste in the referenced grids. WMDSM personnel will upload the electronic version of the summary to the project web portal or email it to the GT/LFD on a regular basis. A sample copy of the electronic spreadsheet used for data tracking is included in Appendix C. Leachate introduction logs maintained as part of the recirculation program will be provided to the GT/LFD with activity tracking records.

The WMDSM District Engineer will be responsible for providing the GT/LFD with a schedule of proposed landfill activities. The WMDSM District Engineer will routinely communicate with the GT/LFD to allow for proper coordination of instrument readings in accordance with the schedule set forth in Chart 1 of the SMP.

The Technician will coordinate with WMDSM field personnel to verify reported site activities (landfilling, excavation, leachate recirculation, etc.).

6. DATA EVLAUATION AND NOTIFICATION REQUIREMENTS

6.1 Data Evaluation

Once the monitoring data has been obtained in accordance with Section 5, the Technician, LFD and/or GT will evaluate the results using the following methodology:

- For SIs, compute the incremental strain (% strain or inches of deflection) over each 2 foot vertical increment since the last reading;
- For SAAs, strains should be averaged over 3 SAA segments to account for the shorter spacing increment and lower stiffness of the SAA casing as compared to the SI measurement increment. Strain rates will be interpolated by the SAA program over the two week period preceding the reading;
- Establish if the SI/SAA is located in an SISG or Non-SISG Area (refer to Table 3 indicating SISG areas prepared by GT/LFD);
- Select the appropriate chart (for Non-SISG areas – Chart 2, for SISG areas – Chart 3) to evaluate the data; and
- Use the computed incremental strain values (% strain or inches of deflection) and follow the appropriate chart (Chart 2 or 3) to establish the next steps and notification requirements (if any).

The action level criteria contained within Charts 2 and 3 were established based on evaluations of the site subsurface conditions, a review of past data collected at the site, and the results of laboratory testing conducted on samples of the clay obtained from the site. The action levels and the corresponding responses are intended to provide an early warning system such that, if the action levels are exceeded, activities can be modified in a timely manner to slow or stop movements and pore pressure increases before they represent a potential stability concern.

6.2 Data Reporting

Data obtained from routine instrument readings will be transmitted from the Technician to the GT and/or LFD via e-mail. The data will be reviewed by the GT and/or LFD, and plots of the data will be posted to a secure (password protected) web portal site monthly by the GT and/or LFD. WMDSM and MEDEP will have access to the secure web portal site and can view and download the data at any time.

At the end of each calendar year, the LFD and/or GT will prepare an annual stability monitoring report to summarize and transmit the monitoring data. The report will include an assessment of the data by the LFD as it relates to the stability of the landfill units at the site. WMDSM will transmit the summary report to the MEDEP. Copies of the interim data plots will remain on the web portal until the annual report is issued.

6.3 Action Level Response Protocol

If the readings indicate that action criteria (see Charts 2 and 3) are exceeded, the notifications, additional instrument readings, and response actions outlined in the referenced charts will be followed. Notifications between the Technician and the GT, LFD, and WMDSM will be made by phone and or e-mail communication with the transmission of the appropriate data. Notifications to the MEDEP will be made via e-mail or by phone communication from WMDSM personnel.

The GT, LFD, and WMDSM personnel will review each exceedance on a case-by-case basis to assess if remedial actions other than those listed on Charts 2 and 3 are necessary. MEDEP personnel will be notified by WMDSM personnel via e-mail or phone of additional recommended remedial actions. WMDSM will seek concurrence from the MEDEP prior to undertaking additional remedial actions not specifically addressed in this plan.

TABLES

TABLE 1 - SUMMARY OF STABILITY MONITORING PLAN INSTRUMENTATION

Inclinometers (SI or SAA)

Designation	Location	Type of Inclinometer	Associated Instrumentation
W2-SI	Phase 7 – northwest	SI-Manual - Technician Read	W2-VWP
SAA-F13	Phase 7 – northwest	SAA - Automated	W2-SI, W2-VWP
SI-745	Phase 9A – west	SI-Manual - Technician Read	PZ-830
SAA-F14	Phase 9A – west	SAA - Automated	SI-745, PZ-830
SI-746	Phase 9B – north	SI-Manual - Technician Read	PZ-833
SAA-F3	Phase 9B – north	SAA - Automated	SI-746, PZ-833
SI-747	Phase 9B – east	SI-Manual - Technician Read	PZ-836
SAA-F2	Phase 9B – east	SAA - Automated	SI-747, PZ-836
SI-760	Phase 8A – south	SI-Manual - Technician Read	PZ-854
SAA-F5	Phase 8A – south	SAA - Automated	SI-760, PZ-854
SI-761	Phase 8A – east (Phase 1)	SI-Manual - Technician Read	PZ-859
SAA-F12	Phase 8A – east (Phase 1)	SAA - Automated	SI-761, PZ-859
SAA-F15	Phase 8C' – southeast	SAA - Automated	PZ-892
SI-765R	Phase 8A – west	SI-Manual - Technician Read	PZ-864
SAA-F4	Phase 8A - west	SAA - Automated	SI-765R, PZ-864
SI-767	Phase 8B – north	SI-Manual - Technician Read	PZ-871
SAA-F11	Phase 8B – north	SAA - Automated	SI-767, PZ-871
SI-769	Phase 8C' – east	SI-Manual - Technician Read	PZ-877, PZ-893
SAA-F7R	Phase 8C' – east	SAA - Automated	SI-769, PZ-877, PZ-893
SI-770	Phase 8C' – northeast	SI-Manual - Technician Read	PZ-880
SAA-F8	Phase 8C' – northeast	SAA - Automated	SI-770, PZ-880
SI-773	Phase 8A – east (Phase 2)	SI-Manual - Technician Read	PZ-889
SAA-F6	Phase 8A – east (Phase 2)	SAA - Automated	SI-773, PZ-891
SI-733	Phase 11A – south	SI-Manual - Technician Read	PZ-813
SI-734	Phase 11A – west	SI-Manual - Technician Read	PZ-814
SI-735	Phase 11A – southeast	SI-Manual - Technician Read	PZ-821
SI-736	Phase 11B – east	SI-Manual - Technician Read	PZ-815
SI-737	Phase 11B – west	SI-Manual - Technician Read	PZ-819
SI-739R	Phase 11C – west	SI-Manual - Technician Read	PZ-822
SI-740	Phase 11C – north	SI-Manual - Technician Read	PZ-824
SI-741R	Phase 11C – east	SI-Manual - Technician Read	PZ-825
SI-755	Phase 12A – west	SI-Manual - Technician Read	PZ-845
SI-756	Phase 12A – north	SI-Manual - Technician Read	PZ-847
SI-757	Phase 12B – east	SI-Manual - Technician Read	PZ-852
SI-758	Phase 12B – west	SI-Manual - Technician Read	PZ-849
SI-759	Phase 12B – south	SI-Manual - Technician Read	PZ-853

Piezometers (PZ)

Designation	Location	Read Out Box Location	Associated Instrumentation
W2-VWP	Phase 7 – northwest	at location of instrument	adjacent to W2-SI
PZ-830	Phase 9A – west	9A West	adjacent to SI-745
PZ-833	Phase 9B – north	9B North	adjacent to SI-746
PZ-836	Phase 9B – east	9B East	adjacent to SI-747
PZ-854	Phase 8A – south	8A South	adjacent to SI-760
PZ-859	Phase 8A – east (Phase 1)	8A East	adjacent to SI-761
PZ-863	Phase 8A C' division berm	8A East	—
PZ-864	Phase 8A – west	8A West 7	adjacent to SI-765R
PZ-871	Phase 8B – north	8B North	adjacent to SI-767
PZ-872	Phase 8B C' division berm	8B East	—
PZ-877	Phase 8C' – east	8C' South East	adjacent to SI-769
PZ-880	Phase 8C' – northeast	8C' North East	adjacent to SI-770
PZ-888	Phase 8C' – north and Asbestos LF south berm	at location of instrument	—
PZ-889	Phase 8A – east (Phase 2)	8A-East (Phase 2)	adjacent to SI-773
PZ-891	Phase 8A – east (Phase 2)	at location of instrument	adjacent to SAA-F6
PZ-892	Phase 8C' - southeast	8C' South Easte	adjacent to SAA-F15
PZ-893	Phase 8C' – east	8C' South	adjacent to SAA-F7R
PZ-813	Phase 11A – south	11A South	adjacent to SI-733
PZ-814	Phase 11A – west	11A West	adjacent to SI-734
PZ-821	Phase 11A – southeast	11A Southeast	adjacent to SI-735
PZ-815	Phase 11B – east	11B East	adjacent to SI-736
PZ-819	Phase 11B – west	11B West	adjacent to SI-737
PZ-822	Phase 11C – west	11 C West	adjacent to SI-739R
PZ-824	Phase 11C – north	11C North	adjacent to SI-740
PZ-825	Phase 11C – east	11C East	adjacent to SI-741R
PZ-845	Phase 12A – west	12A West	adjacent to SI-755
PZ-847	Phase 12A – north	12A North	adjacent to SI-756
PZ-852	Phase 12B – east	12B East	adjacent to SI-757
PZ-849	Phase 12B – west	12B West	adjacent to SI-758
PZ-853	Phase 12B – south	12B South	adjacent to SI-759

Notes

1. "SI" refers to Slope Inclinometer
2. "SAA" refers to Shape Accelerometer Array
3. "PZ" refers to piezometer cluster

TABLE 2 - SUMMARY OF SHEAR ZONE DETERMINATIONS

SI/SAA DESIGNATION	LOCATION	DEPTH OF MAXIMUM STRAIN IN SI (FT)(1)	APPROX DEPTH OF TOP OF TILL (FT)(2)	APPROX SHEAR ZONE (FT)(3)
PHASE 8/7/9 LANDFILL				
W2-SI/SAA-F13(4)	Phase 7 – northwest	47	61	37-57
SI-745/SAA-F14	Phase 9A – west	45	55	35-55
SI-746/SAA-F3	Phase 9B – north	57	67	47-67
SI-747/SAA-F2	Phase 9B – east	69	89	59-79
SI-760/SAA-F5	Phase 8A – south	50	60	40-60
SI-761/SAA-F12	Phase 8A – east (Phase 1)	52	60	42-60
SI-765R/SAA-F4	Phase 8A – west	57	65	47-65
SI-767/SAA-F11	Phase 8B – north	48	88	38-58
SI-769/SAA-F7R	Phase 8C' – east	NA (Note 4)	NA	NA
SI-770/SAA-F8	Phase 8C' – northeast	NA	NA	NA
SI-773/SAA-F6	Phase 8A – east (Phase 2)	40	46	30-46
SAA-F15 (Note 5)	Phase 8C' – southeast	NA	NA	NA
PHASES 11 AND 12 LANDFILLS				
SI-733	Phase 11A - south	53	59	43-59
SI-734	Phase 11A - west	54	64	44-64
SI-735	Phase 11A - southeast	66	68	56-68
SI-736	Phase 11B - east	47	53	37-53
SI-737	Phase 11B - west	51	61	41-61
SI-739R	Phase 11C - west	45	49	35-49
SI-740	Phase 11C - north	-	-	-
SI-741R	Phase 11C - east	44	68	34-54
SI-755	Phase 12A - west	43	59	33-55
SI-756	Phase 12A - north	37	43	Note 6
SI-757	Phase 12B - east	35	39	Note 6
SI-758	Phase 12B - west	41	49	Note 6
SI-759	Phase 12B - south	49	59	Note 6

Notes:

(1) Depth of maximum shear strain was interpolated from the inclinometer data compiled through 31 Dec 2015, as reported in the 11 April 2016 *Summary of 2015 Sitewide Stability Montioring* memorandum and does not include measurements within 10 ft of the surface. The maximum strain is updated annually, and annual update will supercede the values presented herein.

(2) Approximate depth of till was estimated from the inclinometer profiles.

(3) Approximate shear zone is defined as +/- 10 feet from the depth of maximum strain in the clay only, and terminated at the top of till if till is within 10 ft of the depth of maximum shear

(4) NA (Not Applicable) indicates that statistically significant positive strain had not been observed at the time of assessment.

(5) An SAA has not yet been installed in the SAA-F15 conduit

(6) Shear zone will be determined in the future if this location is defined as SISG.

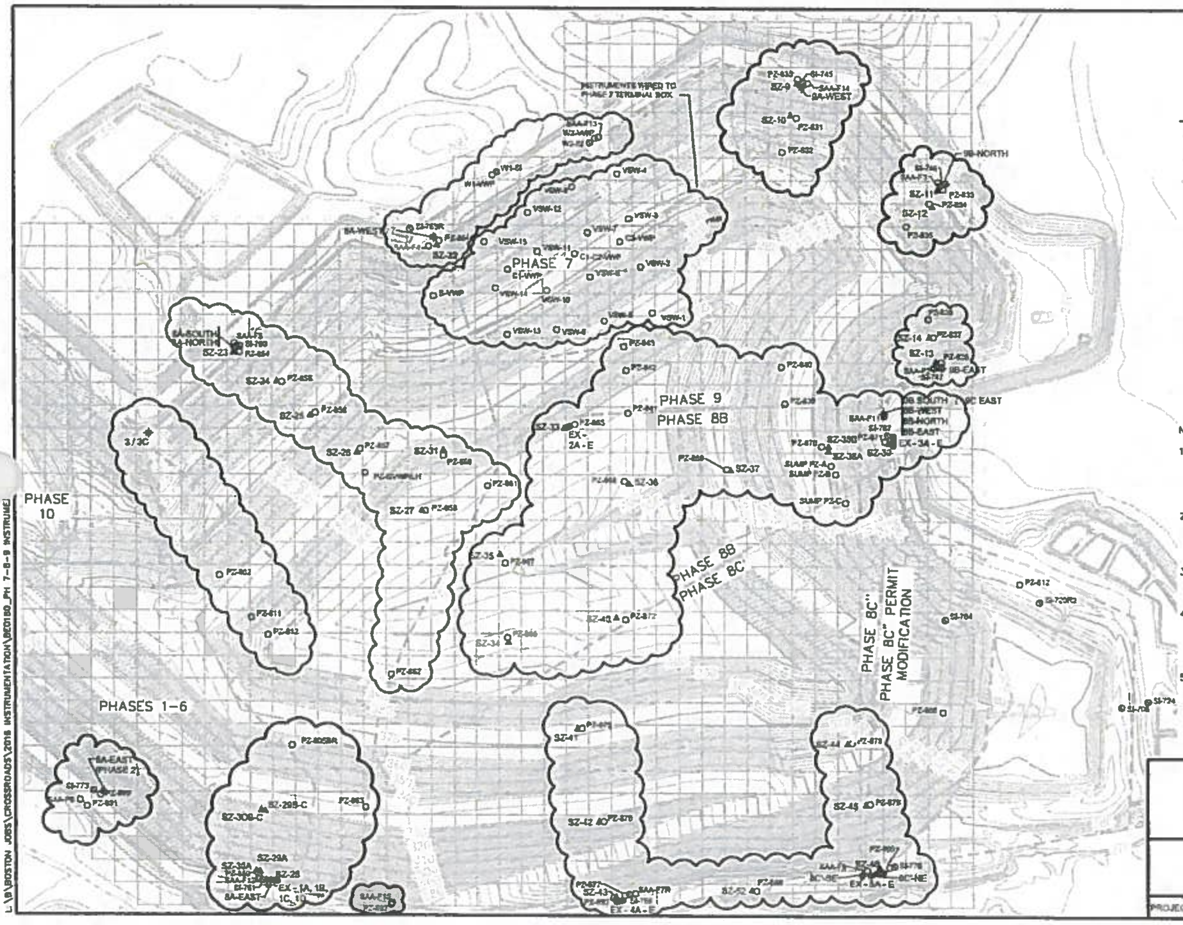
TABLE 3 - SISG[1] AREA DESIGNATIONS

SI or SAA Designation	Location	SISG / Non-SISG
W2-SI/SAA-F13	Phase 7 – northwest	SISG
SI-745/SAA-F14	Phase 9A – west	SISG
SI-746/SAA-F3	Phase 9B – north	SISG
SI-747/SAA-F2	Phase 9B – east	SISG
SI-760/SAA-F5	Phase 8A – south	SISG
SI-761/SAA-F12	Phase 8A – east (Phase 1)	SISG
SI-765R/SAA-F4	Phase 8A – west	SISG
SI-767/SAA-F11	Phase 8B – north	SISG
SI-769/SAA-F7R	Phase 8C' – east	SISG
SI-770/SAA-F8	Phase 8C' – northeast	SISG
SI-773/SAA-F6	Phase 8A – east (Phase 2)	SISG
SAA-F15	Phase 8C' – southeast	SISG
SI-733	Phase 11A – south	SISG
SI-734	Phase 11A – west	SISG
SI-735	Phase 11A – southeast	SISG
SI-736	Phase 11B – east	SISG
SI-737	Phase 11B – west	SISG
SI-739R	Phase 11C – west	SISG
SI-740	Phase 11C – north	SISG
SI-741R	Phase 11C – east	SISG
SI-755	Phase 12A – west	Non-SISG
SI-756	Phase 12A – north	Non-SISG
SI-757	Phase 12B – east	Non-SISG
SI-758	Phase 12B – west	Non-SISG
SI-759	Phase 12B – south	Non-SISG

Notes: 1. SISG referes to Shear Induced Strength Gain.

2. SISG areas are defined by the Geotechnical Engineer and Landfill Designer.

FIGURES



NORTH

LEGEND

- MAJOR TOP OF FINAL CAP CONTOUR
- MINOR TOP OF FINAL CAP CONTOUR
- PHASE BOUNDARIES
- □ PZ-801 VSW-3 W1-VWP — NESTED PIEZOMETER
- ▲ SZ-24 — SETTLEMENT PLATE
- ○ SAA-F3 — SHAPE ACCELEROMETER ARRAY (SAA)
- ● SI-767, W1-I3 — INCLINOMETER
- ◆ 8A-WEST — TERMINAL BOX
- EX-5A-E — EXTENSOMETER GROUP
- INDICATES WHICH INSTRUMENTS ARE WIRED TO TERMINAL BOX SHOWN IN BUBBLE

NOTES:

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83).
3. LANDFILL GRADES REPRESENT POST CLOSURE TOP OF FINAL CAP CONTOURS AND ASSUME PHASE 8 IS CONSTRUCTED AS PLANNED
4. INSTRUMENT LOCATIONS REPRESENT AS-BUILT LOCATIONS AS DETERMINED BY SACKETT & BRAKE SURVEY, INC. OF SKOWHEGAN, MAINE AND BOYNTON & PICKETT LLC OF SKOWHEGAN, MAINE.
5. WASTE PLACEMENT GRID FROM SACKETT & BRAKE SURVEY, INC.

200 100 0 200

SCALE IN FEET

CROSSROADS LANDFILL
PHASE 7, 8, 9
INSTRUMENT LOCATION PLAN

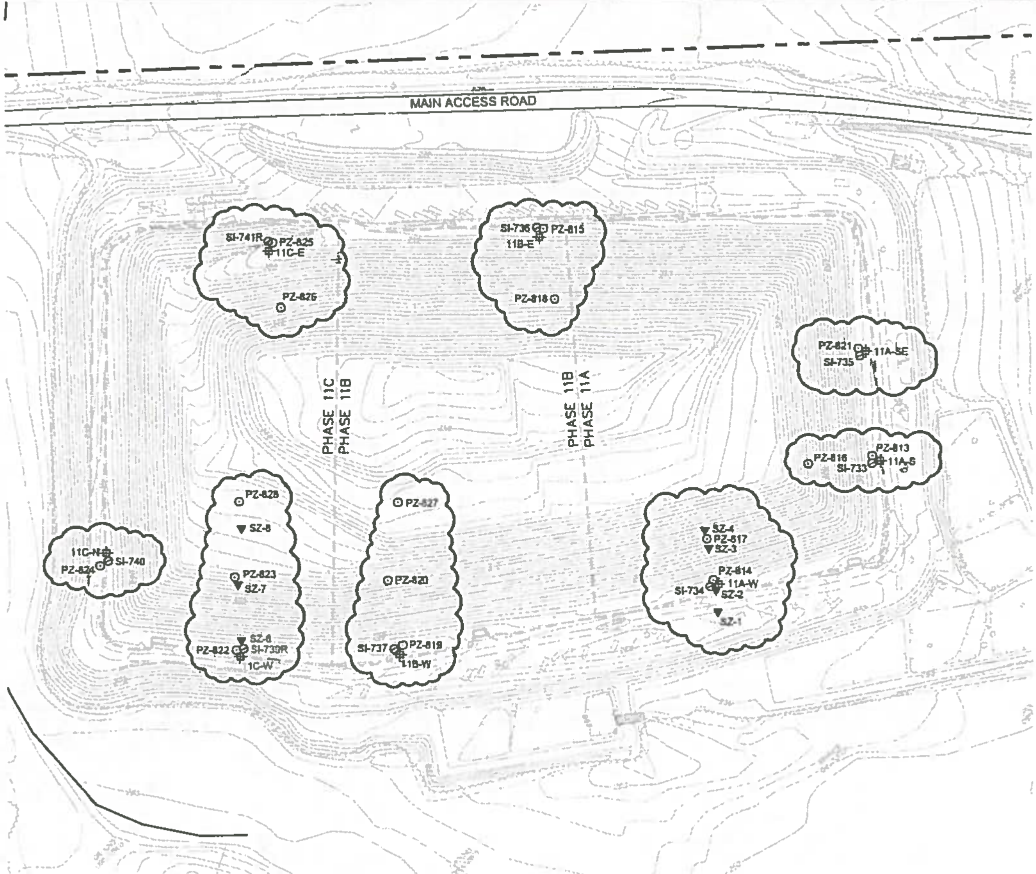
Geosyntec
consultants

FIGURE
1

PROJECT NO: BE0180D

DECEMBER 2016

L:\B\BOSTON JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180D_PH 7-8-9 INSTRUME



NORTH

LEGEND

	MAJOR INTERIM WASTE CONTOUR
	MINOR INTERIM WASTE CONTOUR
	PHASE BOUNDARIES
⊙ PZ-801	NESTED PIEZOMETER
▲ SZ-14	SETTLEMENT PLATE
● SI-707, W1-03	INCLINOMETER
◆ 6A-WEST	TERMINAL BOX
	INDICATES WHICH INSTRUMENTS ARE WIRED TO TERMINAL BOX SHOWN IN BUBBLE

NOTES:

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83)
3. ALL INTERIOR CELL BOUNDARIES, INSTRUMENTS, AND INSTRUMENT BOX LOCATIONS WERE DIGITIZED AND ARE APPROXIMATE.
4. SETTLEMENT PLATE SZ-5 LOCATION IS UNAVAILABLE AND THEREFORE NOT SHOWN.

150 75 0 150
SCALE IN FEET

CROSSROADS LANDFILL
PHASE 11
INSTRUMENT LOCATION PLAN

Geosyntec
consultants

FIGURE
2

PROJECT NO: BE0180D
DECEMBER 2016

L:\B\BOSTON JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180_PH 11 INSTRUMENTS

NORTH

LEGEND

	MAJOR TOP OF FINAL CAP CONTOUR
	MINOR TOP OF FINAL CAP CONTOUR
	PHASE BOUNDARIES
○ PZ-801	NESTED PIEZOMETER
▲ SZ-24	SETTLEMENT PLATE
▣ SI-757 W1-02	VERTICAL SLOPE INCLINOMETER
◆ 6A-WEST	TERMINAL BOX
	INDICATES WHICH INSTRUMENTS ARE WIRED TO TERMINAL BOX SHOWN IN BUBBLE

NOTES:

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83).
3. INTRAPHASE BOUNDARY AND ALL INSTRUMENTS AND INSTRUMENT BOX LOCATIONS WERE DIGITIZED AND ARE APPROXIMATE.

100 50 0 100
SCALE IN FEET

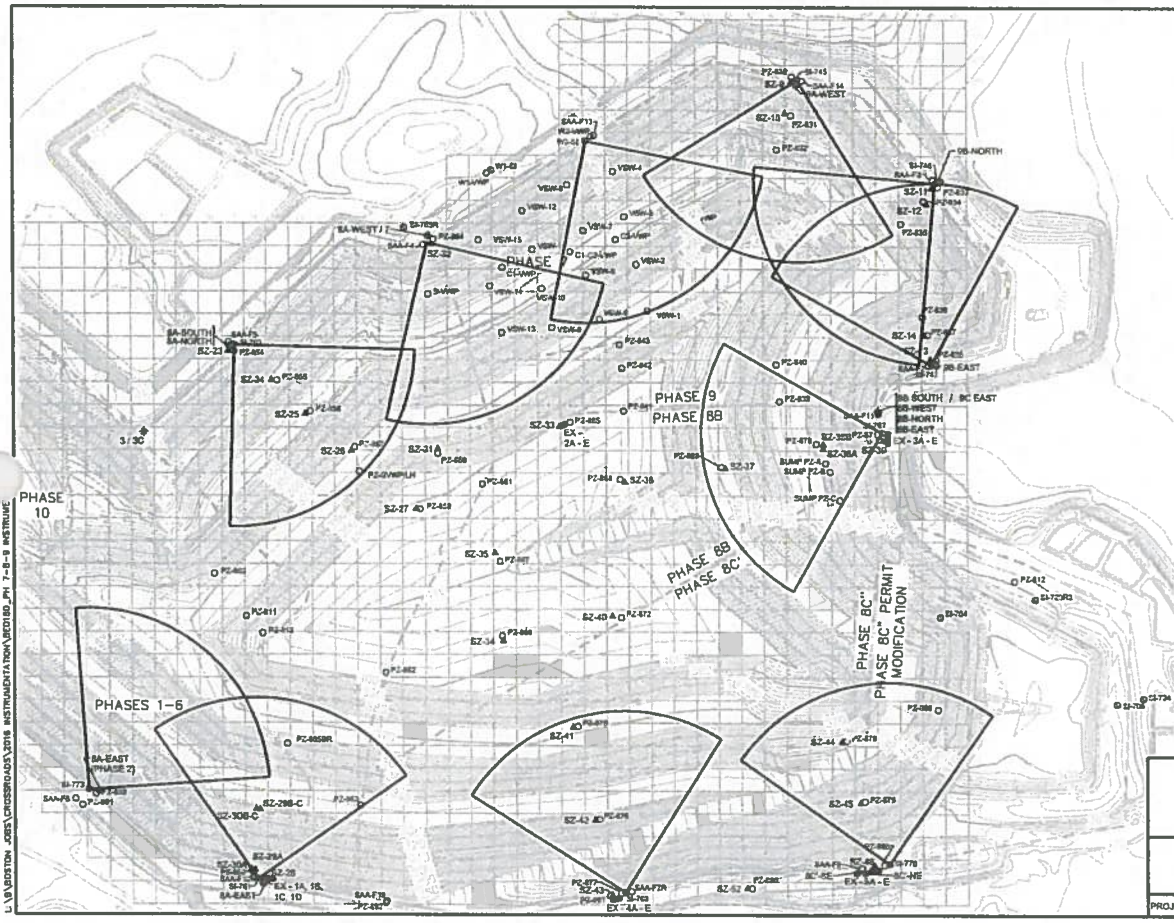
CROSSROADS LANDFILL
PHASE 12
INSTRUMENT LOCATION PLAN

Geosyntec
consultants

FIGURE
3

PROJECT NO: BE0180D
DECEMBER 2016

L:\B\BOSTON_JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180_PH 12 INSTRUMENTS



NORTH

LEGEND

MAJOR TOP OF FINAL CAP CONTOUR

MINOR TOP OF FINAL CAP CONTOUR

PHASE BOUNDARIES

NESTED PIEZOMETER

SETTLEMENT PLATE

SHAPE ACCELEROMETER ARRAY (SAA)

INCLINOMETER

TERMINAL BOX

EXTENSOMETER GROUP

INSTRUMENT INFLUENCE ZONE

NOTES:

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83).
3. LANDFILL GRADES REPRESENT POST CLOSURE TOP OF FINAL CAP CONTOURS AND ASSUME PHASE 8 IS CONSTRUCTED AS PLANNED
4. INSTRUMENT LOCATIONS REPRESENT AS-BUILT LOCATIONS AS DETERMINED BY SACKETT & BRAKE SURVEY, INC. OF SKOWHEGAN, MAINE AND BOYNTON & PICKETT LLC OF SKOWHEGAN, MAINE.
5. WASTE PLACEMENT GRID FROM SACKETT & BRAKE SURVEY, INC.

200 100 0 200

SCALE IN FEET

CROSSROADS LANDFILL
PHASE 7, 8, 9
INSTRUMENT INFLUENCE ZONES

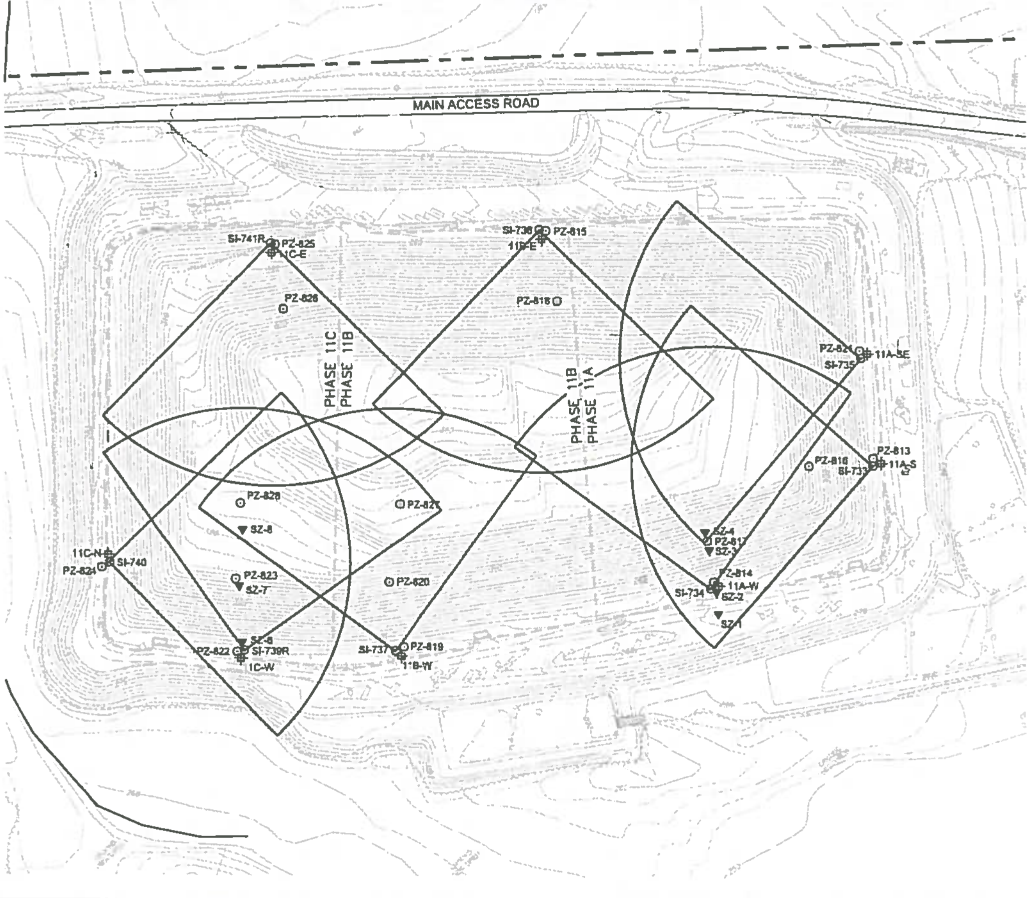
Geosyntec
consultants

PROJECT NO: BE0180D

DECEMBER 2016

FIGURE
4

L:\B\BOSTON JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180D_PH 7-8-9 INSTRUME



NORTH

LEGEND

———	MAJOR INTERIM WASTE CONTOUR
- - - -	MINOR INTERIM WASTE CONTOUR
— — —	PHASE BOUNDARIES
⊙ PZ-###	NESTED PIEZOMETER
▲ SZ-##	SETTLEMENT PLATE
● SI-### WT-##	VERTICAL SLOPE INCLINOMETER
◆ ##-WEST	TERMINAL BOX
♢	INSTRUMENT INFLUENCE ZONE

NOTES:

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83).
3. ALL INTERIOR CELL BOUNDARIES, INSTRUMENTS, AND INSTRUMENT BOX LOCATIONS WERE DIGITIZED AND ARE APPROXIMATE.
4. SETTLEMENT PLATE SZ-5 LOCATION IS UNAVAILABLE AND THEREFORE NOT SHOWN.

150 75 0 150
SCALE IN FEET

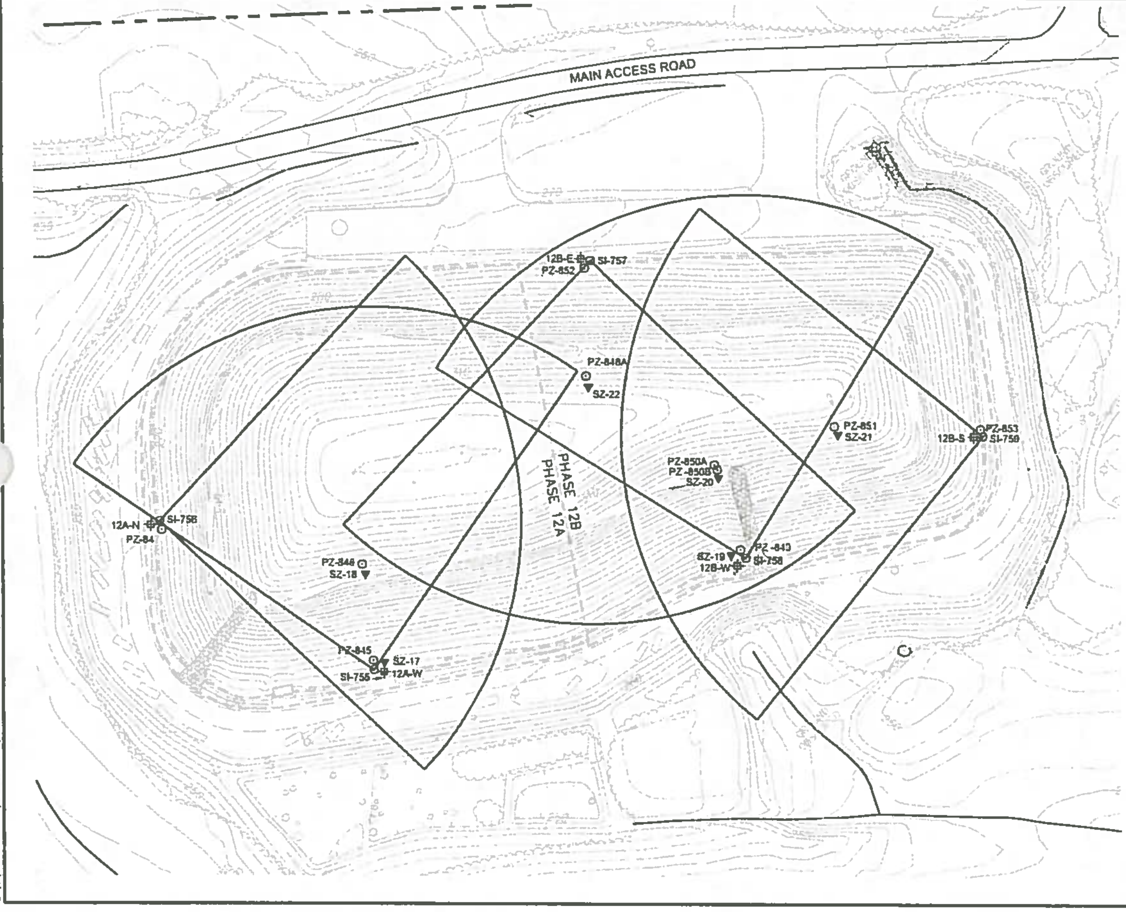
CROSSROADS LANDFILL
PHASE 11
INSTRUMENT INFLUENCE ZONES

Geosyntec
consultants

FIGURE
5

PROJECT NO: BE0180D
DECEMBER 2016

L:\B\BOSTON JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180_PH 11 INSTRUMENTS



NORTH

LEGEND

MAJOR TOP OF FINAL CAP CONTOUR
MINOR TOP OF FINAL CAP CONTOUR
PHASE BOUNDARIES
NESTED PIEZOMETER
SETTLEMENT PLATE
VERTICAL SLOPE INCLINOMETER
TERMINAL BOX
INSTRUMENT INFLUENCE ZONE

NOTES.

1. BASE PLAN IS FROM AERIAL SURVEYS ON 31 MARCH 2016, 31 MARCH 2015, 29 JUNE 2014, AND 29 SEPTEMBER 2016 PROVIDED BY FILE ENTITLED "SEPTEMBER 29, 2016 UPDATE" BY BOYNTON & PICKETT LLC.
2. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). HORIZONTAL DATUM IS MAINE WEST STATE PLANE (NAD83).
3. INTRAPHASE BOUNDARY AND ALL INSTRUMENTS AND INSTRUMENT BOX LOCATIONS WERE DIGITIZED AND ARE APPROXIMATE.

100 50 0 100
SCALE IN FEET

CROSSROADS LANDFILL
PHASE 12
INSTRUMENT INFLUENCE ZONES

Geosyntec
consultants

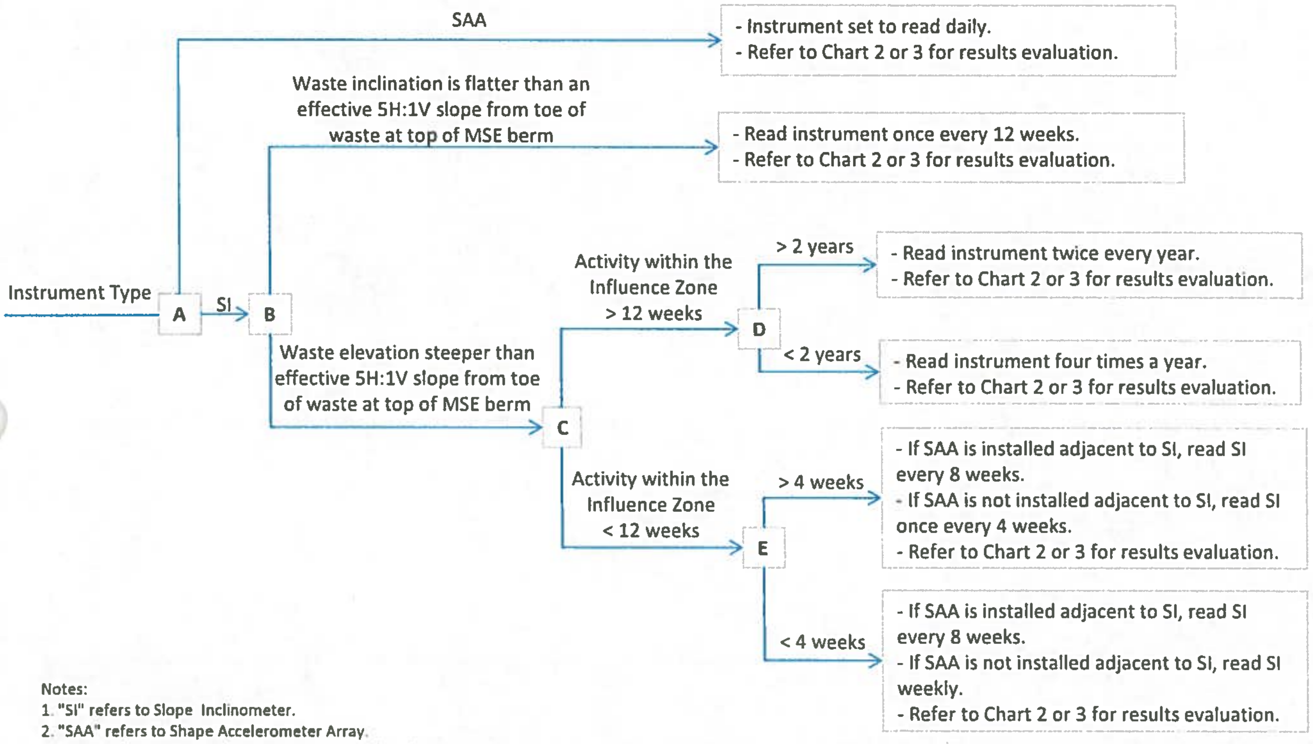
FIGURE
6

PROJECT NO: BE0180D
DECEMBER 2016

L:\B\BOSTON JOBS\CROSSROADS\2016 INSTRUMENTATION\BE0180_PH 12 INSTRUMENTS

CHARTS

CHART 1
INSTRUMENT READING FREQUENCY



- Instrument set to read daily.
- Refer to Chart 2 or 3 for results evaluation.

- Read instrument once every 12 weeks.
- Refer to Chart 2 or 3 for results evaluation.

- Read instrument twice every year.
- Refer to Chart 2 or 3 for results evaluation.

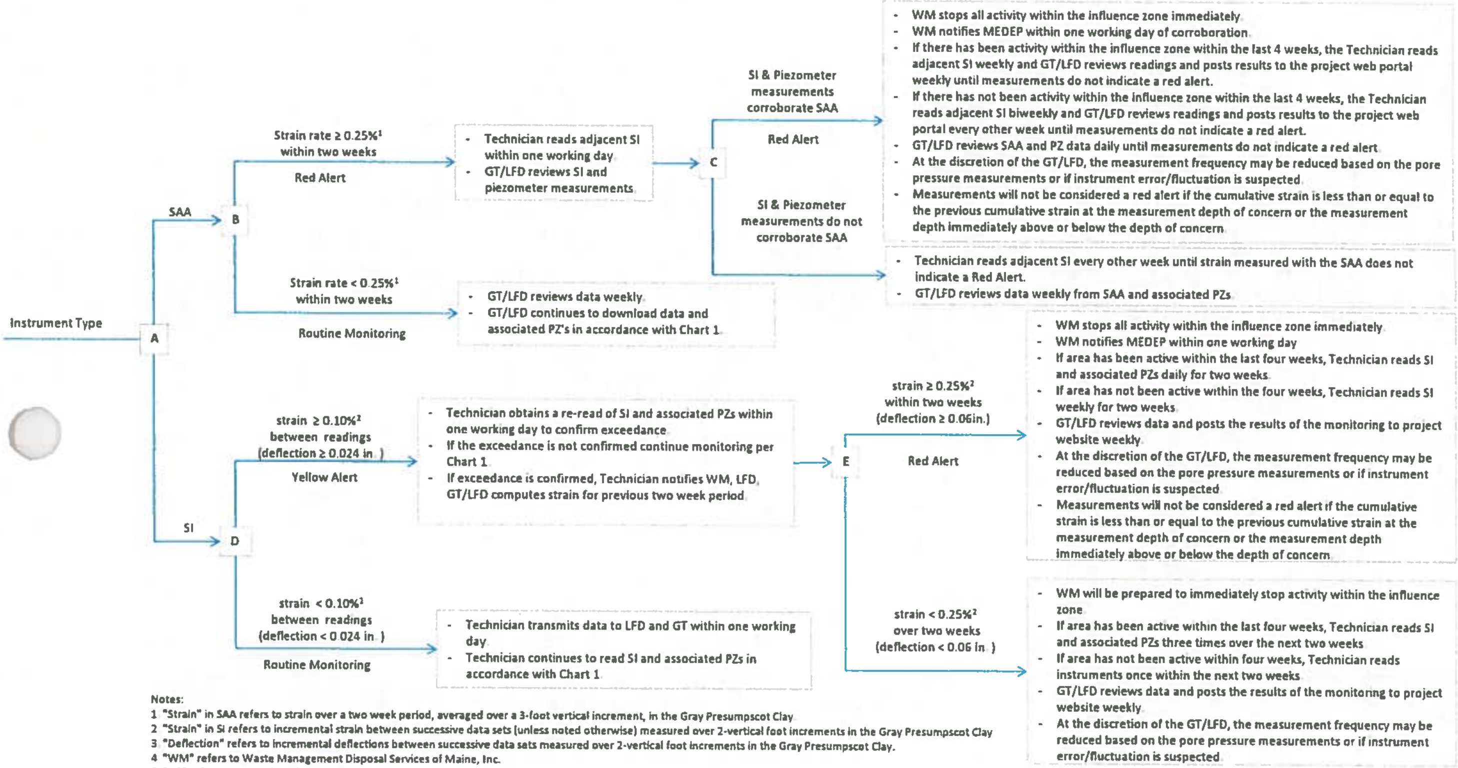
- Read instrument four times a year.
- Refer to Chart 2 or 3 for results evaluation.

- If SAA is installed adjacent to SI, read SI every 8 weeks.
- If SAA is not installed adjacent to SI, read SI once every 4 weeks.
- Refer to Chart 2 or 3 for results evaluation.

- If SAA is installed adjacent to SI, read SI every 8 weeks.
- If SAA is not installed adjacent to SI, read SI weekly.
- Refer to Chart 2 or 3 for results evaluation.

Notes:
1. "SI" refers to Slope Inclinometer.
2. "SAA" refers to Shape Accelerometer Array.
3. "> and <" refers to the timeframe when activity will occur or has already occurred. For example, >12 weeks means proposed activity will not occur in the next 12 weeks, and it has been more than 12 weeks since past activity has occurred.
4. "Activity" is defined as waste placement, leachate recirculation, construction activity (including excavation at the toe of the slope) or waste relocation within the influence zone. See SMP text for information on reading frequency where stockpiles are placed.
5. Technician will read SIs and adjacent piezometers. Geotechnical Engineer/Landfill Designer (GT/LFD) will download and review SAA data.
6. SAAs will be used near active waste placement, cap construction, and or leachate recirculation. GT/LFD will place SAA in area of landfill to undergo activity approximately four weeks prior to activity occurring and will leave SAA in place until approximately four weeks after activity has occurred. Adjacent SIs will be read quarterly while SAA measurements are taken.

CHART 2
ACTION LEVELS FOR NON-SISG AREAS



- Technician reads adjacent SI within one working day.
- GT/LFD reviews SI and piezometer measurements.

- WM stops all activity within the influence zone immediately.
- WM notifies MEDEP within one working day of corroboration.
- If there has been activity within the influence zone within the last 4 weeks, the Technician reads adjacent SI weekly and GT/LFD reviews readings and posts results to the project web portal weekly until measurements do not indicate a red alert.
- If there has not been activity within the influence zone within the last 4 weeks, the Technician reads adjacent SI biweekly and GT/LFD reviews readings and posts results to the project web portal every other week until measurements do not indicate a red alert.
- GT/LFD reviews SAA and PZ data daily until measurements do not indicate a red alert.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.
- Measurements will not be considered a red alert if the cumulative strain is less than or equal to the previous cumulative strain at the measurement depth of concern or the measurement depth immediately above or below the depth of concern.

- Technician reads adjacent SI every other week until strain measured with the SAA does not indicate a Red Alert.
- GT/LFD reviews data weekly from SAA and associated PZs.

- GT/LFD reviews data weekly.
- GT/LFD continues to download data and associated PZ's in accordance with Chart 1.

- Technician obtains a re-read of SI and associated PZs within one working day to confirm exceedance.
- If the exceedance is not confirmed continue monitoring per Chart 1.
- If exceedance is confirmed, Technician notifies WM, LFD, GT/LFD computes strain for previous two week period.

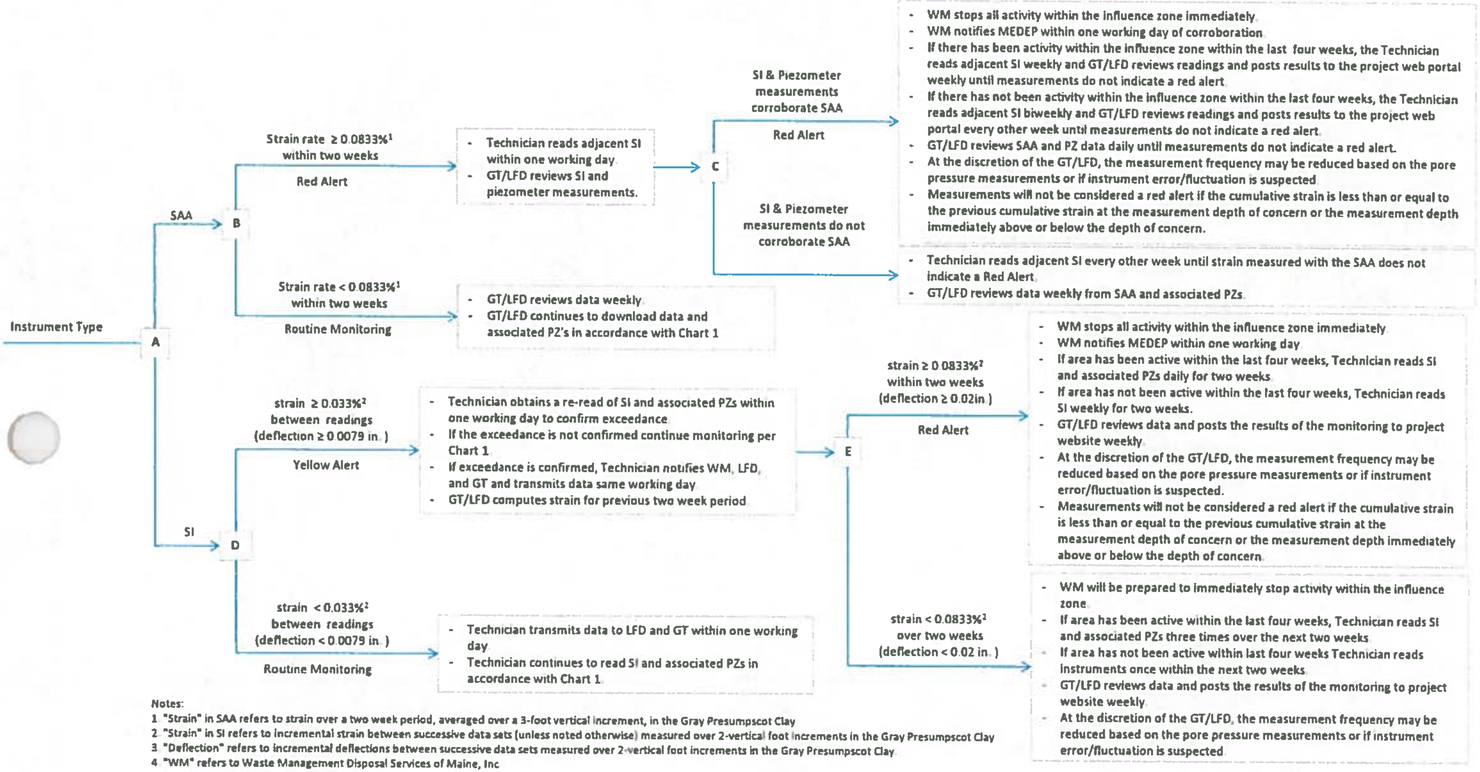
- WM stops all activity within the influence zone immediately.
- WM notifies MEDEP within one working day
- If area has been active within the last four weeks, Technician reads SI and associated PZs daily for two weeks.
- If area has not been active within the four weeks, Technician reads SI weekly for two weeks.
- GT/LFD reviews data and posts the results of the monitoring to project website weekly.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.
- Measurements will not be considered a red alert if the cumulative strain is less than or equal to the previous cumulative strain at the measurement depth of concern or the measurement depth immediately above or below the depth of concern.

- WM will be prepared to immediately stop activity within the influence zone.
- If area has been active within the last four weeks, Technician reads SI and associated PZs three times over the next two weeks.
- If area has not been active within four weeks, Technician reads instruments once within the next two weeks.
- GT/LFD reviews data and posts the results of the monitoring to project website weekly.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.

- Technician transmits data to LFD and GT within one working day.
- Technician continues to read SI and associated PZs in accordance with Chart 1.

Notes:
1. "Strain" in SAA refers to strain over a two week period, averaged over a 3-foot vertical increment, in the Gray Presumpscot Clay.
2. "Strain" in SI refers to incremental strain between successive data sets (unless noted otherwise) measured over 2-vertical foot increments in the Gray Presumpscot Clay
3. "Deflection" refers to incremental deflections between successive data sets measured over 2-vertical foot increments in the Gray Presumpscot Clay.
4. "WM" refers to Waste Management Disposal Services of Maine, Inc.
5. "GT" refers to Geotechnical Engineer.
6. "LFD" refers to Landfill Designer.
7. "PZ" refers to piezometer.
8. "SI" refers to slope inclinometer.
9. "SISG" refers to Shear Induced Strength Gain
10. "MEDEP" refers to Maine Department of Environmental Protection.
11. Where SAAs are used, the data from the adjacent SI will be obtained by the Technician. Unless directed by the LFD/GT, the Technician is not responsible for obtaining or reviewing readings from SAAs.
12. If observed total incremental strain is less than the previously observed total incremental strain then it shall not be considered an alert.

CHART 3
ACTION LEVELS FOR SISG AREAS



- Technician reads adjacent SI within one working day.
- GT/LFD reviews SI and piezometer measurements.

- WM stops all activity within the influence zone immediately.
- WM notifies MEDEP within one working day of corroboration.
- If there has been activity within the influence zone within the last four weeks, the Technician reads adjacent SI weekly and GT/LFD reviews readings and posts results to the project web portal weekly until measurements do not indicate a red alert.
- If there has not been activity within the influence zone within the last four weeks, the Technician reads adjacent SI biweekly and GT/LFD reviews readings and posts results to the project web portal every other week until measurements do not indicate a red alert.
- GT/LFD reviews SAA and PZ data daily until measurements do not indicate a red alert.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.
- Measurements will not be considered a red alert if the cumulative strain is less than or equal to the previous cumulative strain at the measurement depth of concern or the measurement depth immediately above or below the depth of concern.

- Technician reads adjacent SI every other week until strain measured with the SAA does not indicate a Red Alert.
- GT/LFD reviews data weekly from SAA and associated PZs.

- GT/LFD reviews data weekly.
- GT/LFD continues to download data and associated PZ's in accordance with Chart 1

- Technician obtains a re-read of SI and associated PZs within one working day to confirm exceedance.
- If the exceedance is not confirmed continue monitoring per Chart 1.
- If exceedance is confirmed, Technician notifies WM, LFD, and GT and transmits data same working day.
- GT/LFD computes strain for previous two week period.

- WM stops all activity within the influence zone immediately.
- WM notifies MEDEP within one working day.
- If area has been active within the last four weeks, Technician reads SI and associated PZs daily for two weeks.
- If area has not been active within the last four weeks, Technician reads SI weekly for two weeks.
- GT/LFD reviews data and posts the results of the monitoring to project website weekly.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.
- Measurements will not be considered a red alert if the cumulative strain is less than or equal to the previous cumulative strain at the measurement depth of concern or the measurement depth immediately above or below the depth of concern.

- WM will be prepared to immediately stop activity within the influence zone.
- If area has been active within the last four weeks, Technician reads SI and associated PZs three times over the next two weeks.
- If area has not been active within last four weeks Technician reads instruments once within the next two weeks.
- GT/LFD reviews data and posts the results of the monitoring to project website weekly.
- At the discretion of the GT/LFD, the measurement frequency may be reduced based on the pore pressure measurements or if instrument error/fluctuation is suspected.

- Technician transmits data to LFD and GT within one working day.
- Technician continues to read SI and associated PZs in accordance with Chart 1.

Notes:
1. "Strain" in SAA refers to strain over a two week period, averaged over a 3-foot vertical increment, in the Gray Presumpscot Clay
2. "Strain" in SI refers to incremental strain between successive data sets (unless noted otherwise) measured over 2-vertical foot increments in the Gray Presumpscot Clay
3. "Deflection" refers to incremental deflections between successive data sets measured over 2-vertical foot increments in the Gray Presumpscot Clay.
4. "WM" refers to Waste Management Disposal Services of Maine, Inc
5. "GT" refers to Geotechnical Engineer.
6. "LFD" refers to Landfill Designer
7. "PZ" refers to piezometer.
8. "SI" refers to slope inclinometer
9. "SISG" refers to Shear Induced Strength Gain
10. "MEDEP" refers to Maine Department of Environmental Protection
11. Where SAAs are used, the data from the adjacent SI will be obtained by the Technician. Unless directed by the LFD/GT, the Technician is not responsible for obtaining or reviewing readings from SAAs
12. If observed total incremental strain is less than the previously observed total incremental strain then it shall not be considered an alert.

APPENDIX A

SUMMARY OF SITEWIDE INSTRUMENTATION

APPENDIX A

INSTRUMENTATION LISTING BY LANDFILL

ASBESTOS LANDFILL INSTRUMENT LISTING

The Asbestos Landfill was closed (received final cap) during the Summer 1994. Monitoring results have indicated the landfill is stable under current/final loads. Monitoring of the remaining Asbestos landfill vertical slope inclinometers (704, 706R, 720R2, 724) and piezometer clusters (612, 706) as part of the sitewide stability monitoring program was discontinued. PZ 888 is still active and is included in the SMP. Refer to Figure 1 for the location of each instrument.

▪

PHASE 1-6 SECURE LANDFILL INSTRUMENT LISTING

Piezometers PZ-805BR, PZ-802, PZ-811, and PZ-812 are the only Phase 1-6 instruments remaining subsequent to Phase 8A construction and are now considered part of the Phase 8 instrumentation network. Refer to Figure 1 for the location of each instrument.

PHASE 7 SECURE LANDFILL INSTRUMENT LISTING

Refer to Figure 1 for the location of each instrument, as well as readout locations. As indicated in Section 3, not all of the instruments listed below are part of the SMP.

Instrument	Location
Slope Inclinometers	
W1	northwest perimeter berm
W2	northwest perimeter berm
SAA-F13	northwest perimeter berm, adjacent to W2-SI
Piezometer Clusters	
W1	northwest perimeter berm
W2	northwest perimeter berm
N	toe of slope, north perimeter berm (under south end of Phase 9A)
S	toe of slope, south perimeter berm (under north end of Phase 8A)
C1, C1/2, C2	Interior Phase 7
Settlement Plates	
VSW-1 through VSW-15	Interior Phase 7

NOTES:

(1) The following Phase 7 instruments were decommissioned in 2001 as part of Phase 9 construction: E1-SI, N-SI, S-SI, MSW-VWP, and E1-VWP.

(2) The following Phase 7 instrument was decommissioned in 2002 as part of Phase 8A construction: BM-VWP.

(3) As part of the December 2004 update of the SMP, WMDSM eliminated W1-SI, W1-VWP, and SLP-1 through 5 from the monitoring program, as they no longer provide information pertinent to the stability monitoring program.

PHASE 8 SECURE LANDFILL INSTRUMENT LISTING

Refer to Figure 1 for the location of each instrument, as well as readout locations. As indicated in Section 3, not all of the instruments listed below are part of the SMP.

Instrument	Location
Slope Inclinometers	
SI-760	Phase 8A – south
SAA-F5	Phase 8A – south
SI-761	Phase 8A – east (Phase 1 – northeast)
SAA-F12	Phase 8A – east (Phase 1 – northeast), adjacent to SI-761
SAA-F15	Phase 8A – east (Phase 1 – northeast)
SI-765R	Phase 8A – west (Phase 7 – southwest)
SAA-F4	Phase 8A – west (Phase 7 – southwest), adjacent to SI-765R
SI-767	Phase 8B – north
SAA-F11	Phase 8B – north
SI-769	Phase 8C' – southeast
SAA-F7R	Phase 8C' – southeast, adjacent to SI-769
SI-770	Phase 8C' – northeast
SAA-F8	Phase 8C' – northeast, adjacent to SI-770
SAA-F6	Phase 8A – east (Phase 2 – east), adjacent to SI-773
SI-773	Phase 8A – east (Phase 2 – east)
Piezometer Clusters	
PZ-854	Adjacent to SI-760: Phase 8A – south
PZ-859, PZ-892	Adjacent to SI-761: Phase 8A – east (Phase 1 – northeast)
PZ-864	Adjacent to SI-765R: Phase 8A – west (Phase 7 – southwest)
PZ-871	Adjacent to SI-767: Phase 8B – north
PZ-877, PZ-893	Adjacent to SI-769: Phase 8C' – southeast
PZ-880	Adjacent to SI-770: Phase 8C' – northeast
PZ-889	Adjacent to SI-773: Phase 8A – east (Phase 2 – east)
PZ-891	Adjacent to SAA-F6: Phase 8A – east (Phase 2 – east)
PZ-805BR, PZ863	Under floor of eastern portion of Phase 8A
PZ-855, PZ-856, PZ-857	Under floor of southern portion of Phase 8A
PZ-858, PZ-860, PZ-861, PZ-862	Under floor of northern portion of Phase 8A
PZ-866, PZ-867, PZ-872	Under floor of eastern portion of Phase 8B
PZ-870, SUMP PZs A thru C	Under floor of northern portion of Phase 8B
PZ-865, PZ-868, PZ-869	Under floor of western portion of Phase 8B
PZ-875, PZ-876, PZ-886	Under floor of southeastern portion of Phase 8C'
PZ-878, PZ-879	Under floor of northeastern portion of Phase 8C'
PZ-888	Asbestos LF – south

PHASE 8 SECURE LANDFILL INSTRUMENT LISTING (Cont.)

Settlement Cells and Extensometers	
SZ-25	Adjacent to SI-760: Phase 8A – south
SZ-28, EX-1A thru -1D	Adjacent to SI-761: Phase 8A – east (Phase 1 – northeast)
SZ-32	Adjacent to SI-765R: Phase 8A – west (Phase 7 – southwest)
SZ-39, EX-3A thru -3E	Adjacent to SI-767: Phase 8B – north
SZ-43, EX-4A thru -4E	Adjacent to SI-769: Phase 8C' – southeast
SZ-46, EX-5A thru -5E	Adjacent to SI-770: Phase 8C' – northeast
SZ-29A thru -29C, SZ-30A thru -30C	North end of Phase 1
SZ-24, SZ-26	Under floor of southern portion of Phase 8A
SZ-27, SZ-31	Under floor of northern portion of Phase 8A
SZ-34, SZ-35, SZ-40	Under floor of eastern portion of Phase 8B
SZ-38A, SZ-38B	Under floor of northern portion of Phase 8B
SZ-33, SZ-36, SZ-37, EX-2A through -2E	Under floor of western portion of Phase 8B
SZ-41, SZ-42, SZ-52	Under floor of southeastern portion of Phase 8C'
SZ-44, SZ-45	Under floor of northeastern portion of Phase 8C'

(SZ= settlement Plate; EX=multi-point extensometer)

PHASE 9 SECURE LANDFILL INSTRUMENT LISTING

Refer to Figure 1 for the location of each instrument, as well as readout locations. As indicated in Section 3, not all of the instruments listed below are part of the SMP.

Instrument	Location
Slope Inclinometers	
SI-745	Phase 9A, west perimeter berm
SAA-F14	Phase 9A, west perimeter berm, adjacent to SI-745
SI-746	Phase 9B, north perimeter berm
SAA-F3	Phase 9B, north perimeter berm, adjacent to SI-746
SI-747	Phase 9B, northeast perimeter berm
SAA-F2	Phase 9B, northeast perimeter berm, adjacent to SI-747
Piezometer Clusters	
PZ-832	Phase 9A-west, under landfill floor
PZ-831	Phase 9A-west, under landfill floor
PZ-830	Phase 9A-west, under landfill berm
PZ-835	Phase 9B-north, under landfill floor
PZ-834	Phase 9B-north, under landfill floor
PZ-833	Phase 9B-north, under landfill berm
PZ-838	Phase 9B-northeast, under landfill floor
PZ-837	Phase 9B-northeast, under landfill floor
PZ-836	Phase 9B-northeast, under landfill berm
PZ-840	Phase 9B-southeast, under landfill floor
PZ-839	Phase 9B-southeast, under landfill floor
PZ-843	Phase 9C-east, under Phase 7/9 division berm
PZ-842	Phase 9C-east, under landfill floor
PZ-841	Phase 9C-east, under landfill floor

NOTES:

(1) Settlement plates SZ-9 through SZ-14 have not functioned reliably and, therefore, have been discontinued from the Phase 9 monitoring program.

(2) Settlement plates SZ-15R and SZ-16R were installed in 2002 to replace SZ-15 and SZ-16, which were not functioning reliably, and therefore, have been decommissioned (see Note 4 for more details).

(3) The following Phase 9 instrument was decommissioned in 2003 as part of Phase 8A construction: SI-748.

(4) The following Phase 9 instruments were decommissioned in 2004 as part of Phase 8B construction: SI-749, SI-750, SZ-15, SZ-15R, SZ-16, and SZ-16R.

PHASE 10 SECURE LANDFILL INSTRUMENT LISTING

There are no Phase 10 instruments remaining.

PHASE 11 SECURE LANDFILL INSTRUMENT LISTING

Refer to Figure 2 for the location of each instrument, as well as readout locations. As indicated in Section 3, not all of the instruments listed below are part of the SMP.

Instrument	Location
Slope Inclinometers	
SI-733	Phase 11A, south perimeter berm
SI-734	Phase 11A, west perimeter berm
SI-735	Phase 11A, south perimeter berm
SI-736	Phase 11B, east perimeter berm
SI-737	Phase 11B, west perimeter berm
SI-739R (1)	Phase 11C, west perimeter berm
SI-740	Phase 11C, north perimeter berm
SI-741R (2)	Phase 11C, east perimeter berm
Piezometer Clusters	
PZ-821	Phase 11A, under landfill floor, southeast quadrant
PZ-813	Phase 11A, under landfill berm, southwest quadrant
PZ-817	Phase 11A, under landfill floor, northwest quadrant
PZ-814	Phase 11A, under landfill berm, northwest quadrant
PZ-818	Phase 11B, under landfill floor, southeast quadrant
PZ-815	Phase 11B, under landfill berm, southeast quadrant
PZ-827	Phase 11B, under landfill floor, northwest quadrant
PZ-820	Phase 11B, under landfill floor, northwest quadrant
PZ-819	Phase 11B, under landfill berm, northwest quadrant
PZ-828	Phase 11C, under landfill floor, west central
PZ-823	Phase 11C, under landfill floor, west central
PZ-822	Phase 11C, under landfill berm, west central
PZ-824	Phase 11C, under landfill berm, northwest quadrant
PZ-826	Phase 11C, under landfill floor, southeast quadrant
PZ-825	Phase 11C, under landfill berm, southeast quadrant
Settlement Plates	
SZ-1 through SZ-4	Phase 11A, under berm and floor, northwest quadrant
SZ-5 through SZ-8	Phase 11C, under berm and floor, west central

NOTES:

(1) SI-739R was installed in February 2003 to replace SI-739, which had separated likely due to frost action.

(2) SI-741R was installed in September 2007 to replace SI-741, which had buckled at depth likely due to settlement and down drag.

PHASE 12 SECURE LANDFILL INSTRUMENT LISTING

Refer to Figure 3 for the location of each instrument, as well as readout locations. As indicated in Section 3, not all of the instruments listed below are part of the SMP.

Instrument	Location
Slope Inclinometers	
SI-755	Phase 12A, west perimeter berm
SI-756	Phase 12A, north perimeter berm
SI-757	Phase 12B, east perimeter berm
SI-758	Phase 12B, west perimeter berm
SI-759	Phase 12B, south perimeter berm
Piezometer Clusters	
PZ-845	Phase 12A-west, under landfill berm
PZ-846	Phase 12A-west, under landfill floor
PZ-847	Phase 12A-north, under landfill berm
PZ-848A	Phase 12B-east, under landfill floor
PZ-849	Phase 12B-west, under landfill berm
PZ-850A, PZ-850B	Phase 12B-west, under landfill floor
PZ-851	Phase 12B-south, under landfill floor
PZ-852	Phase 12B-east, under landfill berm
PZ-853	Phase 12B-south, under landfill berm
Settlement Plates	
SZ-17	Phase 12A-west, under berm
SZ-18	Phase 12A-west, under floor
SZ-19	Phase 12B-west, under berm
SZ-20	Phase 12B-west, under floor
SZ-21	Phase 12B-south, under floor
SZ-22	Phase 12B-east, under floor

Note,

(1) Phase 12 has been closed and is entering its post-closure monitoring and maintenance. Hence, the above listed instruments may be decommissioned.

APPENDIX B

INSTRUMENTATION REPAIR

APPENDIX B

Inclinometers

Vertical inclinometer casing(s) that are struck by an object (i.e. vehicle, sliding snow, ice, or construction equipment) or separate due to frost heave will be repaired with a splint as described below. Typically, during such occurrences only the upper portion of ABS pipe becomes damaged and installation of a new inclinometer is not necessary. If a new inclinometer is necessary, WMDSM will contact GT and/or LFD for further recommendations.

Standard Vertical Inclinometer Splint Repair

1. Tie-off the aluminum or steel protective casing to 3 driven grade stakes utilizing a 2-lb hammer and a 100' nylon rope.
2. Open or remove locking lid on the protective casing and survey top of blue ABS cap (which is inserted within the ABS casing) in order to extend replacement to same elevation. A surveyor's level and rod is needed to accomplish this task.
3. Excavate and shovel (around inclinometer) to approximately 1.5' below the ABS casing problem area utilizing an excavator and a hand shovel. Protective casings are approximately 7.5' long and extend above the ground's surface 2'-5'.
4. Tie top of protective casing unit to the excavator bucket with a strap. While relieving downward pressure, saw the ABS casing with a carpenter's saw as square as possible and plug the hole with a towel when finished.
5. Using the blue ABS cap as a guide, file the end of the cut with a wood rasp until square. Clean around ABS casing approximately 1' below cut with paper towels.
6. Saw a 1'section from the male end of a new 10' ABS casing and square the cut end. A measuring tape will be needed to perform this procedure. Generally, the coupling portion of the male piece is not counted as part of the one-foot length.
7. Butt (squared ends to each other) the 1' ABS section to the previously exposed ABS casing within the ground. Apply ABS cement to butt surface and tape outside area of both sections using electrician's tape.
8. Insert rodded T Tool into the grooves of ABS casing to the butted area of the two sections. Vice grip the rod at this location in order to achieve the necessary groove alignment between the casings once the splint has been placed.
9. Apply ABS cement on outside surface of both casing sections approximately 6" above and below the butt.
10. Place 3" Schedule 80 PVC splint with 3/8 gap along entire 10" length on the butt and tighten the two 3.5" hose clamps located near the ends with a screwdriver.
11. Apply ABS cement to the split along the PVC and duct tape entire splint.

12. Apply ABS cement to the outside surface of the eventual coupling placement location of the splinted 1' ABS section. Insert the ABS coupling and apply ABS cement in the same fashion to the replacement section, which will extend to the previously surveyed elevation.
13. Apply Vaseline® with a putty knife around splint, 1' ABS section, and ABS replacement section to help prevent heave of casing or wrap multiple layers of plastic around the ABS section(s) to achieve the same effect. Upon completion place ABS cap on casing.
14. Backfill around ABS column with fine to course sand until top of aluminum anodized protective casing would be approximately 1" above the ABS casing upon replacement.
15. Center the aluminum protective casing over the ABS column and backfill around casing with fine to course sand. Tamper and compact sand by foot or butt of shovel while plumbing protective casing with a level until the original ground surface has been reached. The excavator will backfill the remaining area simultaneously and assure the inclinometer is accessible by vehicle.
16. Sand is then placed within the aluminum protective casing (around the ABS casing) until the top is encountered.
17. Place lower portion of lid with a 5/32" Alan wrench in order to secure upper locking cap.

NOTE: The underlined words denote materials needed to perform the procedure.

Piezometers

Should a vibrating wire piezometer cable become damaged, the necessary repairs will be performed in accordance with manufacturer's and/or GT's or LFD's recommendations.

SAA's

Should an SAA become damaged, the necessary repairs will be performed in accordance with manufacturer's and/or GT's or LFD's recommendations.

APPENDIX C

DAILY ACTIVITY LOG (SAMPLE)

DAILY SUMMARY OF LANDFILL ACTIVITY - CROSSROADS LANDFILL

DATE ___________

AREAS OF WASTE PLACEMENT

GRID # WHERE WASTE WAS PLACED	APPROX. WASTE ELEV.

Other Details:

Notes:

1. If a grid location is listed in the table above it means that waste was placed within that cell on the referenced date.
2. The elevation reported for each grid location is the approximate final waste elevation for the day within that grid location.
3. Note activity other than waste placement (e.g. leachate recirculation, cap construction, etc.) in the Other Details section.

SECTION VIII

POST CLOSURE MONITORING AND MAINTENANCE PROGRAM

REVISION BLOCK				
REV. NO.	**DATE**	**PAGES AFFECTED**	**DESCRIPTION**	**BY**
0	April 99	all	1999 annual update	pfb/sam
1	April 00	all	2000 update with response to MDEP comments on Rev. No. 0	IVS(GZA)
2	Dec. 01	all	2001 annual update	WMDSM
3	Dec. 02	revision block and date only	2002 annual update – reviewed; no changes	WMDSM
4	Dec. 03	Edits tracked	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits; 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; 2008 annual update (minor)	WMDSM
8	Apr. 10	Edits tracked	Accept 2008 edits; 2010 annual update (minor)	WMDSM
9	Dec. 16	Edits tracked	Accept 2010 edits; 2016 annual update (minor)	WMDSM
	* "TOC" refers to the Table of Contents			

SECTION VIII
POST CLOSURE MONITORING AND MAINTENANCE PROGRAM

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APPENDIX

SECTION VIII

POST CLOSURE MONITORING AND MAINTENANCE PROGRAM

1. INTRODUCTION

WMDSM undertakes a thirty-year Post Closure Monitoring and Maintenance Program (PCMMP) that is initiated following completion of construction of the final cover system over an inactive landfill unit. The PCMMP has been developed to address environmental and geotechnical monitoring, engineered systems operations, inspections, and overall landfill maintenance of the closed landfill units (with final cover system in-place) at Crossroads as required by the Maine Solid Waste Management Regulations and Waste Management policy.

In accordance with Section I – Part A of this Site Operations Manual, this PCMMP will be reviewed at least annually and updated as necessary to include proposed changes to the program. During the Post Closure periods of the closed landfill units, other landfill units will be operating in accordance with their specific licenses and operating and monitoring plans. Inspection and maintenance of the non-closed landfill units are not covered by this Section.

1.1 Landfill Units in Post Closure Status

The following table summarizes which landfill units on the WMDSM site are currently included in the PCMMP and provides information regarding closure dates and overall performance of the closed facility.

LANDFILL UNIT	YEAR CLOSURE CONSTRUCTION COMPLETED	COVER SYSTEM TYPE	OVERALL PERFORMANCE TO DATE
Asbestos Landfill	1994	Soil-synthetic composite	Satisfactory
Phase 10 Secure Landfill	2016	Soil-synthetic composite	Satisfactory
Phase 12 Secure Landfill	2016	Soil-synthetic composite	Satisfactory

Note: As part of Phase 8B/8C' construction, which commenced in November 2003, the MSW landfill cover system was removed. Waste from the MSW landfill was excavated and relocated to the Phase 8A/8B Secure Landfill from 2003 to 2005. As such, the MSW landfill no longer exists, and post closure monitoring and maintenance has been discontinued within this area.

2. POST CLOSURE MONITORING

Water quality monitoring is conducted in accordance with WMDSM's Water Quality Monitoring Program, Section X of WMDSM's Site Operations Manual. The Water Quality Monitoring Plan defines the locations, monitoring frequencies, and analysis parameters for the following:

- Groundwater Monitoring;

- Surface Water Monitoring; and
- Leachate Quality Monitoring.

Results of water quality monitoring are submitted to the MDEP in accordance with the WMDSM Water Quality Monitoring Program.

Landfill gas monitoring is conducted in accordance with WMDSM's Gas Migration Monitoring Plan and Gas Collection and Control System Operations and Monitoring Plan, Section VI – Parts A and B, respectively of WMDSM's Site Operations Manual. Results obtained from this monitoring are reported to the MDEP in conjunction with the water quality monitoring reports.

Geotechnical monitoring includes reading of vertical slope inclinometers, vibrating wire piezometers, and vibrating wire settlement devices. Stability/geotechnical monitoring is conducted in accordance with the Stability Monitoring Plan, Section VII of WMDSM's Site Operations Manual. Results of routine stability monitoring are provided to the MDEP as specified within the plan.

Leachate management system monitoring for the closed landfill units is completed in accordance with the Leachate Management Plan, Section III of WMDSM's Site Operations Manual. Operation, inspection, and maintenance of the leachate collection/detection/underdrain systems and management system will continue to be conducted on a routine basis in accordance with the Leachate Management Plan during post closure periods. All deficiencies will be addressed expediently and the MDEP will be notified of significant problems or failures in accordance with the Leachate Management Plan.

Cover system monitoring and maintenance is completed in accordance with this PCMMP. Site erosion and sedimentation controls and stormwater management are also checked in accordance with the Erosion Control Plan, Section IX and the Storm Water Pollution Prevention Plan (SWPPP), Section V of WMDSM's Site Operations Manual, to ensure proper drainage and control of stormwater runoff from closed areas. Site access controls are checked as part of the post closure inspections. The vegetated portions of the landfill cap will be mowed at least once annually. Any deficiencies identified during formal and informal inspections are addressed and the MDEP will be notified of any significant problems or failures, as discussed below.

3. POST CLOSURE INSPECTIONS

Site personnel routinely complete formal and informal inspections of the final cover of closed landfill units for erosion, settlement, damage, and unauthorized use. As part of this PCMMP, formal post closure Inspections will be conducted for all closed WMDSM landfill units. Inspections will be performed by a qualified individual, with the inspections submitted to and reviewed by the Site Manager and/or Operations Supervisor and Site Engineer.

Post closure inspections will commence in the first full four-month-period after completion of closure construction, and will be completed tri-annually thereafter until such time that approval is obtained from the MDEP to reduce the inspection frequency. At this time, post closure inspections will be completed at the frequency listed in the following table.

LANDFILL UNIT	YEAR CLOSURE CONSTRUCTION COMPLETED	OVERALL INSPECTION RESULTS TO DATE	INSPECTION FREQUENCY
Asbestos Landfill	1994	Satisfactory; cover stabilized	Tri-Annually
Phase 10 Secure Landfill	2016	Satisfactory	Tri-Annually
Phase 12 Secure Landfill	2016	Satisfactory	Tri-Annually

Post closure inspections will address the following items:

- Security / Access Control;
- Condition of Cover Vegetation / Materials;
- Evidence of Erosion;
- Condition of Permanent Drainage Features; and
- Evidence of Vectors.

A standard Post Closure Inspection Checklist (Appendix VIII-A) will be used to document each formal post closure inspection. Post closure inspection reports will be submitted to the MDEP and will consist of a narrative cover letter and the inspection checklist. The narrative cover letter will summarize the inspection with specific reference to any nonconforming item(s). The post closure reports will be used by WMDSM to identify and track corrective work.

The post closure inspection reports will be submitted to the MDEP within 60 days from the date of inspection. As indicated in Subsection 2., the geotechnical monitoring reports, gas monitoring results, and water quality monitoring reports are submitted under separate cover to the MDEP per the requirements of the associated sections of the Site Operations Manual.

4. FINANCIAL ASSURANCE

WMDSM's Financial Assurance Documents are reviewed annually and revised as necessary to reflect post closure monitoring and maintenance cost changes or expenditures. The updated amount provided in the Financial Assurance Document is reflected in WMDSM's Annual Report to the MDEP.

APPENDIX VIII-A

POST CLOSURE INSPECTION CHECKLIST

WMDSM - Crossroads Landfill

Norridgewock, Maine

POST CLOSURE INSPECTION CHECKLIST

INSPECTOR(S) ____________________ DATE: ____________________

WEATHER: Today: ____________________ Yesterday: ____________________

ITEM	YES	NO	NA	COMMENTS/ACTION
FACILITY ACCESS				
1. Is access controlled with gate?				
2. Are the following signs/information posted? - operating authority - emergency telephone number - no trespassing				
3. Is entrance/access road properly graded to drain?				
DISPOSAL AREA – FINAL COVER				
4. Is final cover system in tact, (i.e., no settlement, animal burrows, etc.)?				
5. Is vegetation established over areas with final cover?				
6. Has grass vegetative cover been mowed at least once this year?				
DRAINAGE				
7. Is there evidence of erosion of final cover?				
8. Are drainage structures properly maintained?				
9. Are sediment controls provided and working adequately?				
10. Do all inactive areas have vegetative cover?				
GAS CONTROL				
11. Is gas migration controlled as indicated by a lack of stressed vegetation?				
12. Is gas migration controlled as indicated by a lack of odor on the site periphery?				
13. Are gas vents properly maintained?				
14. Are gas probe and monitoring readings performed as required by permit?				

WMDSM - Crossroads Landfill

Norridgewock, Maine

POST CLOSURE INSPECTION CHECKLIST

ITEM	YES	NO	NA	COMMENTS/ACTION
GROUNDWATER MONITORING				
15. Is the structural integrity of the monitoring wells (i.e., riser pipe and protective casing) acceptable?				
16. Are all monitoring wells properly secured (i.e., locked)?				
17. Is groundwater monitoring performed as required by permit and are results acceptable?				
LEACHATE COLLECTION				
18. Is leachate contained as indicated by the lack of leachate outbreaks or seeps?				
19. Are leachate collection system and appurtenances functioning properly?				
20. Is leachate properly removed and disposed?				
GEOTECHNICAL MONITORING				
21. Is geotechnical monitoring performed as required?				
22. Are results acceptable?				
23. Are all monitoring devices functional and properly maintained and secured?				
PERMIT REPORTING REQUIREMENTS				
24. Periodic reporting required by state permit completed and submitted?				

COMMENTS (add additional pages if necessary)

____

____

____

____

I have read and agree with the information provided above.

Signature ______________________________ Date __________________

Title ______________________________

cc: Crossroads Site Manager
Crossroads Site Engineer

file: Crossroads Post Closure Inspections

WATER QUALITY MONITORING PLAN – REVISION 6.1

Crossroads Landfill
Norridgewock, Maine

Submitted To: Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
17 State House Station
Augusta, Maine 04333 USA

Submitted By: Waste Management Disposal Services of Maine, Inc.
Crossroads Landfill
P.O. Box 629
357 Mercer Road
Norridgewock, Maine 04957 USA

Prepared By: Golder Associates Inc.
670 North Commercial Street, Suite 103
Manchester, New Hampshire 03101 USA

Distribution:

2 Copies – Maine DEP
2 Copy – WMDSM
1 Copy – Town of Norridgewock
1 Copy – Golder Associates

December 2016

Project No.: 983-6836

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1.0 INTRODUCTION

This Water Quality Monitoring Plan (WQMP) has been prepared to meet the requirements of Chapter 405 of the State of Maine Solid Waste Management Regulations (SWMR, Revised April 12, 2015) for the Crossroads Landfill located in Norridgewock, Maine (the Site, Figure 1).

Chapter 405 describes four types of monitoring: 1) Site Characterization Monitoring, 2) Detection Monitoring, 3) Assessment Monitoring, and 4) Alternative Groundwater Monitoring. The monitoring requirements outlined in this document have been prepared to fulfill the detection monitoring requirements. The purpose of these requirements is "to detect changes in water quality throughout the active life of the facility and through closure and post closure periods." This document presents the quality monitoring program for groundwater, surface water, leachate collection, and leak detection.

The last substantial revision to the WQMP was provided as Revision 5 in December 2006. This version (Revision 6.1) supersedes all previous versions of the Site WQMP.

2.0 GROUNDWATER SAMPLING PROGRAM

Groundwater sampling and analysis will be performed on a tri-annual (three times per year) basis. The first event, conducted in the spring (April/May) of each year, will be referred to as the "First Tri-Annual Event". The second and third events, conducted in the summer (August) and autumn (November) of each year, will be referred to as the Second and Third Tri-Annual Events, respectively. The objective of groundwater monitoring is to detect changes in groundwater quality. Groundwater sampling points are located upgradient and downgradient of the landfills.

2.1 Sampling Locations, Frequencies and Analytical Parameters

The sampling locations and analytical parameters for each sampling event are presented in the attached tables and appendices. Table 1 lists the monitoring wells and analytical parameters for the First Tri-Annual Event. Table 2 provides the same information for the Second and Third Tri-Annual Events. Appendix A contains the lists of compounds for specific analyses. Appendix B includes monitoring well installation logs for the monitoring wells included in the groundwater monitoring program. Monitoring well construction information is summarized in Table 3. Monitoring well locations are illustrated on Figure 2. The transfer station well ("TRANS") will be sampled for additional parameters, as indicated on Table 1, at the discretion of WMDSM. These parameters are not part of the site WQMP; however, they are listed in this plan for the convenience of the sampling team.

The New Office and Garage water supply wells, which are on the Crossroads property, and the Totman water supply well, which is upgradient and off-property, are not required to be sampled as part of this WQMP, but will be sampled annually at the discretion of WMDSM. The parameters for these wells are listed on Table 4 for the convenience of the sampling team. The Maine DEP does not require submission of the analytical results from New Office, Garage and Totman samples; however, WMDSM may choose to submit these results to the Maine DEP along with the groundwater data for the monitoring wells and the transfer station well in the required sampling program.

2.2 Sampling Methods and Procedures

2.2.1 Order of Sample Collection

One objective of the sampling procedures described in this document is to reduce the potential for cross-contamination between sampling locations. For this reason, WMDSM has installed dedicated sampling equipment in the monitoring wells. Therefore, in accordance with Chapter 405 (2)(A)(2)(c), a specific well sampling order is not required.

2.2.2 Decontamination Procedures

As described above, all groundwater sampling equipment at the Crossroads site is dedicated, therefore, equipment decontamination is not be required. Non-dedicated equipment used for collection of field parameter measurements and water levels will be rinsed three times with copious quantities of de-ionized water as described in Section 7.1.5.

2.2.3 Sample Collection Methods and Procedures

Existing wells have been surveyed and identified within a site-specific coordinate system. Table 3 contains information about well reference elevation data, installation date, well depth, and screened formation.

Monitoring well inspection forms (see Appendix C) will be completed for each well during the First Tri-Annual Event. These forms include inspection of the well location, casing, seals, protection and access. During the Second and Third Tri-Annual Events, items potentially affecting monitoring well integrity will be noted on the Field Information Forms (FIFs).

Groundwater will be sampled, handled and analyzed in accordance with the Maine DEP SWMR unless superseded by this WQMP. Water will be withdrawn from the wells using micropurging techniques in accordance with the purging procedures described in Appendix D.

Monitoring wells and the Totman well are equipped with dedicated peristaltic pumps or bladder pumps (Well Wizards) for purging and sampling. The TRANS well is equipped with a submersible pump, and samples will be collected from a designated spigot at the transfer station attendant's building. The New Office and Garage wells are equipped with submersible pumps and will be sampled from taps located inside the respective buildings. Wells equipped with submersible pumps will be run for a minimum of five minutes prior to sample collection. Monitoring wells and the Totman well will be sampled using the following procedures:

- Measure the static water elevation from the reference elevation (top of PVC riser) to the closest 0.01 feet.
- Begin purging the well by attaching the peristaltic pump or bladder pump controller to the well cap fitting, and turn on the pump or controller.
- Follow the micropurging procedure outlined in Appendix D.
- While purging the well, measure pH, Eh or Oxidation Reduction Potential (ORP) and dissolved oxygen using an inactive in-line cell at the discharge of the pump. Record the following field parameters:
  - Specific conductance
  - Temperature
  - pH
  - Eh/ORP
  - Dissolved oxygen
  - Color, odor, surface sheen, or other field observations
  - Turbidity

- Collect the water samples at each location in the following order (based upon a parameter's volatility):
  - VOCs
  - total organic carbon (TOC)
  - acid/base/neutral extractables (A/B/Ns) or phenols
  - polychlorinated biphenyls (PCBs)
  - total metals
  - chemical oxygen demand (COD), biological oxygen demand (BOD), total dissolved solids (TDS), total suspended solids (TSS), alkalinity
  - fecal coliform or E. Coli bacteria
- Dispose of purge water on the ground at least five feet away from the well standpipe from which the purge water originated.
- After sample collection, measure the sounded well depth, if possible. Dedicated bladder pumps installed in wells prevent measurement of sounded well depths at some locations.

In low-yield wells (where collecting a sufficient volume of groundwater takes several hours), water samples for inorganic analysis can be collected in a dedicated, Nalgene container. When a sufficient sample volume has been collected, the water can be decanted into the inorganics sample containers. However, VOC samples must be collected directly into the pre-preserved sample vials before collecting inorganic samples. Samples will not be stored in the Nalgene container overnight.

Handling, preservation, and shipment of samples will be completed as described in Section 6.0 of this document.

3.0 SURFACE WATER SAMPLING PROGRAM

Surface water sampling and analysis will be performed on a tri-annual basis. As presented in Section 2.0, the First Tri-Annual Event will be conducted in April/May, the Second Tri-Annual Event will be conducted in the August, and the Third Tri-Annual Event will be conducted in November. The objective of surface water monitoring is to detect changes in surface water quality. Surface water sampling points are located upgradient and downgradient of the landfills.

3.1 Sampling Locations, Frequencies and Analytical Parameters

Table 5 lists the surface water monitoring points and analytical parameters for the First Tri-Annual Event, and Table 6 lists the surface water monitoring points and analytical parameters for the Second and Third Tri-Annual Events. Figure 2 illustrates the surface water sampling locations. Table 7 provides the locations and reference elevations for the surface water monitoring points. Surface water sampling locations will not be sampled if water is frozen or stagnant, or if the streams are dry. If these conditions are encountered, they will be noted on the field data sheet.

3.2 Sampling Methods and Procedures

Surface water will be sampled, handled and analyzed in accordance with the Maine DEP SWMR, except where superseded by this WQMP.

WMDSM maintains an elevation reference point (i.e., rebar) at each surface water sampling location. Elevation reference points have been surveyed with respect to the vertical site datum.

Surface water inspection forms (see Appendix C) will be completed during the First Tri-Annual Event to note:

- Whether the elevation reference stake is labeled
- debris or objects that obstruct stream flow
- excessive erosion or changes in stream channel shape
- current stream channel sediment
- surface water color and sediment load based on visual observation and turbidity measurements

Field personnel will use the following procedure to collect samples from surface water monitoring points, always taking care not to disturb the stream bottom sediments:

- Approach the sampling location from downstream and stand downstream of the sample collection point.
- Collect samples using the sample containers supplied by the analytical laboratory. If sample bottles contain preservative or the surface water point is too shallow to allow complete bottle filling, use another uncontaminated, intermediate sample collection

container. This intermediate container should be of the same material as the sample container to avoid leaching of compounds from the intermediate container. For example, use a sterilized glass container as an intermediate collection container when sampling for volatile organic compounds, because samples that will be tested for VOCs are collected in glass containers.

- Dip the sample container in the surface water at the sampling location using a newly gloved hand. If water is not deep enough to permit collection of the sample, the field personnel will dig a small depression in the bottom at the middle of the stream. It is important to let stream water pass until the water flows clear before collecting the sample.
- Record the following field parameters:
  - Specific conductance
  - Temperature
  - pH
  - Eh/ORP
  - Dissolved oxygen
  - Color, odor, surface sheen, or other field observations
  - Turbidity
- Measure and record water depth from the appropriate elevation reference point.
- Measure surface water velocity using a Pygmy® or equivalent flow meter attached to a wading rod.

Handling, preservation, and shipment of the samples will be completed as described in Section 6.0 of this document.

4.0 LEACHATE COLLECTION AND LEAK DETECTION SAMPLING AND ANALYTICAL REQUIREMENTS

Leachate collection (LC) and leak detection (LD) sampling and analysis will be conducted as required by the Maine DEP SWMR for periodic monitoring of leachate quality and leak detection system fluid quality. Sampling frequency for the LC and LD sampling locations is dependent on whether the landfill phase is active or inactive.

4.1 Sampling Locations, Frequencies and Analytical Parameters

For "inactive" landfill phases, composited samples will be collected and analyzed once per year during the First Tri-Annual Event. The composited samples will comprise of samples from the individual cells within the landfill phase. The samples will be composited as described in Section 4.2. LC and LDS sampling for active landfill phases and TANK will be sampled during the First, Second and Third Tri-Annual Events and shall not be composited (i.e., individual samples will be collected and analyzed from each cell). At this time, Phase 8 is the only active phase at the Crossroads facility; therefore, samples 8ALC, 8BLC, and 8CLC will be collected tri-annually.

Table 8 lists the LC monitoring points and analytical parameters for the First Tri-Annual Event, Table 9 lists the LC monitoring points and analytical parameters for the Second and Third Tri-Annual Events, and Table 10 presents the LD monitoring points and analytical parameters for the First Tri-Annual Event. For active landfill phases, LD monitoring points will be analyzed for the parameters listed on Table 9 during the Second and Third Tri-Annual Events. Figure 3 illustrates the sampling locations, and Table 11 describes the LC and LD sampling locations. Photographs of the LC and LD sampling locations are included in Appendix E.

Samples will be composited as follows:

Individual Leachate Collection Sampling Locations	Composited Leachate Collection Sample Designation
1LC, 2LC, 3LC	123LC
4LC, 5LC	45LC
9ALC, 9BLC, 9CLC	9ABCLC
10ALC, 10BLC	10ABLC
11ALC, 11BLC, 11CLC	11ABCLC
12ALC, 12BLC, 12CLC	12ABCLC

Individual Leak Detection Sampling Locations	Composited Leak Detection Sample Designation
1LD, 2LD, 3LD	123LD
4ALD, 4BLD	4ABLD
5ALD, 5BLD	5ABLD
9ALD, 9BLD, 9CLD	9ABCLD
10ALD, 10BLD	10ABLD
11ALD, 11BLD, 11CLD	11ABCLD
12ALD, 12BLD	12ABLD

Leachate is transported off site for treatment; therefore, it is not necessary to sample and analyze leachate residues as part of this monitoring program. While some LC and LD monitoring points are located in underground pump station manholes which are placarded as confined spaces and require a confined-space entry permit. The sample collection methods as presented herein do not require entry into any confined-space locations.

4.2 Sampling Methods and Procedures

4.2.1 Leachate Collection Samples

Leachate will be sampled from the collection sumps located at the pumping stations for landfill Phases 1, 2, 3, 4, and 5, and the asbestos (ASB) landfill. Phases 1, 2, and 3 will be sampled by filling dedicated, graduated buckets from the inverts located in the sump. Phases 4, 5 and ASB will be sampled by lowering a decontaminated, tank sampler with an uncontaminated, intermediate sample container into the sump to approximately the mid-level leachate depth, allowing the sample container to fill, retrieving the container and tank sampler, and then decanting the sample into a dedicated container. Typically, there is at least two feet of standing water in the sump.

The leachate collection samples from the newer landfill phases (Phases 7, 8, 9, 10, 11, and 12) will be obtained by activating the respective pumps within the pumps vault sump and collecting a sample from in-line sampling ports into a dedicated container.

Samples from inactive landfill phases will be composited as described below. Samples collected from active landfill phases will be uncomposited.

<u>Composited samples - inactive landfill phases:</u>

- Measure out 4 liters of leachate from each LC sampling location (see Section 4.1) using a 1 liter graduated cylinder (liquid level to 1,000 ml mark) and pour the leachate into a 5-gallon site-dedicated Nalgene container for compositing.

- After compositing the leachate into the Nalgene container, gently swirl the leachate in the container to ensure mixing.
- Decant the composited sample into the appropriate laboratory containers.
- Fill the sample cup that comes with the flow-through cell (i.e., the YSI or similar) with composited leachate. Measure and record the following field parameters on field information forms for each composited LC sample.
  - Specific conductance
  - Temperature
  - pH
  - Eh/ORP
  - Dissolved oxygen
  - Color, odor, surface sheen, or other field observations
  - Turbidity
- Dispose excess leachate sample into the site sump and rinse Nalgene container with de-ionized or distilled water.

Dry LC sampling locations will be noted on the field information form and the sample identification will be adjusted accordingly (i.e., if sampling location 11BLC is dry, then the composited sample will be labeled as 11ACLC (which does not include the letter "B")).

Uncomposited samples – active landfill phases:

- Collect at least 4 liters of leachate from each individual LC sample location.
- Decant the uncomposited sample volume for each individual LC sampling locations into the appropriate laboratory containers.
- Fill the sample cup that comes with the flow-through cell (i.e., the YSI or similar) with leachate for each individual LC sampling location. Measure and record the following field parameters on field information forms for each individual LC sampling locations:
  - Specific conductance
  - Temperature
  - pH
  - Eh/ORP
  - Dissolved oxygen
  - Color, odor, surface sheen, or other field observations
  - Turbidity
- Dispose excess leachate sample into the site sump and rinse Nalgene container with de-ionized or distilled water.

Handling, preservation, and shipment of the samples will be completed as described in Section 6.0 of this document.

4.2.2 Leak Detection Samples

The pumping stations for Phases 1, 2, 3, 4, and 5 include a drop-main where the LDS lines drain. These locations will be sampled by filling dedicated, graduated buckets from the inverts located in the sump. Typically, flow from these pipes will be very low, so the buckets will be left to collect samples for up to 24 hours. The sample bottles will be filled from the buckets. If less than one liter of leachate is collected in the bucket over a 24-hour period, the sampling location will be considered "dry."

Samples from the newer landfill phases (Phases 7, 8, 9, 10, 11, and 12) will be obtained by activating the respective pumps within the pump vault sump and collecting a sample from in-line sampling ports into a dedicated container.

Samples from inactive landfill phases will be composited as described below. Samples collected from active landfill phases will be uncomposited. Samples from the LD system will be collected as follows:

Composited samples – inactive landfill phases:

- Measure out 4 liters of leachate from each LD sampling location (see Section 4.1) using a 1 liter graduated cylinder (liquid level to 1,000 ml mark) and pour the leachate into a 5-gallon site-dedicated Nalgene container for compositing.
- After compositing the leachate into the Nalgene container, gently swirl the leachate in the container to ensure mixing.
- Decant the composited sample into the appropriate laboratory containers.
- Fill the sample cup that comes with the flow-through cell (i.e., the YSI or similar) with composited leachate. These samples will be used for measurement of field parameters for the individual LD locations. Measure and record the following field parameters on FIFs for each composited LD sample:
  - Specific conductance
  - Temperature
  - pH
  - Eh/ORP
  - Dissolved oxygen
  - Color, odor, surface sheen, or other field observations
  - Turbidity
- Dispose excess leachate sample into the site sump and rinse Nalgene container with de-ionized or distilled water.

Dry LD sampling locations will be noted on the field information form and the sample identification will be adjusted accordingly (i.e., if sampling location 11BLD is dry, then the composited sample will be labeled as 11ACLD (which does not include the letter "B")).

Uncomposited samples - active landfill phases:

- Collect at least 4 liters of leachate from each individual LD sample location.
- Decant the uncomposited sample volume for each individual LD sampling locations into the appropriate laboratory containers.
- Fill the sample cup that comes with the flow-through cell (i.e., the YSI or similar) with leachate for each individual LD sampling location. These samples will be used for measurement of field parameters for the individual LD locations. Measure and record the following field parameters on FIFs for the individual LD sampling locations:
    - Specific conductance
    - Temperature
    - pH
    - Eh/ORP
    - Dissolved oxygen
    - Color, odor, surface sheen, or other field observations
    - Turbidity
- Dispose excess leachate sample into the site sump and rinse Nalgene container with de-ionized or distilled water.

Handling, preservation, and shipment of the samples will be completed as described in Section 6.0 of this document.

5.0 WICK DRAIN SAMPLING PROGRAM

As approved by the Maine DEP, Phase 8A and Phase 9 wick drain water are routed into the on-site erosion control structures (ECSs). Sampling and analysis of the Phase 8A wick drain (8AWD) and Phase 9 wick drain (9WD) will be conducted during the First Tri-Annual Event as required by the Maine DEP to monitor wick drain water quality. In addition to these samples, wick drain location 8BCWD is typically sampled tri-annually at the discretion of WMDSM. This wick drain is not currently approved for routing directly into on-site ECSs and as such is routed to TANK. Since sampling and analysis of 8BCWD is not required as part of the WQMP for the Site, the sampling frequency for 8BCWD is subject to change at the discretion of WMDSM.

5.1 Sampling Locations, Frequencies and Analytical Parameters

Wick drain samples 8AWD and 9WD are collected and analyzed for the field and analytical parameters listed on Table 12 during the First Tri-Annual sampling event. The parameters for 8BCWD for the First Tri-Annual Event are shown in Table 12, and the parameters for the Second and Third Tri-Annual Events are shown in Table 13. These parameters are listed in this WQMP for the convenience of the sampling team.

5.2 Sampling Methods and Procedures

Samples will be collected using a tank sampler and an uncontaminated, intermediate sample collection container. The sample will be collected from just below the water surface in the wet well associated with the wick drains and care will be taken to collect samples free of fine sediment that tends to collect at the bottom of the wet well. Sample bottles will be filled directly from the intermediate container.

Samples will be collected from wick drains for dissolved metal analysis; therefore, a hand pump with a 0.45-micron filter system will be used for field filtering the sample. The filter will be pre-rinsed with approximately 25 to 50 ml of wick water sample prior to sample collection into the pre-preserved sample bottles.

As specified in Section 7.1.5, non-dedicated equipment used for collection of the wick drain sample will be rinsed three times with copious quantities of de-ionized water before and after use.

The following field parameters will be measured and recorded for each wick drain sample:

- Specific conductance
- Temperature
- pH
- Eh/ORP
- Dissolved Oxygen
- Color, odor, surface sheen, or other field observations
- Turbidity

Handling, preservation, and shipment of the samples will be completed as described in Section 6.0 of this document.

6.0 SAMPLE HANDLING, PRESERVATION AND SHIPMENT

6.1 Field Filtration

Groundwater samples will only be field filtered if the field turbidity exceeds 15.0 NTU, in which case, a dissolved metals sample will be collected in addition to a total metals sample. No other samples will be field filtered, with the exception of the dissolved metal samples collected for the wick drains.

6.2 Sample Storage, Preservation, and Holding Times

All samples will be stored in coolers (≤ 6°C) until they are delivered to the laboratory for analysis. All samples must be shipped to the laboratory within the holding time for each analysis. (Holding times are determined by the laboratory based on the type of analysis to be performed.) The laboratory will supply all appropriate containers and necessary chemical preservatives.

During transport, samples will be packaged to avoid breaking containers and to prevent exposure to detrimental conditions. Leachate and leak detection samples will be shipped in a separate cooler from groundwater, surface water, and wick drain samples.

6.3 Labels

All sample containers will have the appropriate labels provided by the laboratory. The labels will be pre-printed and bar coded by the laboratory and will contain at least the following information:

- sampling location
- sample number
- parameter(s) requested

6.4 Equipment Calibration Logs

Equipment calibration logs will be completed for each piece of equipment at the beginning of each day of the sampling event. The logs will be maintained on file and can be provided to the Maine DEP if requested.

6.5 Chain-of-Custody and Analysis Request Form

A chain-of-custody and laboratory analysis request form will be prepared for each cooler containing samples for each sampling event and will consist of the following:

- sample numbers
- names and signature of sampler
- date and time of collection
- sample matrix (i.e., water or leachate)
- number, type and volume of containers
- parameters requested for analysis (bar coded)

- name, signature, date and time of person(s) relinquishing and receiving the sample
- date of sample receipt by laboratory

All samples will be accompanied by the chain-of-custody during transport. Each person in possession of the samples in the delivery process, with the exception of package delivery services personnel, will provide their signature, the date, and the time upon both receiving and relinquishing samples. During shipment, a bar-coded custody seal will be placed on the sample coolers to prevent tampering. Completed chain-of-custody forms will be kept on file.

6.6 Field Notes

Field notes will be recorded on FIFs and will contain the items listed below. Field notes will be submitted to the Maine DEP in each of the tri-annual reports. Field notes must contain:

- name of sampler
- date and time of sampling
- weather conditions
- sampling location identification
- depth to static water level (to nearest 0.01 ft), where appropriate
- purge rate, time, and total volume
- field analysis data
- field observations made during sampling event

7.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

7.1 Field Sampling QA/QC

The following sections describe the required QA/QC measures.

7.1.1 *Trip Blanks*

Trip blanks will be prepared for sampling events that include the collection of a VOC sample. One trip blank is required per cooler used to ship VOC samples. Trip blanks will be analyzed for VOCs.

7.1.2 *Duplicate Samples*

Duplicate samples will be collected to evaluate whether sampling and testing procedures yield consistent and representative results. The sampling personnel will collect at least one duplicate primary sample for every 10 samples collected during a sampling event. The duplicate sample point will be determined randomly and will be labeled so that the laboratory does not know its source. A blank copy of the FIFs will be used to record the duplicate sample origin.

7.1.3 *Sampling Precautions*

All water samples will be collected in a manner that limits agitation and aeration. Surface water collection will be performed with minimal agitation of the stream sediments. The sample will be carefully poured from the sampler into its respective container. The sampler will avoid over-filling the container to prevent loss of preservative (if applicable). The sampling equipment will not touch the ground or come in contact with anything that could cause contamination.

7.1.4 *Field Equipment Calibration*

All analytical equipment used in the field will be calibrated at least once per day and documented in the equipment calibration logs described in Section 6.4. Calibration solutions must be close to the temperature of the sample. The requirements for calibrating field equipment will be followed carefully and will be performed as described in the manufacturer's equipment manuals.

7.1.5 *Decontamination*

Non-dedicated equipment including probes, water level meters, and non-dedicated tubing attached to the Well Wizard controller boxes will be rinsed three times with copious quantities of de-ionized water before use at a new sampling location. After completion of a sampling event, tubing attached to the Well Wizard controller box will be cleaned with a laboratory cleaner such as MICRO (supplied by International Products) or an equivalent cleaner.

7.1.6 Storage of Sampling Equipment

Water quality monitoring equipment will be stored in a manner that reduces the potential for contamination. Equipment will be cleaned with de-ionized water (and with laboratory cleaner, where appropriate) before storage. When not in use, equipment will be stored in a locked area.

7.2 Laboratory Analysis QA/QC

WMDSM uses TestAmerica Laboratories in Buffalo, New York to perform laboratory analyses on groundwater, surface water and leachate quality samples. TestAmerica follows their internal Quality Assurance Manual, approved by Waste Management, for the analytical work. Katahdin Laboratories performs the tests for E. Coli and BOD. Should WMDSM change analytical laboratories, the new laboratory will be required to submit a Quality Assurance Manual for review and approval by WMDSM prior to performing analyses.

7.3 Data Quality Review

A data quality review will be performed after TestAmerica provides the analytical results for each sampling event to provide a check on field and/or laboratory methods. The data quality review steps that are performed will be reported in each tri-annual report (see Section 9.1).

8.0 DATA MANAGEMENT

After each tri-annual event, TestAmerica will provide WMDSM with laboratory reports presenting the analytical results, and will provide the analytical results as electronic data deliverables (EDDs). EDDs will be provided as Excel spreadsheets and data produced from the water quality monitoring program will be entered into a database to facilitate the production of tables, graphs, and statistical analysis.

TestAmerica will provide the EDDs in two separate formats for each sampling event. The first format will be Environmental Quality Information System (EQuIS) for WMDSM's use in their internal database, and the second format will be for submittal to the Maine DEP for inclusion in their Environmental and Geographic Analysis Database (EGAD). The EDD for the Maine DEP will be submitted electronically to the Maine DEP concurrently with submittal of each tri-annual report. Note that in the EDD provided to Maine DEP, the data for the duplicate samples will be provided with the actual sample location identifier, and the sample type will be flagged as a duplicate.

9.0 REPORTING

After each of the three tri-annual sampling events, WMDSM will prepare a report for submission to the Maine DEP within 30 days after receipt of the complete laboratory EDD for the sampling event. The reports will be titled the "First Tri-Annual Sampling Event Report", the "Second Tri-Annual Sampling Event Report", and the "Third Tri-Annual Sampling Event Report". The requirements for the reports are listed in Sections 9.1 and 9.2 below.

In addition, WMDSM submits an Annual Water Quality Monitoring Summary in April for the previous calendar year. This summary will be prepared for inclusion within WMDSM's Annual Report for the facility.

9.1 Tri-Annual Reports

As presented above, WMDSM will prepare three tri-annual reports each year for submission to the Maine DEP. The items outlined below will be included in each of the three tri-annual reports.

- Cover letter identifying any VOC detections and any inorganic detections exceeding applicable standards
- Introduction
- Overview of sampling locations including:
  - Groundwater
  - Surface Water
  - Leachate Collection and Leak Detection
  - Wick Drains
- Overview of sampling collection protocols
- Field inspection results for monitoring wells and surface water sampling locations
- Analytical results of QA/QC samples including trip blanks and field duplicates
- A summary of office QA/QC activities including review of the following:
  - Chain-of-custody forms for completeness
  - Sample cooler temperatures for laboratory receipt of coolers at ≤ 6°C
  - Sample holding times for analysis within holding times
  - Laboratory narratives for identification of analytical issues and potential bias in results
- Tabulation of relative percent differences (RPD) for duplicate samples and identification of RPDs greater than 10%
- Identification of all parameters detected in trip blanks
- Evaluation of analytical results for the following media:
  - Groundwater – include tabulation and/or discussion of:
    - Turbidity versus TSS
    - TDS versus specific conductivity (SC) ratios and identification of ratios outside the 0.55 to 0.75 range

- Major ion (cation/anion) electrical balance. Balances between 10-20% will be noted. Balances exceeding 20% will be reviewed and discussed.
- All detections of VOCs, and comparison to the USEPA Maximum Contaminant Level (MCL) and secondary standards and Maine's Maximum Exposure Guideline (MEG) values (see Appendix F).
- Inorganic compounds that exceed the USEPA MCL, Secondary MCLs, and/or Maine's MEG values.
- Historical groundwater data
- Analytical results outside of historical ranges (i.e., new maximum and minimum detections) for locations with five or more samples
- Trace metal detections

- Surface Water – include tabulation and/or discussion of:
  - All detections of VOCs, and comparison to Surface Water Quality Criteria (SWQC) (see Appendix F).
  - Inorganic compounds that exceed SWQC
  - Historical surface water data
  - Analytical results outside of historical ranges (i.e., new maximum and minimum detections) for surface water locations with five or more samples
  - Trace metal detections
  - Surface water flow rates
- Leachate Collection and Leak Detection – include tabulation and/or discussion of:
  - Leachate collection and leak detection flow rates
  - Leachate collection and leak detection historical data
- Wick Drains – include tabulation and/or discussion of:
  - All detections of VOCs, and comparison to USEPA MCL and secondary MCL standards and Maine's MEG values (see Appendix F)
  - Inorganic compounds that exceed USEPA MCL, secondary MCLs, and Maine's MEG values
  - Historical wick drain data
- Landfill gas migration monitoring including data from landfill gas permanent monitoring probes and manhole monitoring locations (including percent methane, ambient temperature, and barometric pressure).

- Summary of the findings and conclusions of the tri-annual event

Each tri-annual report will also include the following figures:

- Site location
- Groundwater, surface water, and water supply well sampling locations
- Wick drain, leachate collection, and leak detection sampling locations
- Groundwater potentiometric surface contours for phreatic, till, and bedrock will be included in each tri-annual report, but only updated as part of the First Tri-Annual Report

Hard copies of the laboratory analytical reports will not be included in the tri-annual reports, but can be made available upon request.

9.2 First Tri-Annual Report

In addition to the information listed above for the tri-annual reports, the First Tri-Annual Report will also include:

- A statistical analyses of groundwater quality results in accordance with the Maine DEP-approved statistical analysis program presented in Appendix G. The statistical analysis program includes an interwell statistical analysis of groundwater quality data surrounding Phases 11 and 12 and a site-wide intrawell trend analysis.
- An evaluation of the results from the statistical analysis. This will include a discussion of any potential change in groundwater quality including increasing or decreasing trends identified in the intrawell analysis and downgradient results above the background values identified in the interwell groundwater analysis of Phases 11 and 12.
- An overview of additional sampling locations including the following water supply wells:
    - The "New Office" and "Garage" wells are water supply wells on the Crossroads property. Maine DEP does not require monitoring of these locations; however, samples may be collected and analyzed from these wells annually at WMDSM's discretion.
    - The "Totman" well located upgradient of the Crossroads property and is considered a water supply well, but is not used as a drinking water supply well. The Maine DEP does not require monitoring of the "Totman" well, but samples may be collected and analyzed from this well annually at WMDSM's discretion.
- Micropurging performance data as described in Appendix D
- Surface water - Time-series trend plots for a subset of indicator parameters including: Na, Ca, COD, and TOC. A visual trend analysis of these indicator parameters will be conducted.

9.3 Annual Water Quality Monitoring Summary

In accordance with Chapter 401(4)(D), WMDSM will submit an Annual Water Quality Monitoring Summary in April for the previous calendar year as part of WMDSM's Facility-Wide Operational Annual Report. The Annual Water Quality Monitoring Summary will present a discussion of data collected during the prior year, including:

- Identification of exceedances of MCLs, Secondary MCLs, and MEGs in groundwater
- Identification of exceedances of SWQCs in surface water
- A summary of quantity and quality of leachate collected throughout the year
- A summary of quantity and quality of liquid collected in the leak detection systems throughout the year
- A summary of landfill gas migration monitoring results
- A summary of condition of the monitoring wells
- A summary of proposed changes to the WQMP

The Annual Water Quality Monitoring Summary will also include:

- Graphs showing the quantity of leachate in the leachate collection system and the quantity of liquid collected in the leak detection system at each phase of the landfill in the prior year.
- Time-series trend plots showing the quality of leachate collected over the available history of the phase. Time-series trend plots will include the following parameters:
  - Magnesium (Mg)
  - Potassium (K)
  - Sodium (Na)
  - Calcium (Ca)
  - Chloride (Cl)
  - Alkalinity
- A summary of the statistical analyses from the First Tri-Annual Report, as requested by the Maine DEP.

TABLES

Table 1
Groundwater Sampling Points and Analytical Parameters
First Tri-Annual Event

Wells				Field Parameters	Analytical Parameters		
101C	618CR	627A	W9-2E	Water Elevation	Ammonia	Aluminum	Magnesium
107BR	620C	628A	W11-2E	Turbidity	Chloride	Arsenic	Manganese
1040B	626B	629E	W11-3E	Specific Conductance	Nitrate	Barium	Potassium
1134B		630E	W11-6E	Temperature	Sulfate	Calcium	Sodium
			W12-2E	pH	Total Alkalinity	Chromium	Vanadium
				Eh/ORP	TDS	Copper	Zinc
				Dissolved Oxygen	TOC	Iron	
				Purge rate	TSS		
104C	310AW	W9-1E	W12-1B	Field Observation			
104D	310C	W11-1B	W12-1E	Drawdown			
106DR	310D	W11-1E	W12-3E				
107CR		W11-4E	W12-4B				
		W11-5B					
		W11-5E					
1041B	618AR	624B	W12-4E	Water Elevation	Ammonia	Aluminum	Magnesium
617A	620A	629B		Turbidity	Chloride	Arsenic	Manganese
617C		630B		Specific Conductance	COD	Barium	Potassium
				Temperature	Nitrate	Calcium	Sodium
106CR	1008BR2	W12-5E		pH	Sulfate	Chromium	Vanadium
106WR	1008ER2			Eh/ORP	Total Alkalinity	Copper	Zinc
				Dissolved Oxygen	TDS	Iron	
	TRANS*			Purge rate	TOC		
				Field Observation	TSS		
				Drawdown			
					* pH, Total Coliform, Nitrite, and Uranium analyses for TRANS only		

Notes:
1) See Table A-1 in Appendix A
2) * Analytical parameters have been added for TRANS at WMDSM's discretion for purposes of drinking water analysis
3) Acronyms and analytical method numbers provided on Table A-4

Checked by: ATK
Reviewed by: APTM

Table 2
Groundwater Sampling Points and Analytical Parameters
Second and Third Tri-Annual Events

Wells					Field Parameters	Analytical Parameters	
101C	310AW	627A	W11-1B	W12-1B	Water Elevation	Ammonia	Arsenic
104C	310C	628A	W11-1E	W12-1E	Turbidity	Chloride	Calcium
104D	310D	629E	W11-2E	W12-2E	Specific Conductance	Nitrate	Iron
106DR	620C	630E	W11-3E	W12-3E	Temperature	Sulfate	Magnesium
107BR	626B	W9-1E	W11-4E	W12-4B	pH	Total Alkalinity	Manganese
107CR		W9-2E	W11-5B		Eh/ORP	TDS	Potassium
1040B			W11-5E		Dissolved Oxygen	TOC	Sodium
1134B			W11-6E		Purge rate	TSS	
					Field Observation		
	618CR**				Drawdown		
106CR	617A	629B	W12-4E		Water Elevation	Ammonia	Arsenic
106WR	617C	630B	W12-5E		Turbidity	Chloride	Calcium
1041B	618AR	1008BR2			Specific Conductance	COD	Iron
	620A	1008ER2			Temperature	Nitrate	Magnesium
	624B				pH	Sulfate	Manganese
					Eh/ORP	Total Alkalinity	Potassium
	TRANS*				Dissolved Oxygen	TDS	Sodium
					Purge rate	TOC	
					Field Observation	TSS	
					Drawdown		
						* Total Coliform and nitrite analyses for TRANS only	

Checked by: ATK
Reviewed by: APTM

Notes:
1) * Total coliform and nitrite have been added for TRANS at WMDSM's discretion for purposes of drinking water analysis.
2) Acronyms and analytical method numbers provided on Table A-4.

Table 3
Monitoring Well Construction Data Summary

WELL ID	DATE INSTALLED	WELL DIA. (in.)	GROUND ELEV. (ft-msl)	PVC TOP ELEV. (ft-msl)	TOTAL DEPTH (ft)	BEDROCK ELEV. (ft-msl)	SOIL THICK. (ft)	OLIVE CLAY THICK. (ft)	GRAY CLAY THICK. (ft)	WELL SCREEN RANGE (ft-bgs)	UNIT SCREENED	HYDRAULIC CONDUCTIVITY (cm/sec)	HYDRAULIC CONDUCTIVITY TEST DATE	SAMPLING PUMP TYPE
B-101C	07/24/98	1.5	259.5	272.25	42.0	NA	>42	10.0	30.0	41.2-33.0	TILL	4.48E-07	04/19/93	PERISTALTIC
B-104C	08/09/84	1.5	255.3	256.50	52.8	221.9	27.8	5.2	0.0	27.4-20.0	TILL	1.13E-04	04/28/93	PERISTALTIC
B-104D	08/09/84	1.5	255.3	256.47	52.8	221.9	27.8	5.2	0.0	52.8-44.5	ROCK	1.48E-05	04/28/93	PERISTALTIC
B-106CR	08/08/95	2	263.5	266.27	32.6	231.3	32.2	0.0	0.0	31.0-26.0	TILL	1.58E-04	08/30/95	BLADDER
B-106DR	08/10/95	2	263.6	266.15	56.0	228.6	35.0	0.0	0.0	55.0-45.0	ROCK	2.28E-04	08/30/95	BLADDER
B-106WR	08/08/95	2	263.1	265.80	26.0	NA	>26.0	0.0	0.0	23.5-8.5	PHREATIC	2.95E-05	09/06/95	BLADDER
B-107BR	06/17/93	2	248.0	266.13	18.0	NA	>18.0	5.7	0.0	17.5-12.5	TILL	5.01E-04	09/06/95	BLADDER
B-107CR	08/16/93	2	248.4	265.71	36.7	227.6	20.8	5.7	0.0	35.5-30.5	ROCK	3.52E-06	08/30/95	BLADDER
B-310AW	12/19/91	2	271.7	275.38	15.0	NA	>15.0	7.5	>5.0	14.0-4.0	PHREATIC	5.68E-04	04/29/93	PERISTALTIC
B-310C	07/02/86	2	271.3	273.36	61.9	NA	>61.9	8.0	48.6	60.0-58.0	TILL	1.21E-02	04/29/93	BLADDER
B-310D	07/20/86	2	272.2	272.70	185	200.1	72.0	8.0	48.6	184.0-172.0	ROCK	2.90E-06	04/29/93	BLADDER
B-617A	01/23/92	2	265.3	268.66	14.5	NA	>14.5	8.4	>5.5	14.0-4.0	PHREATIC	5.04E-05	05/03/93	PERISTALTIC
B-617C	01/21/92	2	265.4	269.04	200.1	192.1	74.0	8.4	47.0	199.5-150.0	ROCK	2.03E-04	05/03/93	PERISTALTIC
B-618AR	10/26/04	2	264.3	267.21	15.5	NA	>15.5	7.0	0.0	15-11	PHREATIC	2.57E-05	11/03/04	PERISTALTIC
B-618CR	10/26/04	2	264.2	267.12	63.0	NA	>63.0	7.2	42.3	62.5-59.5	TILL	3.17E-03	11/03/04	PERISTALTIC
B-620A	12/27/91	2	260.6	266.59	14.5	NA	>14.5	13.0	>1.5	14.0-4.0	PHREATIC	9.61E-06	05/01/93	PERISTALTIC
B-620C	12/27/91	2	258.6	261.74	42.5	NA	>42.5	12.6	20.4	42.0-37.0	TILL	1.13E-04	05/01/93	PERISTALTIC
B-624B	12/27/93	2	246.5	249.54	32.0	NA	>32.0	0.0	0.0	25.0-20.0	TILL	3.56E-04	01/27/94	PERISTALTIC
B-626B	05/10/94	2	249.0	256.98	18.0	NA	>18.0	3.2	0.0	17.5-12.5	TILL	2.13E-03	09/01/95	PERISTALTIC
B-627A	06/21/95	2	239.1	241.99	56.5	202.3	36.8	0.0	14.4	56.0-46.0	ROCK	4.01E-04	06/29/95	PERISTALTIC
B-628A	06/27/95	2	239.6	242.19	51.5	207.4	32.2	0.0	14.4	51.0-41.0	ROCK	4.08E-05	06/30/95	PERISTALTIC
B-629B	03/07/03	2	261.9	265.64	36.6	NA	>36.6	11.4	9.0	36.6-33.6	TILL	2.84E-03	05/16/03	PERISTALTIC
B-629E	02/20/03	2	261.7	265.68	21.0	NA	>21.0	11.4	0.0	21.0-16.0	PHREATIC	1.21E-06	05/16/03	PERISTALTIC
B-630B	04/22/03	2	265.9	269.85	54.0	NA	>54.0	7.5	35.5	53.1-48.1	TILL	1.55E-04	05/16/03	PERISTALTIC
B-630E	04/23/03	2	265.3	269.57	12.0	NA	>12.0	7.5	0.0	11.0-6.0	PHREATIC	8.89E-05	05/16/03	PERISTALTIC
B-1008BR2	04/26/05	2	269.0	271.52	61.2	NA	>61.2	7.0	43.2	60.7-56.7	TILL	3.02E-05	06/07/05	PERISTALTIC
B-1008ER2	04/27/05	2	268.7	271.50	19.0	NA	>19.0	7.0	>2.0	16.5-12.5	PHREATIC	5.48E-05	06/07/05	PERISTALTIC

Table 3
Monitoring Well Construction Data Summary

WELL ID	DATE INSTALLED	WELL DIA. (in.)	GROUND ELEV. (ft-msl)	PVC TOP ELEV. (ft-msl)	TOTAL DEPTH (ft)	BEDROCK ELEV. (ft-msl)	SOIL THICK. (ft)	OLIVE CLAY THICK. (ft)	GRAY CLAY THICK. (ft)	WELL SCREEN RANGE (ft-bgs)	UNIT SCREENED	HYDRAULIC CONDUCTIVITY (cm/sec)	HYDRAULIC CONDUCTIVITY TEST DATE	SAMPLING PUMP TYPE
B-1040B	04/11/91	2	245.0	253.11	16.5	NA	>16.5	6.0	0.0	16.0-11.0	TILL	1.63E-04	07/08/91	PERISTALTIC
B-1041B	04/11/91	2	247.7	254.68	15.5	NA	>15.5	0.0	0.0	15.0-10.0	TILL	6.82E-04	06/25/91	PERISTALTIC
B-1134B	10/06/92	2	244.3	245.13	278.0	182.3	62.0	3.0	0.0	273.2-258.2	ROCK	2.22E-04	03/26/93	BLADDER
W9-1E	02/15/01	2	257.3	260.30	15.0	NA	>16.0	7.4	>6.6	7.0-15.0	PHREATIC	1.00E-04	08/29/01	PERISTALTIC
W9-2E	02/16/01	2	257.82	261.02	16.9	NA	>18.0	12.2	>4.2	6.9-16.9	PHREATIC	3.34E-06	08/29/01	PERISTALTIC
W11-1B	10/20/98	2	269.7	272.54	37.0	233.7	>36	10.4	25.6	37.0-31.5	TILL	4.28E-03	11/30/99	PERISTALTIC
W11-1E	07/27/99	2	268.51	272.07	16.0	NA	>16	9.3	NA	16.0-11.0	PHREATIC	1.29E-06	12/02/99	PERISTALTIC
W11-2E	10/20/98	2	263.7	266.63	12.0	NA	>12	7.5	NA	12.0-6.5	PHREATIC	1.58E-05	12/01/99	BLADDER
W11-3E	07/26/99	2	258.84	261.93	15.0	NA	>15	7.8	NA	14.0-10.0	PHREATIC	7.78E-06	12/01/99	PERISTALTIC
W11-4E	07/26/99	2	273.84	277.21	34.0	NA	>34	9.0	NA	34.0-30.0	PHREATIC	3.13E-06	12/02/99	PERISTALTIC
W11-5B	10/21/98	2	270.4	273.19	60.0	211.2	>60	NA	41.6	60.0-54.5	TILL	2.49E-02	12/01/99	PERISTALTIC
W11-5E	10/21/98	2	270.3	273.28	23.0	NA	>23	NA	NA	23.0-17.0	PHREATIC	5.60E-05	11/30/99	PERISTALTIC
W11-6E	10/22/98	2	271.4	274.69	20.0	NA	>20	4.0	NA	20.0-14.0	PHREATIC	3.23E-05	10/22/98	PERISTALTIC
W12-1B	02/26/02	2	248.6	252.07	19.0	NA	>21	3.0	8.0	19.0-16.0	TILL	3.25E-03	03/01/02	PERISTALTIC
W12-1E	02/26/02	2	258.7	261.84	11.0	NA	>11	>9.5	NA	11.0-5.0	PHREATIC	2.46E-06	03/01/02	PERISTALTIC
W12-2E	02/25/02	2	265.7	268.91	10.0	NA	>11	>4.5	NA	10.0-5.0	PHREATIC	3.89E-04	03/01/02	PERISTALTIC
W12-3E	03/01/02	2	243.4	246.42	10.0	NA	>11	9.6	>0.2	10.0-5.0	PHREATIC	1.30E-04	03/01/02	PERISTALTIC
W12-4B	02/27/02	2	248.5	251.76	39.0	NA	>39	7.2	25.0	39.0-36.0	TILL	1.07E-02	03/01/02	PERISTALTIC
W12-4E	02/28/02	2	248.8	251.99	10.0	NA	>11	7.6	>1.2	10.0-5.0	PHREATIC	2.95E-04	03/01/02	PERISTALTIC
W12-5E	05/08/02	2	258.0	261.11	17.0	NA	>22	5.0	>2.5	17.0-12.0	PHREATIC	4.94E-04	05/08/02	PERISTALTIC
Transfer Station Well	04/01/84	6	271	273.42	320			information not available				no tests performed		SUBMERSIBLE

Notes:

1) Some survey data may vary from that shown on Monitoring Well Installation Logs included in Appendix B, the survey data on this table are more current.
2) NA = not applicable
3) ft-msl = feet mean sea level
4) ft-bgs = feet below ground surface
5) cm/sec = centimeter per second

Checked by: ATK
Reviewed by: APTM

Table 4
Drinking Water Analytical Parameters
First Tri-Annual Event

Annual Sampling Parameters:

Sampling Location	Field Parameters	Analytical Parameters		
New Office Garage	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Field Observation	Ammonia BOD Chloride COD Nitrate Sulfate TOC	TDS TSS Total Alkalinity Uranium pH Nitrite Total Coliforms	Arsenic Calcium Copper Iron Magnesium Manganese Potassium Sodium
Totman	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Field Observation	Ammonia BOD Chloride COD Nitrate Sulfate TOC	TDS TSS Total Alkalinity	Arsenic Calcium Copper Iron Magnesium Manganese Potassium Sodium

Notes:
1) See Table A-1 in Appendix A
2) "TRANS" is considered a drinking water sampling point by WMDSM, but is included with the groundwater sampling points (Tables 1, 2 and 3) as requested by Maine DEP.
3) Acronyms and analytical method numbers provided on Table A-4.

Checked by: ATK
Reviewed by: APTM

Table 5
Surface Water Sampling Points and Analytical Parameters
First Tri-Annual Event

Surface Water Monitoring Points		Field Parameters	Analytical Parameters		
SW-101	SW-9	Water Elevation	COD	BOD	Iron
SW-102	SW-A	Turbidity	TOC	TDS	Lead
SW-201	SW-B	Specific Conductance	Ammonia	TSS	Magnesium
SW-203	SW-C	Temperature	Chloride	Aluminum	Manganese
SW-204		pH	Nitrate	Arsenic	Potassium
SW-801		Eh/ORP	Sulfate	Barium	Sodium
		Dissolved Oxygen	Total Alkalinity	Calcium	Zinc
		Surface Water Flow Rate		Copper	
		Field Observation			

Notes:

1) Acronyms and analytical method numbers provided on Table A-5.

Checked by: ATK
Reviewed by: APTM

Table 6
Surface Water Sampling Points and Analytical Parameters
Second and Third Tri-Annual Events

Surface Water Monitoring Points		Field Parameters	Analytical Parameters		
SW-101	SW-9	Water Elevation	COD	TDS	Potassium
SW-102	SW-A	Turbidity	TOC	TSS	Sodium
SW-201	SW-B	Specific Conductance	Ammonia	Arsenic	
SW-203	SW-C	Temperature	Chloride	Calcium	
SW-204		pH	Nitrate	Iron	
SW-801		Eh/ORP	Sulfate	Lead	
		Dissolved Oxygen	Total Alkalinity	Magnesium	
		Surface Water Flow Rate		Manganese	
		Field Observation			

Notes:
1) Acronyms and analytical method numbers provided on Table A-5.

Checked by: ATK
Reviewed by: APTM

Table 7
Surface Water Sampling Point Data Summary

Sample I.D.	Location	Description	Approximate		Reference Elevation (ft-msl)
			Northing	Easting	
SW-9	Background	Stream originating from Emery Property at the WMDSM property line.	7844	8248	240.30
SW-101	Background	Stream that originates on the Totman property, crosses Fredrick property and enters WMDSM property near former scale house location. Sample is collected at culvert inlet.	8757	10983	259.38
SW-102	Downgradient	West side of ASB Landfill before stream leaves WMDSM property.	10558	8671	253.57
SW-201	Downgradient	East side of Pion Road below confluence of stream from Emery property and the stream originating from the Decato property.	6508	8853	236.83
SW-203	Downgradient	West Side of Phase 10 before confluence with Mill Stream.	7982	8670	241.55
SW-204	Downgradient	North of SW-201 and south of Phase 10.	6960	9026	239.08
SW-801	Downgradient	Immediately southwest (downgradient) of Phase 8A.	8314	9048	246.90
SW-A	Downgradient	West side of Phase 11 where stream leaves WMDSM property.	7591	10381	249.00
SW-B	Downgradient	Near northwest corner of proposed Phase 12 where stream leaves WMDSM property.	6445	11383	234.91
SW-C	Background	East side of access road between Phase 11 and proposed Phase 12 where stream enters WMDSM property.	6995	12260	245.73

Notes:
1) Reference elevation = top of stake/rebar elevation
2) ft-msl = feet mean sea level

Checked by: ATK
Reviewed by: APTM

Table 8
Leachate Collection Sampling Points and Analytical Parameters
First Tri-Annual Event

Leachate Collection Monitoring Points	Field Parameters	Analytical Parameters			
123LC 45LC 7LC 9ABCLC 10ABLC 11ABCLC 12ABLC ABTD	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Flow Rate Field Observation	VOCs (1) A/B/N Extractables (2) BOD COD TOC Ammonia Chloride Nitrate Sulfate	TDS TSS Total Alkalinity Aluminum Arsenic Barium Calcium Chromium	Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium	Sodium Vanadium Zinc
8ALC 8BLC 8CLC	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Flow Rate Field Observation	VOCs (1) A/B/N Extractables (2) BOD COD TOC Ammonia Chloride Nitrate Sulfate	TDS TSS Total Alkalinity Aluminum Arsenic Barium Cadmium Calcium Chromium	Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium	Sodium Vanadium Zinc Cyanide Antimony Beryllium Silver Thallium
TANK	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Flow Rate Field Observation	VOCs (1) A/B/N Extractables (3) E. Coli Bacteria Oil & Grease Mercury (4) BOD COD Total Residual Chlorine Flashpoint	Ammonia Nitrate Nitrite Total Phosphorous TDS TSS Cyanide Hardness Heptachlor pH	Aluminum Arsenic Barium Cadmium Chromium Cobalt Copper	Lead Nickel Selenium Silver Thallium Zinc

Notes:
1) See Table A-1 in Appendix A
2) See Table A-2 in Appendix A
3) A/B/N analysis for a-terpineol, benzoic acid, benzyl alcohol, 2-methylphenol, 4-methylphenol, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol and pyrene only as required by Anson-Madison Sanitary District discharge permit
4) Low detection limit (5.0 nanograms per liter, ng/l) for mercury sampling and analysis using EPA Method 1631E
5) Flow rate information provided by WMDSM
6) Acronyms and analytical method numbers provided on Table A-4

Checked by: ATK
Reviewed by: APTM

Table 9
Leak Detection Sampling Points and Analytical Parameters
First Tri-Annual Event

Leak Detection Monitoring Points		Field Parameters	Analytical Parameters			
123LD	9ABCLD	Turbidity	VOCs (1)	TDS	Cobalt	Sodium
4ABLD	10ABLD	Specific Conductance	Phenols (2)	TSS	Copper	Zinc
45SD	11ABCLD	Temperature	BOD	Total Alkalinity	Iron	
5ABLD	12ABLD	pH	COD		Lead	
7LD		Eh/ORP	TOC	Aluminum	Magnesium	
		Dissolved Oxygen	Ammonia	Arsenic	Manganese	
		Flow Rate	Chloride	Barium	Mercury	
		Field Observation	Nitrate	Calcium	Nickel	
			Sulfate	Chromium	Potassium	

Notes:
1) See Table A-1 in Appendix A
2) See Table A-3 in Appendix A
3) Flow rate information provided by WMDSM
4) Acronyms and analytical method numbers provided on Table A-4

Checked by: ATK
Reviewed by: APTM

Table 10
Leachate Collection Sampling Points and Analytical Parameters
Second and Third Tri-Annual Events

Leachate Collection Monitoring Points	Field Parameters	Analytical Parameters			
8ALC 8BLC 8CLC	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Flow Rate (3) Field Observation	VOCs (1) COD TOC Ammonia Chloride Nitrate Sulfate Total Alkalinity TDS TSS	Aluminum Arsenic Barium Cadmium Calcium Chromium Cobalt Copper Iron	Lead Magnesium Manganese Mercury Nickel Potassium Sodium Vanadium Zinc	
TANK	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Flow Rate (3) Field Observation	VOCs (1) A/B/N Extractables (2) E. Coli Bacteria Oil & Grease Mercury (4) BOD COD Total Residual Chlorine	Ammonia Nitrate Nitrite Total Phosphorous TDS TSS Cyanide Hardness Heptachlor pH	Aluminum Arsenic Barium Cadmium Chromium Cobalt Copper	Lead Nickel Selenium Silver Thallium Zinc

Notes:

1) See Table A-1 in Appendix A
2) A/B/N analysis for a-terpineol, benzoic acid, benzyl alcohol, 2-methylphenol, 4-methylphenol, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol and pyrene only as required by Anson-Madison Sanitary District discharge permit
3) Flow rate information provided by WMDSM
4) Low detection limit (5.0 nanograms per liter, ng/l) for mercury sampling and analysis using EPA Method 1631E

Checked by: ATK
Reviewed by: APTM

Table 11
Leachate Collection and Leak Detection Sampling Locations

Activity	Location/Description	
Leachate Collection Sampling	**Station Abbreviation**	**Name**
	1LC	Phase 1 Invert
	2LC	Phase 2 Invert
	3LC	Phase 3 Invert
	45LC	Pump Station E
	7LC	Phase 7 Pump Vault
	8ALC	Phase 8A Pump Vault
	8BLC	Phase 8B Pump Vault
	8CLC	Phase 8C Pump Vault
	9ALC	Phase 9A Pump Vault
	9BLC	Phase 9B Pump Vault
	9CLC	Phase 9C Pump Vault
	10ALC	Phase 10A Pump Vault
	10BLC	Phase 10B Pump Vault
	11ALC	Phase 11A Pump Vault
	11BLC	Phase 11B Pump Vault
	11CLC	Phase 11C Pump Vault
	12ALC	Phase 12A Pump Vault
	12BLC	Phase 12B Pump Vault
	ABTD	Asbestos Pump Station
	TANK	Access Road
Leak Detection Sampling	**Station Abbreviation**	**Name**
	1LD	Phase 1 Invert
	2LD	Phase 2 Invert
	3LD	Phase 3 Invert
	4ALD	Pump Station E
	4BLD	Pump Station E
	45SD	Pump Station E
	5ALD	Pump Station E
	5BLD	Pump Station E
	7LD	Phase 7 Pump Vault
	9ALD	Phase 9A Pump Vault
	9BLD	Phase 9B Pump Vault
	9CLD	Phase 9C Pump Vault
	10ALD	Phase 10A Pump Vault
	10BLD	Phase 10B Pump Vault
	11ALD	Phase 11A Pump Vault
	11BLD	Phase 11B Pump Vault
	11CLD	Phase 11C Pump Vault
	12ALD	Phase 12A Pump Vault
	12BLD	Phase 12B Pump Vault

Checked by: ATK

Reviewed by: APTM

Table 12
Wick Drain Analytical Parameters
First Tri-Annual Event

Sampling Location	Field Parameters	Analytical Parameters		
9WD 8AWD	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Field Observation Alkalinity (field titration)	VOCs (1) TOC Ammonia Chloride Nitrate Sulfate Total Alkalinity TDS Specific Conductance	**Total Metals for:** Arsenic Barium Cadmium Calcium Copper Iron Magnesium	 Manganese Potassium Sodium
8BCWD	Turbidity Specific Conductance Temperature pH Eh/ORP Dissolved Oxygen Field Observation Alkalinity (field titration)	VOCs (1) COD TOC Ammonia Chloride Nitrate Sulfate Total Alkalinity TDS Specific Conductance	**Total and Dissolved Metals for:** Arsenic Barium Cadmium Calcium Chromium Copper Iron Magnesium Manganese	 Nickel Potassium Silver Sodium Vanadium Zinc

Notes:
1) See Table A-1 in Appendix A
2) Acronyms and analytical method numbers provided on Table A-4

Checked by: ATK
Reviewed by: APTM

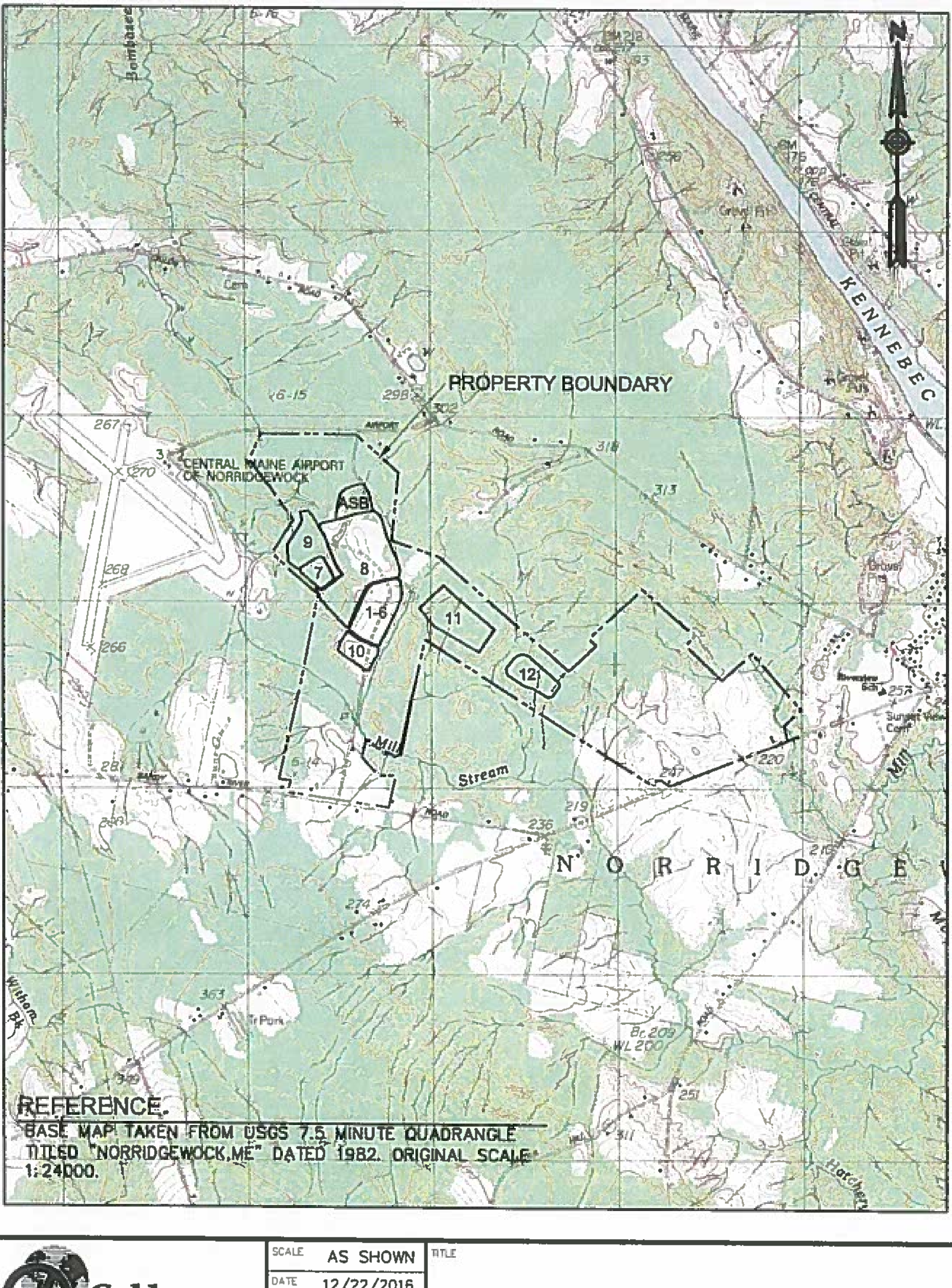
Table 13
Wick Drain Analytical Parameters
Second and Third Tri-Annual Events

Sampling Location	Field Parameters	Analytical Parameters		
8BCWD	Turbidity	VOCs (1)	**Total and Dissolved Metals for:**	
	Specific Conductance	COD	Arsenic	Nickel
	Temperature	TOC	Barium	Potassium
	pH	Ammonia	Cadmium	Silver
	Eh/ORP	Chloride	Calcium	Sodium
	Dissolved Oxygen	Nitrate	Chromium	Vanadium
	Field Observation	Sulfate	Copper	Zinc
		Total Alkalinity	Iron	
	Alkalinity (field titration)	TDS	Magnesium	
		Specific Conductance	Manganese	

Notes:
1) See Table A-1 in Appendix A
2) Acronyms and analytical method numbers provided on Table A-4

Checked by: ATK
Reviewed by: APTM

FIGURES

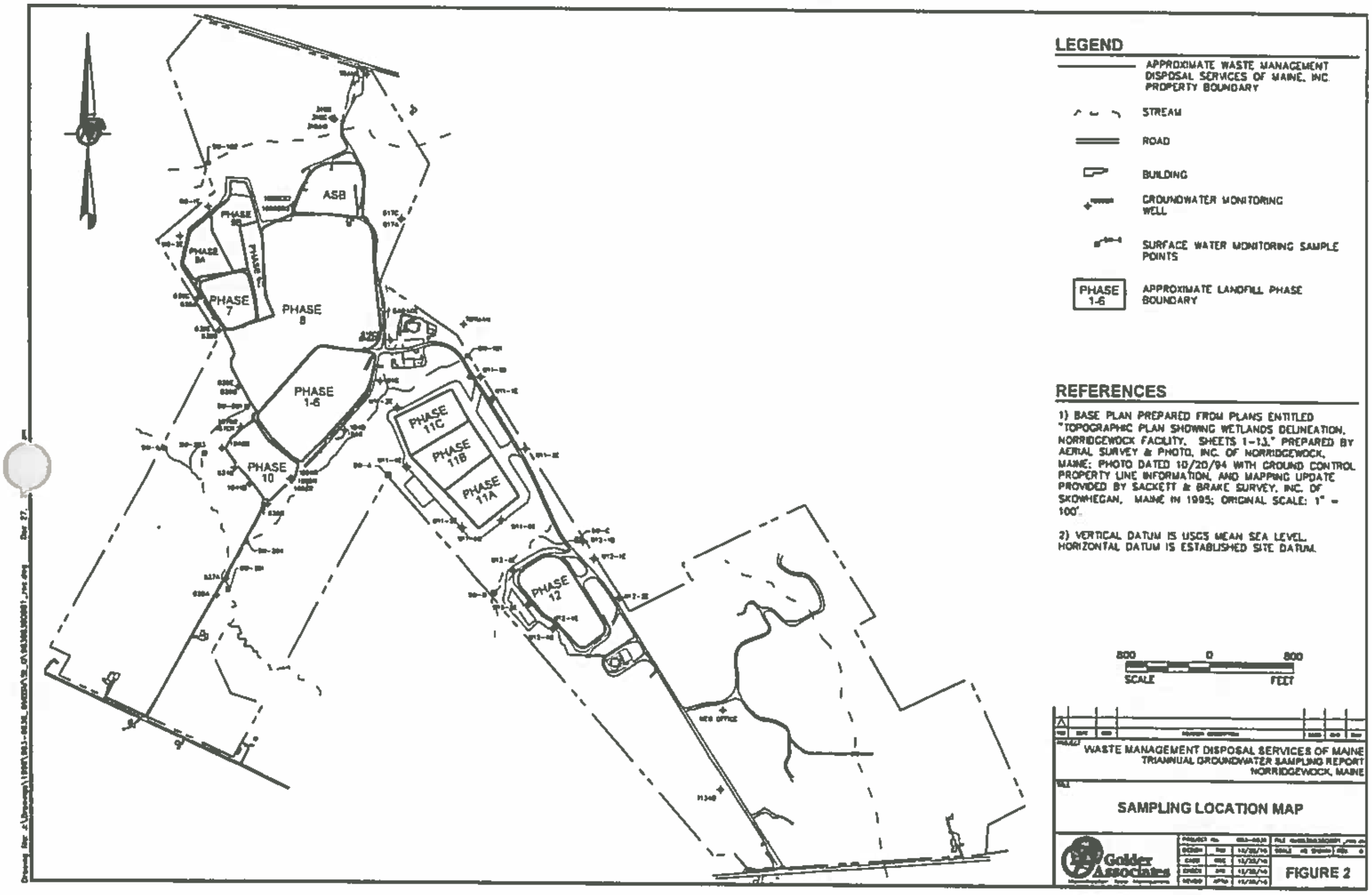


REFERENCE:
BASE MAP TAKEN FROM USGS 7.5 MINUTE QUADRANGLE TITLED "NORRIDGEWOCK,ME" DATED 1982. ORIGINAL SCALE 1:24000.

Golder Associates
Manchester, New Hampshire

SCALE	AS SHOWN	TITLE	SITE LOCATION MAP
DATE	12/22/2016		
DESIGN	TAM		
CADD	CDS		
FILE No. 9836836N004_rwc.dwg	CHECK	ATK	
PROJECT No. 983-6836 REV 0	REVIEW	APTM	WMDSM - NORRIDGEWOCK, MAINE FIGURE 1

Drawing file: 9836836N004_rwc.dwg Dec 27, 2016 - 11:10am



LEGEND

───	APPROXIMATE WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. PROPERTY BOUNDARY
	STREAM
═══	ROAD
	BUILDING
	GROUNDWATER MONITORING WELL
	SURFACE WATER MONITORING SAMPLE POINTS
PHASE 1-6	APPROXIMATE LANDFILL PHASE BOUNDARY

REFERENCES

1) BASE PLAN PREPARED FROM PLANS ENTITLED "TOPOGRAPHIC PLAN SHOWING WETLANDS DELINEATION, NORRIDGEWOCK FACILITY, SHEETS 1-13," PREPARED BY AERIAL SURVEY & PHOTO, INC. OF NORRIDGEWOCK, MAINE; PHOTO DATED 10/20/94 WITH GROUND CONTROL PROPERTY LINE INFORMATION, AND MAPPING UPDATE PROVIDED BY SACKETT & BRAKE SURVEY, INC. OF SKOWHEGAN, MAINE IN 1995; ORIGINAL SCALE: 1" = 100'.

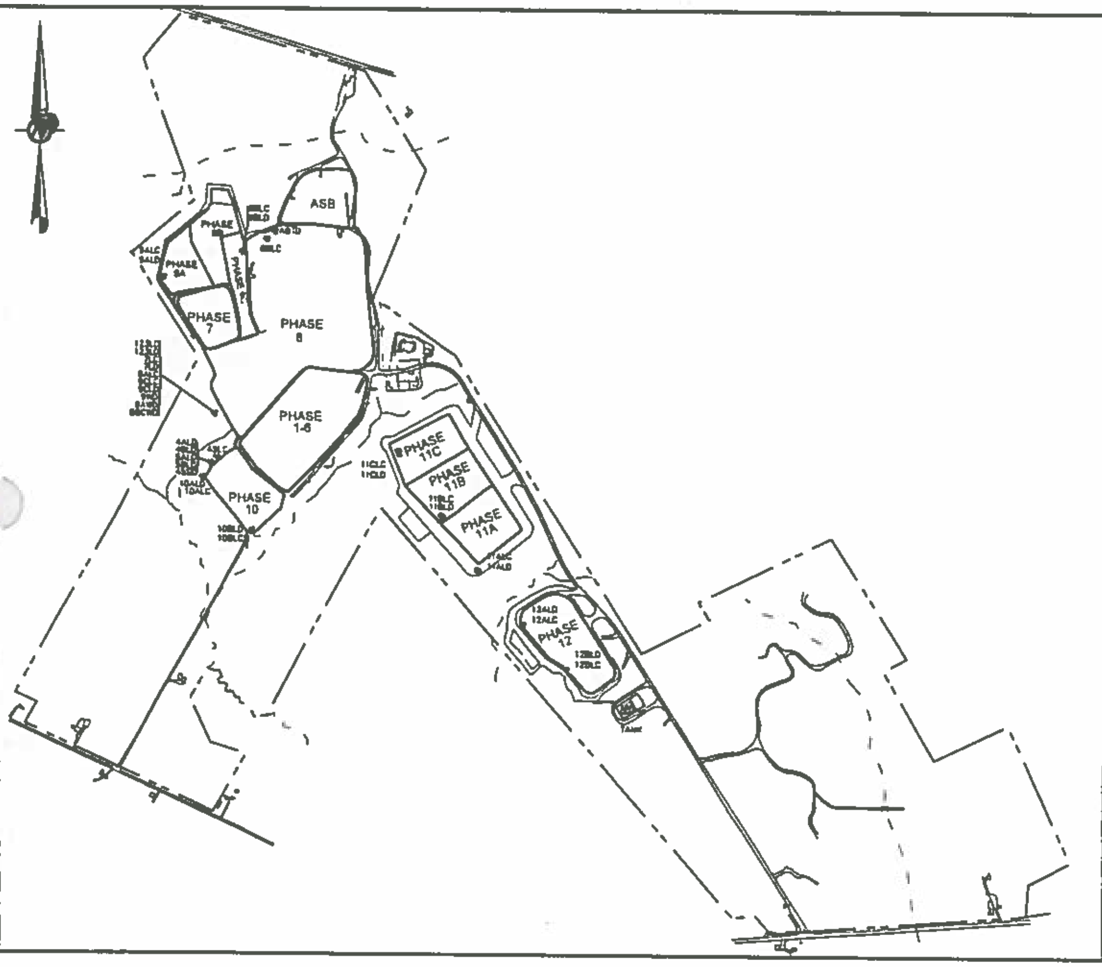
2) VERTICAL DATUM IS USGS MEAN SEA LEVEL. HORIZONTAL DATUM IS ESTABLISHED SITE DATUM.

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE
TRIANNUAL GROUNDWATER SAMPLING REPORT
NORRIDGEWOCK, MAINE

SAMPLING LOCATION MAP

Golder Associates

FIGURE 2



LEGEND

- APPROXIMATE WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. PROPERTY BOUNDARY
- STREAM
- ROAD
- BUILDING
- LEACHATE SAMPLE LOCATION
- PHASE 1-6 APPROXIMATE LANDFILL PHASE BOUNDARY

REFERENCES

1) BASE PLAN PREPARED FROM PLANS ENTITLED "TOPOGRAPHIC PLAN SHOWING WETLANDS DELINEATION, NORRIDGEWOCK FACILITY, SHEETS 1-13," PREPARED BY AERIAL SURVEY & PHOTO, INC. OF NORRIDGEWOCK, MAINE; PHOTO DATED 10/20/94 WITH GROUND CONTROL PROPERTY LINE INFORMATION, AND MAPPING UPDATE PROVIDED BY SACKETT & BRAKE SURVEY, INC. OF SKOWHEGAN, MAINE IN 1995; ORIGINAL SCALE: 1" = 100'.

2) VERTICAL DATUM IS USGS MEAN SEA LEVEL. HORIZONTAL DATUM IS ESTABLISHED SITE DATUM.

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE
WATER QUALITY MONITORING REPORT
NORRIDGEWOCK, MAINE

LEACHATE COLLECTION AND DETECTION SAMPLING LOCATION MAP

Golder Associates

FIGURE 3

APPENDIX A
ANALYTICAL GROUP LISTS

APPENDIX A
TABLE A-1

VOLATILE ORGANIC COMPOUND PARAMETER LIST

based on
EPA Method 8260, Table 1, Test Methods for
Evaluating Solid Wastes, USEPA, SW-846

- Acetone
- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- 2-Butanone (methyl ethyl keytone)
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- 1,1,2-Trichloroethane
- Dibromochloromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- trans-1,2-Dichloroethene
- cis-1,2-Dichloroethylene
- 1,2-Dichloropropane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Ethylbenzene
- 2-Hexanone
- Methylene chloride
- 4-Methyl-2-pentanone (methyl isobutyl keyone)
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- Trichloroethene
- Vinyl acetate
- Vinyl chloride
- Xylene

Checked by: ATK
Reviewed by: APTM

APPENDIX A
TABLE A-2

A/B/N EXTRACTABLES PARAMETER LIST

based on
EPA Method 8270, Table 1 of Test Methods
for Evaluating Solid Wastes, USEPA, SW-846

1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
2,2'-Oxybis(1-chloropropane)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylnaphthalene
2-Methylphenol (o-cresol)
2-Nitroaniline
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Methylphenol (p-cresol)
4-Nitroaniline
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(ghi)perylene
Benzo(k)fluoranthene
Benzyl alcohol
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-ethylhexyl) phthalate
Butyl benzyl phthalate
Chrysene
Dibenzo(a,h)anthracene
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Benzoic acid
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
Pentachlorophenol
Phenanthrene
Phenol
Pyrene

Checked by: ATK
Reviewed by: APTM

APPENDIX A
TABLE A-3

PHENOL PARAMETER LIST

based on
EPA Method 625, Table 2 of 40 CFR
Part 136 Appendix A

4-Chloro-3-methylphenol (p-chloro-m-cresol)
2-Chlorophenol
2-Nitrophenol
2,4-Dinitrophenol
2,4-Dimethylphenol
2,4,6-Trichlorophenol
4-Nitrophenol
2-Methyl-4,6-dinitrophenol (4,6-dinitro-o-cresol)
Phenol
Pentachlorophenol
2,4-Dichlorophenol

Checked by: ATK
Reviewed by: APTM

APPENDIX A
TABLE A-4
ANALYTICAL METHODS

Parameter	Analytical Method
Volatile Organic Compounds (VOCs)[1]	SW8260C
A/B/N Extractables[2]	SW8270C
Phenols[3]	SW8270D
Total Organic Carbon (TOC)	SM5310D
Biological Oxygen Demand (BOD)	SM5210B
Chemical Oxygen Demand (COD)	E410.4
Ammonia	E350.1
Chloride	SW9251
Chlorine	SM4500
Nitrate	E353.2
Nitrite	E353.3
Sulfate	SW9038
Total Alkalinity	E310.2
Total Dissolved Solids (TDS)	SM2540C
Total Suspended Solids (TSS)	SM2540D
Metals[4]	SW6010C
Aluminum	SW6010A/SW6020A (GW only)
Lead	SW6010A/SW6020A (SW only)
Mercury	SM7470A/1631E (TANK only)
Uranium	5174-91
Phosphorous	SM4500
pH	SW9040C
Hardness	SM2340C
Oil & Grease	1664A
Total Coliform	SM9222B
Total Cyanide	SW9012B
Escherichia coli	SW9223B

Notes:
1) For a list of VOCs see Table A-1.
2) For a list of A/B/N extractables see Table A-2.
3) For a list of Phenols see Table A-3.
4) Metals analyzed by this method include arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium,

Checked by: ATK
Reviewed by: APTM

APPENDIX B

MONITORING WELL INSTALLATION LOGS

ROBERT G.
GERBER, INC.
Consulting Geotechnical Engineers and Geologists

17 West Street
Freeport, Maine 04032-1133
207-865-6138

LOG OF BORING B-101B&

Project:	WMDSM	**Surface Elev.:**	258.2
Job No.:	273	**Top of PVC Elev.:**	261.31
Location:	Norridgewock, ME	**Drilling Method:**	Cased boring
Coordinates:		**Sampling Method:**	SPT

Total Depth: 42.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / = psf	COMMENTS	WELL INSTALLATION DETAILS
258.2	0				Olive fine sandy silt, uniformly graded, interbedded with clayey silt beds 1/8" thick, moderate reaction to shaking, wet. GLACIOMARINE deposit.				3.1' Stick up.
	5		S-1	100		4			Washed sand.
250									
248.2	10		S-2	100	Gray clay-silt, uniformly graded, roughly 10%-15% fines, very fine sand disseminated throughout, wet. GLACIOMARINE deposit.	WOH			
	15		S-3	100	Gray clay-silt, uniformly graded, with a trace of very fine sand (roughly 5%), moderate reaction to shaking, wet. GLACIOMARINE deposit.	WOH			Bentonite.
240									5' of 1.5" slotted screen surrounded by washed sand.
	20		S-4	100		WOH			
									Bentonite. Washed sand.
	25		S-6	100	As above with slight increase in very fine sand to about 10%.	WOH			
230									
	30		S-6	100		5			Bentonite.

Boring continues on next page

Hole Diameter:	4
Date Started:	7/23/84
Date Completed:	7/24/84
Engineer/Geologist:	J. Rawcliffe
Drilling Contractor:	MTB

Sample Types:

▥ Auger Cutting	■ UD
☒ Vane Shear	☒ Penetrometer
▦ SPT	▯ Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

ROBERT G.
GERBER, INC.

17 West Street
Freeport, Maine 04032-1133
207-865-6138

Consulting Geotechnical Engineers and Geologists

LOG OF BORING B-101B&C
(continued)

Project:	WMDSM	**Surface Elev.:**	258.2
Job No.:	273	**Top of PVC Elev.:**	261.31
Location:	Norridgewock, ME	**Drilling Method:**	Cased boring
Coordinates:		**Sampling Method:**	SPT

Total Depth: 42.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
	35		S-7	0	Gray clay-silt. Uniformly graded, with a trace of very fine sand (roughly 10%), moderate reaction to shaking, wet. GLACIOMARINE deposit.	30			Bentonite. 7' of 1.5" slotted screen surrounded by washed sand.
220									
218.2	40		S-8	20	Light gray gravelly silty sand, widely graded, approximately 10% fines, gravel clasts largely granitic, subangular to subrounded, massive structure. GLACIAL ABLATION TILL	189			
216.2					Boring terminated at 42.0'.				

		Sample Types:		**Remarks:**
Hole Diameter:	4	▯ Auger Cutting	■ UD	
Date Started:	7/23/84	☒ Vane Shear	☒ Penetrometer	
Date Completed:	7/24/84	▨ SPT	▯ Rock Core	
Engineer/Geologist:	J. Rawcliffe			
Drilling Contractor:	MTB			

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-104C&D

Project: WMDSM
Job No.: 273
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 254.1
Top of PVC Elev.: 256.77
Drilling Method: Cased boring
Sampling Method: SPT, cored
Total Depth: 52.8

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / Srpsf	COMMENTS	WELL INSTALLATION DETAILS
254.1	0		S-1	60	Reddish brown silty sand grading into moderately poorly sorted sandy silt. Stiff, friable and dry. GLACIOMARINE deposit. Olive brown clay-silt. Uniformly graded. Stiff and jointed with very fine sand seams. Joints are stained with manganese oxide. Dry to slightly moist. GLACIOMARINE deposit.	10			2.7' Stick up.
			S-2	85		38			
250			S-3	70		63			
248.9	5		S-4	45	Reddish brown to olive mottled silty sandy gravel, poorly sorted with rounded pebbles; about 15% fines. GLACIAL ABLATION TILL.	57			Bentonite.
245.7			S-5	50	Olive to gray fine sandy clayey silt, uniformly graded, trace fine gravel. Laminated with very fine sand, moist. GLACIOMARINE deposit.	6			
241.9	10		S-6	20	Olive brown gravelly silty sand. Widely graded, loose, wet. GLACIAL ABLATION TILL.	70			
			S-7	15	Light gray gravelly silty sand, widely graded, about 20% fines, massive structure. GLACIAL TILL	33			Washed sand.
240			S-8	10		22			
	15		S-9	15		25			
			S-10	15		30			Bentonite.
234.1	20		S-11	25	Grey gravelly very fine sand, gap graded, approximately 5% fines, massive structure, gravel grains subangular to subrounded, some silty fine sand laminae. GLACIOMARINE diamict.	33			
			S-12	75		91			
230			S-13	87	Light gray silty very fine sand, uniformly graded, approximately 10% fines. GLACIOMARINE deposit.	140			5' of 1.5" slotted screen surrounded by washed sand.
	25								
226.3			S-14	70	Gray gravelly silty sand, moderately widely graded to gap graded, with silty sand laminae up to .5" thick, gravel grains rounded to angular, moist, dense at bottom. GLACIOMARINE diamict.	211			Bentonite. Cave in.
	30		S-15	100		100/.1			Bentonite.

Boring continues on next page

Hole Diameter: 4
Date Started: 8/8/84
Date Completed: 8/9/84
Engineer/Geologist: J. Rawcliffe
Drilling Contractor: MTB

Sample Types:
- ▯ Auger Cutting
- ☒ Vane Shear
- ▨ SPT
- ■ UD
- ▩ Penetrometer
- ▯ Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-104C&D
(continued)

.oject:	WMDSM	Surface Elev.:	254.1	Total Depth: 52.8
Job No.:	273	Top of PVC Elev.:	256.77	
Location:	Norridgewock, ME	Drilling Method:	Cased boring	
Coordinates:		Sampling Method:	SPT, cored	

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / = psf	COMMENTS	WELL INSTALLATION DETAILS
221.8			S-16	0	Discontinuously laminated fine to medium grained calcareous feldspathic wacke and micaceous wacke; laminations range to 1 cm+ in thickness. Mildly calcareous feldspathic wacke laminae are gray-white; micaceous laminae are gray-green or red-brown depending on whether chlorite(?) or biotite, respectively, are present. Gray-green chloritic (?) laminae interlaminated with mildly calcareous feldspathic wacke from 32.8'-42.0'. Bedding oriented 80° from horizontal.	100/.2'		Solid unweathered core throughout boring; all fractures are machine induced; sparse fresh pyrite is present locally.	
220	35								
	40								Cave in.
					Reddish brown biotite-rich wacke (biotite-rich instead of chlorite-rich from 42' to 52.9') interlaminated with calcareous wacke.			0.6' gap in core.	
210	45								Bentonite.
	50								5' of 1.5" slotted screen surrounded by washed sand.
201.3					Boring terminated at 52.8'.				

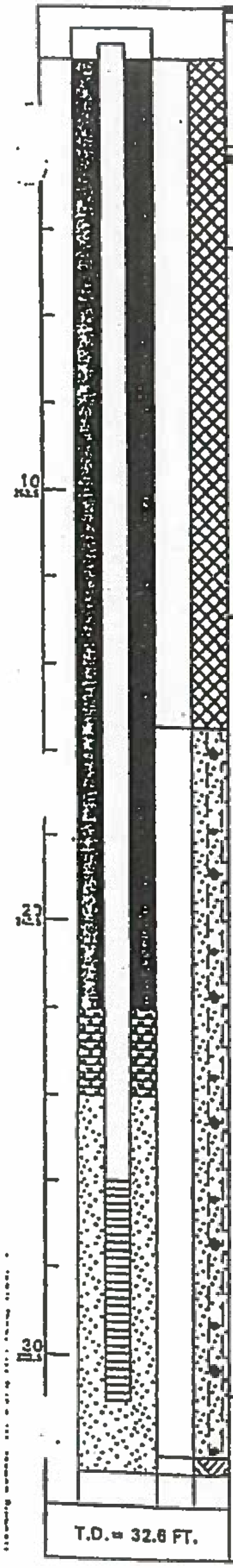
Hole Diameter:	4
Date Started:	8/8/84
Date Completed:	8/9/84
Engineer/Geologist:	J. Rawcliffe
Drilling Contractor:	MTB

Sample Types:
- ▯ Auger Cutting
- ☒ Vane Shear
- ⊠ SPT
- ■ UD
- ☒ Penetrometer
- ▯ Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.



T.D. = 32.6 FT.

WELL NUMBER: B-106CR

BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7531.20
E 9449.87

SURFACE ELEVATION: 263.5 NGVD 1983
TOP OF CASING ELEV: 266.72 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 32.6'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.22'
DRILLER: MTB
RIG: Muskeag
BIT(S):
DRILLING FLUID: Water
PROTECTIVE CASING: Aluminum

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	8/7/95	12:00	8/8/95	2:30
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C=CASING S=SCREEN

DEPTH (ft)		STRINGS(S)	ELEVATION (ft NGVD 1983)	
-3.22		P	256.72	
-2.63	26.0	C	256.13	237.50
25.0	31.0	S	237.50	232.50

P - Protective casing.

C - 2" PVC flush jointed riser.

S - 2" 0.010 PVC screen.

FILTER PACK: 24.0'-32.6'
FINE SAND:
GROUT SEAL: 0.0'-22.0'
BENTONITE SEAL: 22.0'-24.0', -4.0'-2.0' (inside)

WELL DEVELOPMENT:

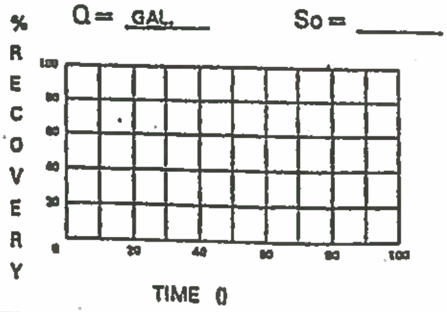
Purged 15.0 gal 8/10/95

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So =



COMMENTS:

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

SUPERVISED BY: Robert G. Gerber, Inc. TEM
CHK'D BY: EcG

WELL NUMBER: B-106DR
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7527.01
E 9445.20

SURFACE ELEVATION: 263.6 NGVD 1983
TOP OF CASING ELEV: 266.86 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 56.0'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.26'
DRILLER: MTB
RIG: Muskeag
BIT(S):
DRILLING FLUID: Water
PROTECTIVE CASING: 6" x 7' Aluminum

CONSTRUCTION TIME LOG:

	START		FINISH	
TASK:	DATE	TIME	DATE	TIME
DRILLING:	8/09/95	12:30	8/10/95	2:30
GEOPHYS. LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1923)
-3.25 / 3.74	P	256.86 / 253.86
-2.65 / 45.0	C	256.25 / 218.60
45.0 / 55.0	S	218.60 / 208.60
/		/
/		/

P - Protective casing.
C - 2" PVC flush jointed riser.
S - 2" 0.010 PVC screen.

FILTER PACK: 43.0'-56.0'
FINE SAND:
GROUT SEAL: 0.0'-41.0'
BENTONITE SEAL: 41.0'-43.0' ,-4.0'-2.0' (inside)

WELL DEVELOPMENT:

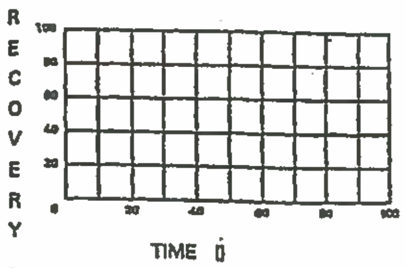
Purged 25.0 gal 8/10/95

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

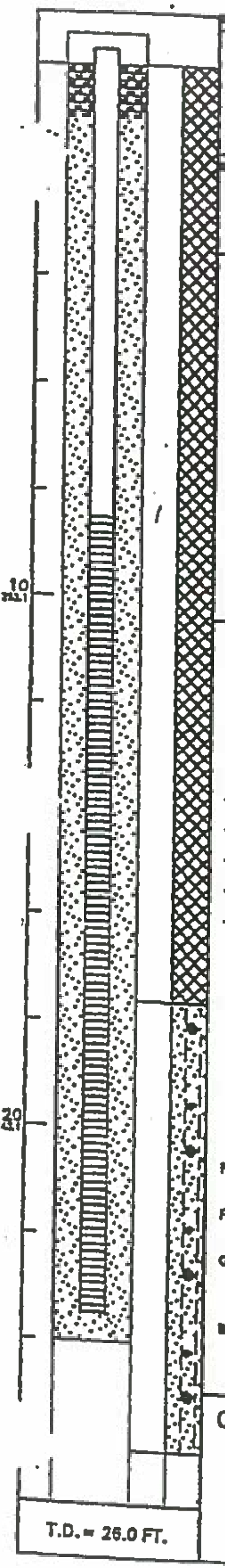
Q = GAL. So =



COMMENTS:

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

SUPERVISED BY: Robert G. Gerber, Inc. TEM
CHK'D BY: EcB



WELL NUMBER: B-106WR
BORING NO. X-REF: ______

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7534.81
E 9455.41

SURFACE ELEVATION: 263.1 NGVD 1983
TOP OF CASING ELEV: 266.31 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 26.0'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.21'
DRILLER: MTB
RIG: Muskeag
BIT(S): ______
DRILLING FLUID: Water
PROTECTIVE CASING: 6" x 7' Aluminum

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-3.21 /	P	266.31 /
-2.67 / 8.5	C	255.77 / 254.60
8.5 / 23.5	S	254.60 / 239.60
/		/
/		/

P - Protective casing.

C - 2" PVC flush jointed riser.

S - 2" 0.010 PVC screen.

FILTER PACK: 0.0'-26.0'
FINE SAND: ______
GROUT SEAL: ______
BENTONITE SEAL: -1.0'-0.0' (outside) , -4.0'-1.0' (inside)

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	8/08/95		8/08/95	
GEOPHYS. LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

WELL DEVELOPMENT:

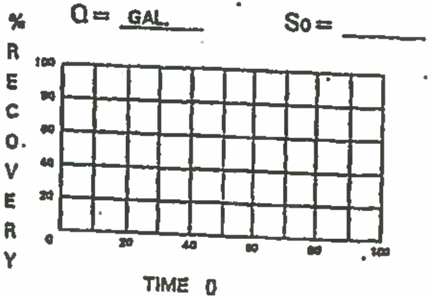
Purged 25.0 gal 8/10/95

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So = ______



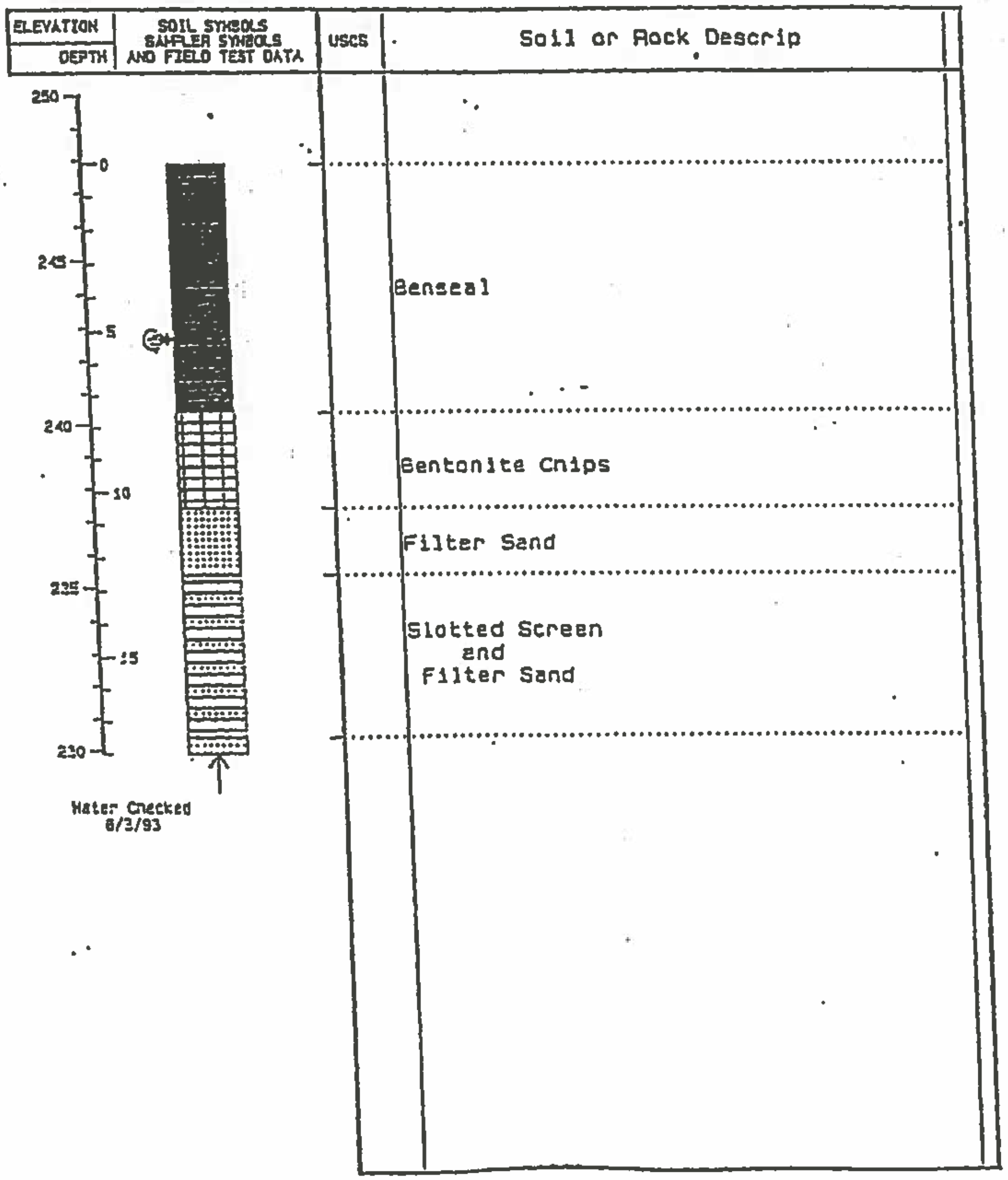
COMMENTS: ______

SUPERVISED BY: Robert G. Gerber, Inc. TEM
CHK'D BY: EcG

WELL INSTALLATION DIAGRAM

BORING 107 BR

Project: WMDSM-C
Project No. 1075
Boring No.: 107 BR
Ground Elev.: 247.9
Date Started: 6/17/93
Date Finished: 6/17/93
Logged By: RAE
Contr.: Maine Test Boring
Method: Cased
Core Size:
Soil Drilled: 18.0 ft.
Rock Drilled: ft.
Total Depth: 18.0 ft.
Water Depth: 5.24 ft.
Date: 8/3/93



A 2" PVC well installed.

USCS classification and descriptions by visual inspection

ROBERT G. GERBER, INC.

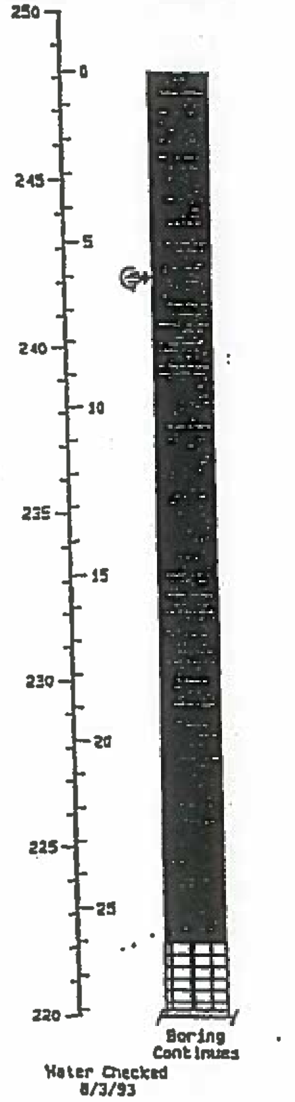
WELL INSTALLATION DIAGRAM

BORING 107 CR

Project: WMDSM-C
Boring No.: 107 CR
Date Started: 6/15/93 Date Finished: 6/16/93
Contr.: Maine Test Boring Method: Cased
Soil Drilled: 20.8 ft. Rock Drilled: 15.9 ft.
Water Depth: 6.04 ft.

Project No. 1075
Ground Elev.: 248.2
Logged By: RAE
Core Size:
Total Depth: 35.7 ft.
Date: 8/3/93

ELEVATION DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil or Rock Descrip
			Aquagrout Catalyst and Benseal
			Bentonite Chips



2" PVC well installed

USCS classification and descriptions by visual inspection

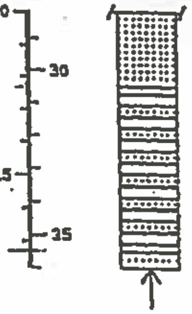
ROBERT G. GERBER, INC.

WELL INSTALLATION DIAGRAM

BORING 107 CR

Project: WMDSM-C
Boring No.: 107 CR
Date Started: 6/15/93
Date Finished: 6/16/93
Contr.: Maine Test Boring
Method: Cased
Soil Drilled: 20.8 ft.
Rock Drilled: 15.9 ft.
Water Depth: 6.04 ft.

Project No. 1075
Ground Elev.: 248.2
Logged By: RAE
Core Size:
Total Depth: 36.7 ft.
Date: 8/3/93



ELEVATION DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil or Rock Descrip
			Filter Sand
			Slotted Screen and Filter Sand

2" PVC Well installed

USCS classification and descriptions by visual inspection

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LOG OF BORING B-310AW

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 10,982.5 E 9,882.1

Surface Elev.: 272.1
Total Depth: 15.0
Top of PVC Elev.:
Drilling Method: Cased boring
Sampling Method:

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
272.1	0				Topsoil.				
271.5					Brown silty fine to coarse sand and fine gravel. GLACIOMARINE				3.9' Stick up. Bentonite seal.
270 269.7					Stiff olive brown clayey silt with trace fine sand. GLACIOMARINE				
267.1	5				Stiff olive brown and gray clayey silt with trace fine sand. GLACIOMARINE				10' of 2" .005 slotted screen surrounded by fine silica sand.
262.1	10				Firm gray clay-silt with fine sand seams. GLACIOMARINE				
250									
257.1	15				Boring terminated at 15'.				

Hole Diameter: 4"
Date Started: 12/18/91
Date Completed: 12/19/91
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- ▯ Auger Cutting
- ☒ Vane Shear
- ⊠ SPT
- ■ UD
- ☒ Penetrometer
- ▯ Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

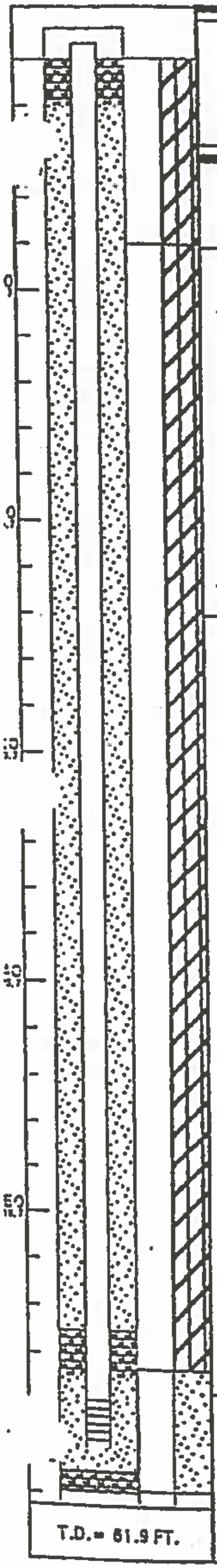
Sheet 1 of 1

WELL NUMBER: B-310C
BORING NO. X-REF: ______

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 9870.70
E 10936.30

SURFACE ELEVATION: 269.7 NGVD 1983
TOP OF CASING ELEV: 273.48 NGVD 1983



DRILLING SUMMARY:

TOTAL DEPTH: 61.9'
BOREHOLE DIAMETER: 6"
CASING STICK-UP: 3.78'
DRILLER: Dyer Brothers
RIG: ______
BIT(S): ______
DRILLING FLUID: ______
PROTECTIVE CASING: 6" Diameter, 7' steel pipe

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☒ GEOPHYSICAL LOG ☐

CASING STRING(S): C=CASING S=SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-3.78 / 3.22	P	273.48 / 266.48
0 / 58	C	269.70 / 211.70
58 / 60	S	211.70 / 209.70
/		/
/		/

P - Protective casing.
C - 2" PVC flush jointed riser.
S - 2" PVC screen.

FILTER PACK: 2.0'-55.0', 57.0'-61.0'
FINE SAND: ______
GROUT SEAL: ______
BENTONITE SEAL: 0'-2.0', 55.0'-57.0', 61.0'-61.9'

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	6/30/88		7/2/88	
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

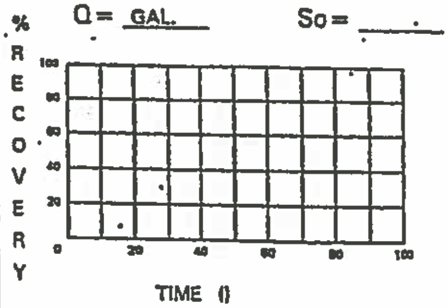
WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So = ______



COMMENTS: ______

SUPERVISED BY: Robert G. Gerber, Inc. JKB
CHK'D BY: ______

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LOG OF BORING B-310D

Project: WMDSM
Job No.: 369
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 272.1
Top of PVC Elev.: 274.68
Drilling Method:
Sampling Method:
Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / & psf	COMMENTS	WELL INSTALLATION DETAILS
272.1	0				Olive gray slightly mottled clay/silt with some fine sand, some stratification with clay/silt and fine sandy silt layers up to 1 mm, very moist, soft.				2.5' Stick up.
270									
	5								
254.1					Gray stratified clay/silt and silty fine sand, fine sand layers are brown up to 1 cm thick, wet, loose to soft.				
	10								
250									
	15								
	20								
250									
	25								
	30								
240									

Boring continues on next page

Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

Sample Types:

◫ Auger Cutting	■ UD
☒ Vane Shear	☒ Penetrometer
▣ SPT	▯ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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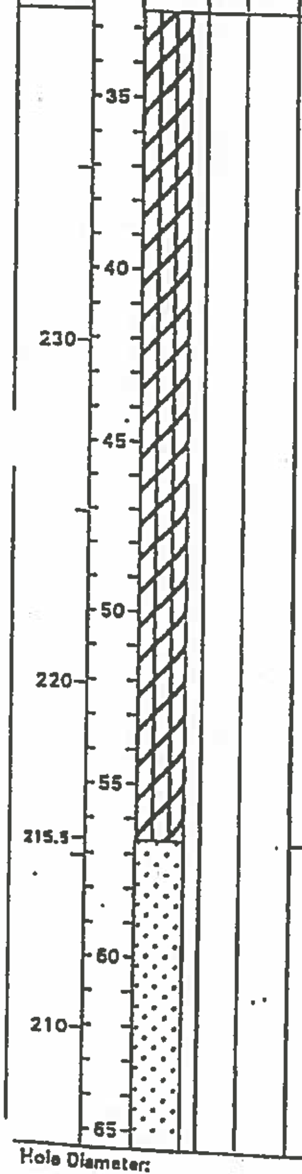
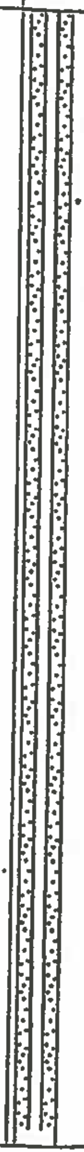
LOG OF BORING B-310D
(continued)

Project: WMDSM
Job No.: 369
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 272.1
Top of PVC Elev.: 274.68
Drilling Method:
Sampling Method:
Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
					Grey stratified clay/silt and silty fine sand, fine sand layers are brown up to 1 cm thick, wet, loose to soft.				
215.5					Gray to light brown medium to coarse sand and gravel with traces of cobbles. WASH				





Boring continues on next page

Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

Sample Types:

Auger Cutting	UD
Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

The stratification lines represent approximate boundaries. The transition may be gradual.

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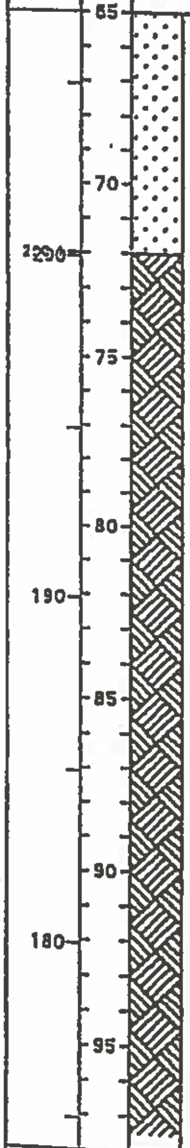
Consulting Geotechnical Engineers and Geologists

LOG OF BORING B-310D
(continued)

Project:	WMDSM	**Surface Elev.:**	272.1
Job No.:	369	**Top of PVC Elev.:**	274.68
Location:	Norridgewock, ME	**Drilling Method:**	
Coordinates:		**Sampling Method:**	

Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / # psf	COMMENTS	WELL INSTALLATION DETAILS
	65								
	70								
200					Fine to medium grained WACKE ranging in color from gray-green to light reddish-brown. The rock changes at approximately 150 feet to a medium grained BIOTITE GRANITE.				
	75								
	80								
190									
	85				Fracture.				
	90								
180									
	95								



Boring continues on next page

Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

Sample Types:

▯ Auger Cutting	■ UD
☒ Vane Shear	☒ Penetrometer
▨ SPT	▯ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-310D
(continued)

Project: WMDSM
Job No.: 369
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 272.1
Top of PVC Elev.: 274.68
Drilling Method:
Sampling Method:
Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ≈ psf	COMMENTS	WELL INSTALLATION DETAILS
					Fine to medium grained WACKE ranging in color from gray-green to light reddish-brown. The rock changes at approximately 150 feet to a medium grained BIOTITE GRANITE.				
	100								
170									
	105								
	110								
160									
	115								
	120								
150									
	125								
	130								

Boring continues on next page

Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

Sample Types:
- Auger Cutting
- Vane Shear
- SPT
- UD
- Penetrometer
- Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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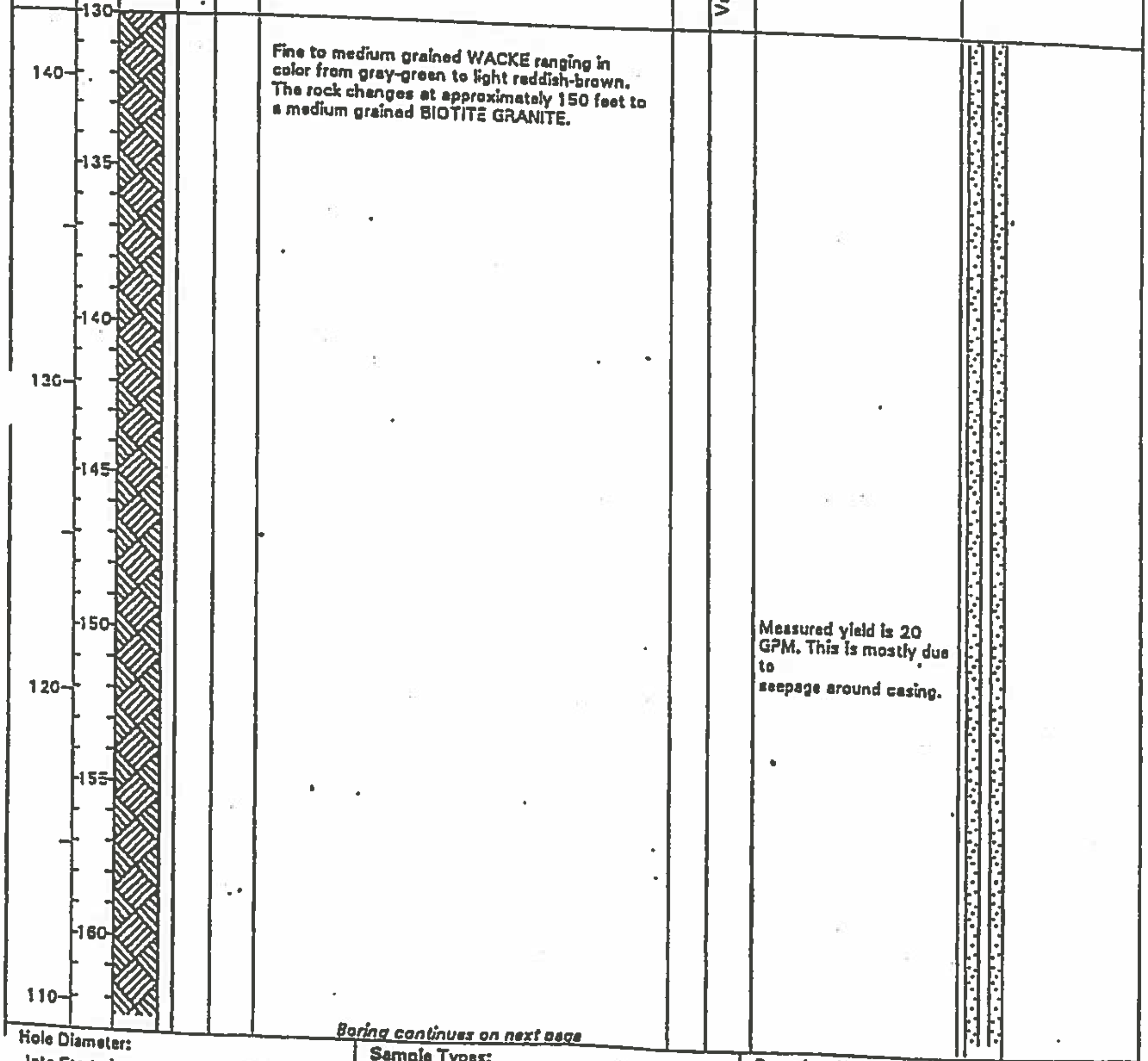
LOG OF BORING B-310D
(continued)

Project: WMDSM
Job No.: 369
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 272.1
Top of PVC Elev.: 274.68
Drilling Method:
Sampling Method:
Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ∞ psf	COMMENTS	WELL INSTALLATION DETAILS
140	130				Fine to medium grained WACKE ranging in color from gray-green to light reddish-brown. The rock changes at approximately 150 feet to a medium grained BIOTITE GRANITE.				
								Measured yield is 20 GPM. This is mostly due to seepage around casing.	



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Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

Sample Types:
- ▥ Auger Cutting
- ☒ Vane Shear
- ⊠ SPT
- ■ UD
- ⊠ Penetrometer
- ▯ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-310D
(continued)

Project: WMDSM
Job No.: 369
Location: Norridgewock, ME
Coordinates:

Surface Elev.: 272.1
Top of PVC Elev.: 274.68
Drilling Method:
Sampling Method:
Total Depth: 185.0

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
	165				Fine to medium grained WACKE ranging in color from gray-green to light reddish-brown. The rock changes at approximately 150 feet to a medium grained BIOTITE GRANITE.				
	170								
100									
	175				Fracture.				Slotted screen surrounded by filter sand.
	180								
90									
					Fracture.			Estimated yield from fractures at 175' and 184' is 10 GPM. Measured yield is 30 GPM.	
87.1	185				Boring terminated at 185'.				

Hole Diameter:
Date Started: 7/20/86
Date Completed: 7/20/86
Engineer/Geologist:
Drilling Contractor:

Sample Types:
- ▯ Auger Cutting
- ☒ Vane Shear
- ☒ SPT
- ■ UD
- ☒ Penetrometer
- ▯ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-617A

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 10,033.2 E 10,514.6

Surface Elev.: 265.7 **Total Depth:** 14.5
Top of PVC Elev.:
Drilling Method: Cased boring
Sampling Method:

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ø psf	COMMENTS	WELL INSTALLATION DETAILS
265.7	0				Topsoil and soft wet clayey silt with trace sand and organics.				3' Stick up.
265.1					Stiff olive brown mottled clayey silt with trace fine sand. GLACIOMARINE				Bentonite.
	5								
260									
256.7					Gray clay-silt with fine sand seams. GLACIOMARINE				10' of slotted screen surrounded by filter sand.
	10								
251.2					Boring terminated at 14.5'.				

Hole Diameter: 4"
Date Started: 1/23/92
Date Completed: 1/23/92
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- ▮ Auger Cutting
- ☒ Vane Shear
- ▨ SPT
- ■ UD
- ▨ Penetrometer
- ▯ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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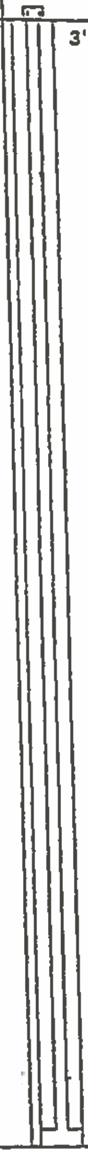
LOG OF BORING B-617C

Project:	WMDSM	**Surface Elev.:**	266.1
Job No.:	966	**Total Depth:**	200.1
Location:	Norridgewock, ME	**Top of PVC Elev.:**	
Coordinates:	N 10,041.4 E 10,516.0	**Drilling Method:**	Cased boring
		Sampling Method:	Core



Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ε psf	COMMENTS	WELL INSTALLATION DETAILS
266.1	0				Topsoil and soft wet clayey silt with trace sand and organics.				3' Stick up.
265.5					Very stiff olive brown mottled clayey silt with trace fine sand. GLACIOMARINE				
	5								
260									
257.1					Gray clay-silt with fine sand seams. GLACIOMARINE				
	10								
	15								
250									
	20								
	25								
240									
	30								

Boring continues on next page

Hole Diameter:	4"
Date Started:	12/30/91
Date Completed:	1/21/92
Engineer/Geologist:	RAE
Drilling Contractor:	MTB

Sample Types:

- Auger Cutting
- Vane Shear
- SPT
- UD
- Penetrometer
- Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted

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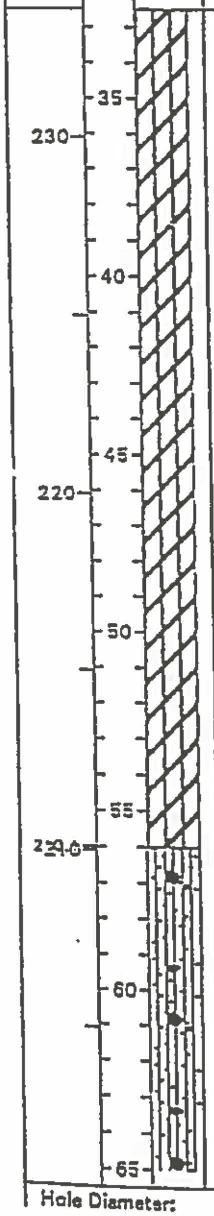
LOG OF BORING B-617C
(continued)

Project:	WMDSM	Surface Elev.:	266.1
Job No.:	966	Top of PVC Elev.:	
Location:	Norridgewock, ME	Drilling Method:	Cased boring
Coordinates:	N 10,041.4 E 10,516.0	Sampling Method:	Core

Total Depth: 200.1

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / srpsf	COMMENTS	WELL INSTALLATION DETAILS
					Gray clay-silt with fine sand seams. GLACIOMARINE				
209.6					Gray silty fine to coarse sand and gravel with cobbles. GLACIAL TILL				



Boring continues on next page

Hole Diameter:	4"
Date Started:	12/30/91
Date Completed:	1/21/92
Engineer/Geologist:	RAE
Drilling Contractor:	MTB

Sample Types:

Auger Cutting	UD
Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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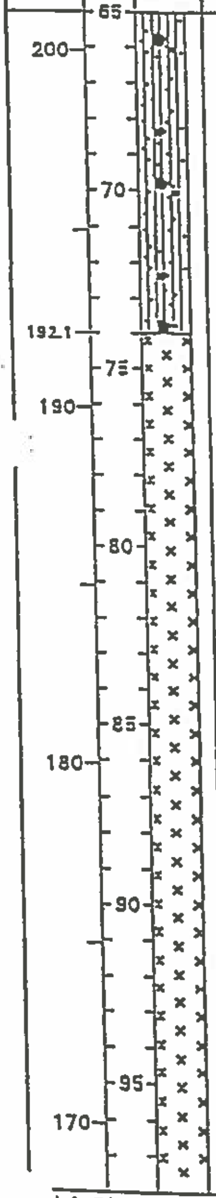
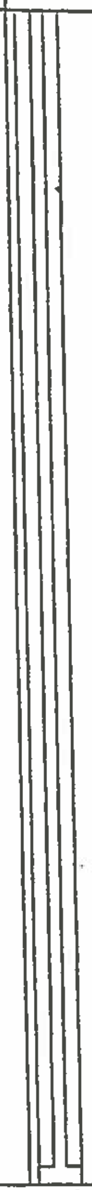
LOG OF BORING B-617C
(continued)

Project:	WMDSM	**Surface Elev.:**	266.1
Job No.:	966	**Total Depth:**	200.1
Location:	Norridgewock, ME	**Top of PVC Elev.:**	
Coordinates:	N 10,041.4 E 10,516.0	**Drilling Method:**	Cased boring
		Sampling Method:	Core



Elevation, feet	Depth, feet	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT N value or RQD in %	Vane Shear Strength Sv / ø psf	COMMENTS
	65			Large cobbles and boulders Gray silty fine to coarse sand and gravel with cobbles. GLACIAL TILL			
192.1				Fine to medium grained, massive, quartz, feldspar, BIOTITE GRANITE. 83.4'-84' Fractured zone with trace calcite deposits.			

WELL INSTALLATION DETAILS



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Hole Diameter: 4"
Date Started: 12/30/91
Date Completed: 1/21/92
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:

Auger Cutting	UD
Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

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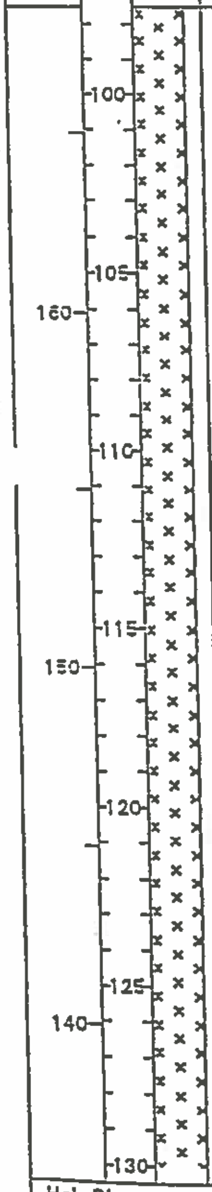
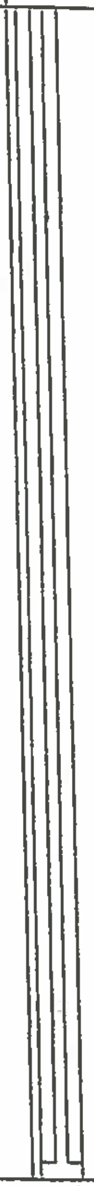
LOG OF BORING B-617C
(continued)

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 10,041.4 E 10,516.0

Surface Elev.: 266.1
Total Depth: 200.1
Top of PVC Elev.:
Drilling Method: Cased boring
Sampling Method: Core

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
					Fine to medium grained, massive, quartz, feldspar, BIOTITE GRANITE.				
					102.2'-103.8' Several horizontal fractures with slight iron staining and calcite.				





Boring continues on next page

Hole Diameter: 4"
Date Started: 12/30/91
Date Completed: 1/21/92
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- ▥ Auger Cutting
- ☒ Vane Shear
- ▨ SPT
- ■ UD
- ☒ Penetrometer
- ☐ Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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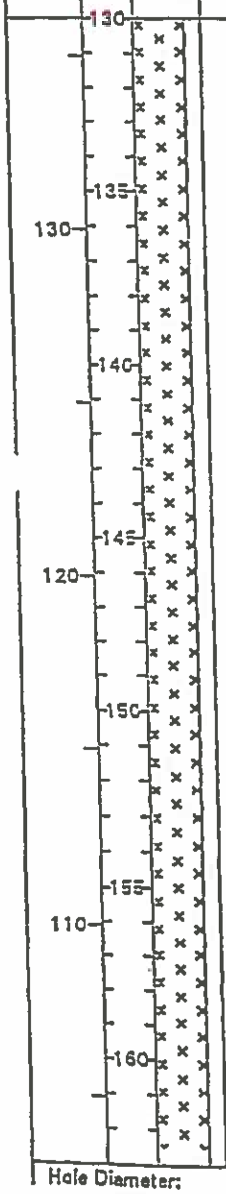
LOG OF BORING B-617C
(continued)

Project:	WMDSM	Surface Elev.:	266.1
Job No.:	966	Top of PVC Elev.:	
Location:	Norridgewock, ME	Drilling Method:	Cased boring
Coordinates:	N 10,041.4 E 10,516.0	Sampling Method:	Core

Total Depth: 200.1

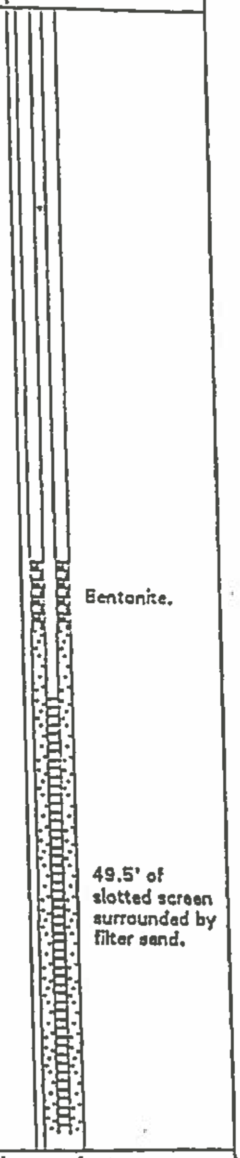
Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ≈psf	COMMENTS	WELL INSTALLATION DETAILS



Fine to medium grained, massive, quartz, feldspar, BIOTITE GRANITE.

133.5' Steep fracture.

154.7' Steep fracture.



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Hole Diameter: 4"
Date Started: 12/30/91
Date Completed: 1/21/92
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:

Auger Cutting	UD
Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

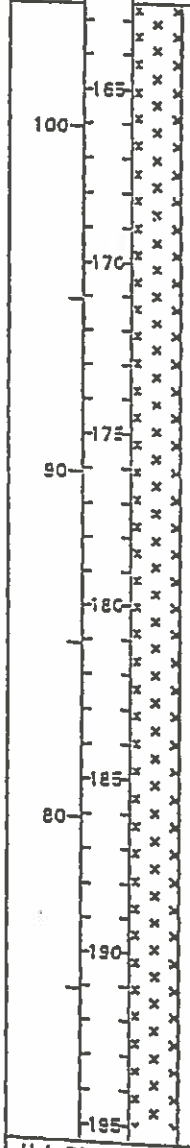
The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BORING B-617C
(continued)

Project:	WMDSM	Surface Elev.:	266.1
Job No.:	966	Top of PVC Elev.:	
Location:	Norridgewock, ME	Drilling Method:	Cased boring
Coordinates:	N 10,041.4 E 10,516.0	Sampling Method:	Core

Total Depth: 200.1

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / ± psf	COMMENTS	WELL INSTALLATION DETAILS
					Fine to medium grained, massive, quartz, feldspar, BIOTITE GRANITE.				
					169.6' Steep fracture.				
									Slotted scre surrounded b filter sand.
					193.4'-193.9' Several horizontal fractures with slight iron staining.				



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Hole Diameter:	4"
Date Started:	12/30/91
Date Completed:	1/21/92
Engineer/Geologist:	RAE
Drilling Contractor:	MTB

Sample Types:

Auger Cutting	UD
Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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LOG OF BORING B-617C
(continued)

Project:	WMDSM	**Surface Elev.:**	266.1
Job No.:	966	**Total Depth:**	200.1
Location:	Norridgewock, ME	**Top of PVC Elev.:**	
Coordinates:	N 10,041.4 E 10,516.0	**Drilling Method:**	Cased boring
		Sampling Method:	Core

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / Sr psf	COMMENTS	WELL INSTALLATION DETAILS
	195								
70		× × ×			Fine to medium grained, massive, quartz, feldspar, BIOTITE GRANITE.				
66.0	200				Boring terminated at 200.1'.				

Hole Diameter:	4"
Date Started:	12/30/91
Date Completed:	1/21/92
Engineer/Geologist:	RAE
Drilling Contractor:	MTB

Sample Types:

Auger Cutting	UD
☒ Vane Shear	Penetrometer
SPT	Rock Core

Remarks: Well detail is approximate.

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

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Engineers and Scientists

WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-618AR (MW)
Page 1 of 1
File No. 25457-6
Check IVS

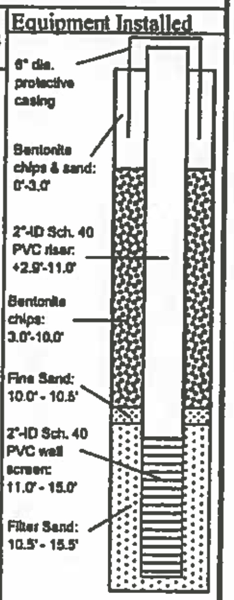
Contractor Maine Test Borings, Inc.
Foreman Tom Schaffer
Logged by Keith Rudman
Date Start/Finish 10/26/04 10/26/04
Boring Location 8894.23N; 10359.46E
GS Elev. 264.3 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	
Hammer Wt.	300 lbs	
Hammer Fall	16 in.	
Other	see notes	

Date	Time (hrs.)	Depth (ft.)	Ref.	Stab.
11/1/04	1300	11.74	GS	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
							Stratum description based upon observation of auger cuttings.	fine SAND (FILL)	1
5 (1.5 m)									
								+/- 8.5'	
10 (3.0 m)								CLAY CRUST	
15 (4.6 m)									2, 3, 4
							Bottom of boring at 15.5 feet		
20 (6.1 m)									
25 (7.6 m)									

Equipment Installed



REMARKS

1. Borehole drilled approximately 5 feet south of B-618CR and on the east side of the Phase 8C' phreatic cutoff. No sampling completed; subsurface conditions based upon B-618CR and observation of auger cuttings.
2. Boring terminated at 15.5 feet; no refusal encountered.
3. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; as-built top of protective casing at Elev. 267.51 feet and top of PVC at Elev. 267.21 feet.
4. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-618AR (MW)

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WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-618CR (MW)
Page 1 of 2
File No. 25457-6
Check IVS

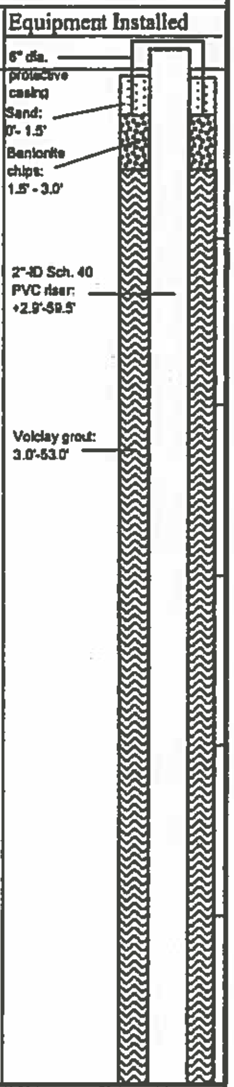
Contractor Maine Test Borings, Inc.
Foreman Tom Shaffer
Logged by Keith Rudman
Date Start/Finish 10/25/04 10/26/04
Boring Location 8899.13N, 10359.55E
GS Elev. 264.2 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time (hrs)	Depth (ft)	Ref.	Stab.
11/1/04	1415	16.93	GS	
11/2/04	0900	16.97	GS	
11/3/04	1345	16.86	GS	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
								FILL	1, 2
5 (1.5 m)		S-1	24/12	5.5-7.5	4-4		S-1: M. dense, brown, fine SAND, trace Gravel. (Fill)		
					8-12				
		S-2	24/7	7.5-9.5	8-16		S-2: Hard, olive brown, mottled, Clayey SILT, trace Gravel.		
					21-22			+/- 8.5'	
10 (3.0 m)									
		S-3	24/9	10-12	5-9		S-3: V. stiff, olive brown, mottled, Clayey SILT, trace Gravel.	CLAY CRUST	
					12-15				
		S-4	24/24	12-14	14-17		S-4: Top 7": olive brown, Clayey SILT, little f. Gravel. Btm 17": Hard, gray, mottled CLAY & SILT, with iron staining.		3
					24-30				
15 (4.6 m)		S-5	24/24	14-16	7-6		S-5: Top 21": Stiff, gray, mottled, CLAY & SILT, with occasional 1/16" to 1/8" thick fine Sand lenses and iron staining. Btm 3": Gray, Silty CLAY.		
					5-5				
		S-6	24/24	16-18	WH/24"		S-6: V. soft, gray, Silty CLAY, with occasional fine Sand and Silt lenses in top 12 inches.	15.7'	
								GRAY SILTY CLAY	4
20 (6.1 m)									
25 (7.6 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 5 feet using solid stem augers and from 5 to 63 feet using standard drive and wash techniques.
2. Borehole located on east side of Phase 8C' phreatic cutoff.
3. Color change from predominately brown to predominately gray noted at approximately 12.5 feet.
4. SPT and sampling discontinued once borehole advanced into very soft, gray, silty clay.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; W = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-618CR (MW)

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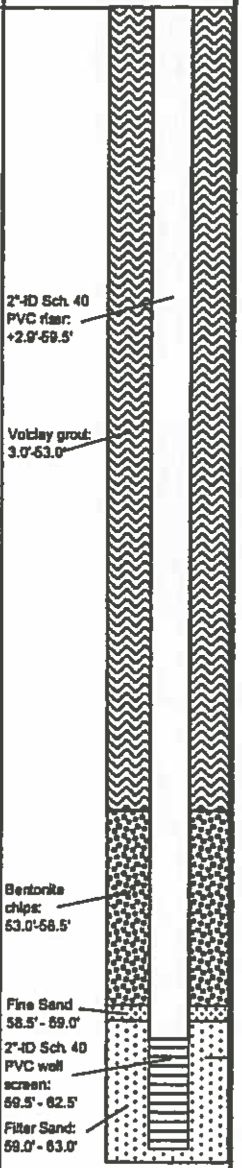
WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-618CR (MW)
Page 2 of 2
File No. 25457-6
Check IVS

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (In.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks	Equipment Installed
30 (9.1m)										
35 (10.7m)										
40 (12.2m)										
								GRAY SILTY CLAY		
45 (13.7m)										
50 (15.2m)										
55 (16.8m)										
								58.0'	5	
60 (18.3m)								TILL		
							Bottom of borehole at 63 feet.		6, 7, 8	



REMARKS

5. Based upon drilling behavior, glacial till encountered at 58.0 feet.
6. Boring terminated at 63.0 feet at casing and roller-cone refusal.
7. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; as-built top of protective casing at Elev. 267.41 feet and top of PVC at Elev. 267.12 feet.
8. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. B-618CR (MW)

GERBER, INC.
Freeport, Maine 04032-1133
207-865-6138

Consulting Geotechnical Engineers and Geologists

LOG OF BORING B-620A

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 9,276.2 E 8,571.3

Surface Elev.: 258.3
Top of PVC Elev.:
Drilling Method: Auger
Sampling Method:
Total Depth: 14.5

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / psf	COMMENTS	WELL INSTALLATION DETAILS
258.3	0				Topsoil.				
257.9					Very stiff olive brown mottled clayey silt with trace fine sand. GLACIOMARINE				3.3' Stick up. Bentonite.
252.9	5	☒	V-1		Stiff olive brown to gray clayey silt with trace fine sand. GLACIOMARINE		2480 220		
250									
	10								10' of 2" .006 slotted screen surrounded by fine silica sand.
244.9					Firm gray clay-silt with fine sand seams. GLACIOMARINE				
243.8					Boring terminated at 14.5'.				

Hole Diameter:
Date Started: 12/27/91
Date Completed: 12/27/91
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- Auger Cutting
- ☒ Vane Shear
- SPT
- ■ UD
- Penetrometer
- Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

GERBER, INC.

Freeport, Maine 04032-1133
207-865-6138

Consulting Geotechnical Engineers and Geologists

LOG OF BORING B-620C

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 9,273.1 E 8,567.4

Surface Elev.: 258.3
Top of PVC Elev.:
Drilling Method: Auger
Sampling Method: SPT
Total Depth: 42.5

Elevation, feet	Depth, feet	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in % / Vane Shear Strength Sv / Sr psf	COMMENTS	WELL INSTALLATION DETAILS
258.3	0			Topsoil			3.5' Stick up.
257.3				Very stiff olive brown mottled clayey silt with trace fine sand. GLACIOMARINE			Bentonite seal.
252.5	5	S-1			20		
				Very stiff olive brown to gray clayey silt with trace fine sand. GLACIOMARINE			
250	10	V-1			1240 290	Introduce drilling mud, 10.9 lbs/gal.	
245.3				Firm gray clay-silt with fine sand seams. GLACIOMARINE			
	15	V-2			515 100		Aqua-grout.
		V-3			605 110		
240	20	V-4			570 110		
		V-5			575 115		
	25	V-6			800 190		
		V-7			825 180		
230	30	V-8			805 185		
		V-9			810		

Boring continues on next page

Hole Diameter:
Date Started: 12/26/91
Date Completed: 12/27/91
Engineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- ▥ Auger Cutting
- ☒ Vane Shear
- ▦ SPT
- ■ UD
- ☒ Penetrometer
- ☐ Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual.

GERBER, INC.

Freeport, Maine 04032-1133
207-865-6138

Consulting Geotechnical Engineers and Geologists

LOG OF BORING B-620C
(continued)

Project: WMDSM
Job No.: 966
Location: Norridgewock, ME
Coordinates: N 9,273.1 E 8,567.4

Surface Elev.: 258.3
Top of PVC Elev.:
Drilling Method: Auger
Sampling Method: SPT
Total Depth: 42.5

Elevation, feet	Depth, feet	Graphic Log and Sample Types	Sample No.	% Recovery	MATERIAL DESCRIPTION	SPT, N value or RQD in %	Vane Shear Strength Sv / s psf	COMMENTS	WELL INSTALLATION DETAILS
224.9							150		
	35		S-2		Very dense to dense gray fine to coarse sand and gravel with cobbles. GLACIAL TILL	58			Bentonite.
220			S-3			37			5' of 2" .010 slotted screen surrounded by filter sand.
	40								
215.8					Boring terminated at 42.5'.				

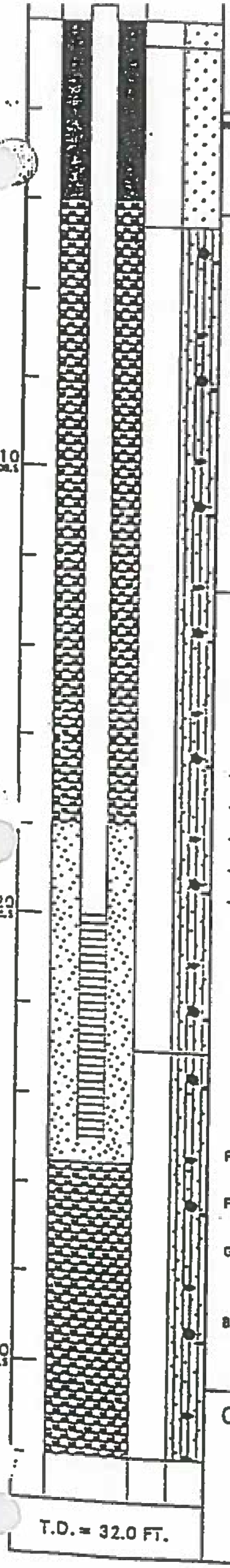
le Diameter:
ate Started: 12/26/91
Date Completed: 12/27/91
ngineer/Geologist: RAE
Drilling Contractor: MTB

Sample Types:
- Auger Cutting
- Vane Shear
- SPT
- UD
- Penetrometer
- Rock Core

Remarks:

All depths in feet. Unless otherwise noted, water encountered but not recorded.

The stratification lines represent approximate boundaries. The transition may be gradual



Tracking WMDSM, WMWELL, 4/20/95

WELL NUMBER: B-624B
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7662.88
E 8916.27

SURFACE ELEVATION: 246.5 NGVD 1983
TOP OF CASING ELEV: 249.81 NGVD 1983

SITE NAME: WMDSM Phase X
LOCATION: Norridgewock, Maine

DRILLING SUMMARY:

TOTAL DEPTH: 32.0'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.31'
DRILLER: MTB
RIG: Mobile B-47
BIT(S): Rollercone
DRILLING FLUID: water
PROTECTIVE CASING: 6" x 7.5' Aluminum

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	12/27/94	13:00	12/27/94	15:30
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-3.31 / 4.19	P	249.81 / 242.31
-3.0 / 20	C	249.50 / 225.50
20 / 25	S	225.50 / 221.50
/		/
/		/

P = Protective casing.

C = 2" Solid PVC riser.

S = 2" PVC 0.010 slot screen.

FILTER PACK: 18.0'-25.5'

FINE SAND:

GROUT SEAL: 4.0'-18.0', 25.5'-32.0'

BENTONITE SEAL: 0.0'-4.0'

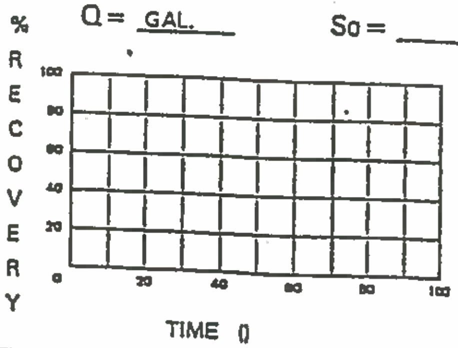
WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So =



COMMENTS:

SUPERVISED BY: Robert G. Gerber, Inc. BAE
CHK'D BY: ECB

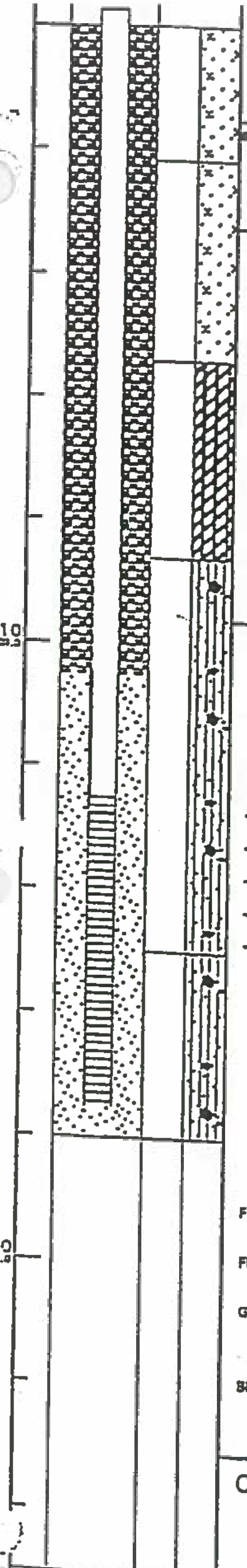
WELL NUMBER: B-626B
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7319.46
E 9231.24

SURFACE ELEVATION: 249.0 NGVD 1983
TOP OF CASING ELEV: 252.73 NGVD 1983

SITE NAME: WMDSM Phase X
LOCATION: Norridgewock, Maine



T.D.= 18.0 FT.

DRILLING SUMMARY:

TOTAL DEPTH: 18.0'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.73'
DRILLER: MTB

RIG: Mobile B-34
BIT(S):

DRILLING FLUID: water

PROTECTIVE CASING: 6" Diameter, 7' Aluminum pipe

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	5/10/94	10:00	5/10/94	12:45
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:	5/10/94	14:45	5/10/94	15:45

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☒ GEOPHYSICAL LOG ☐

CASING STRING(S): C=CASING S=SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION - (ft NGVD 1983)
-3.73 / 3.27	P	252.73 / 245.73
-3.21 / 12.5	C	252.21 / 236.50
12.5 / 17.5	S	236.50 / 231.50
/		/
/		/

P - Protective casing.

C - 2" PVC flush jointed riser.

S - 2" PVC .010 screen.

FILTER PACK: 10.5'-18.0'
FINE SAND:
GROUT SEAL:
BENTONITE SEAL: 0'-10.5'

WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

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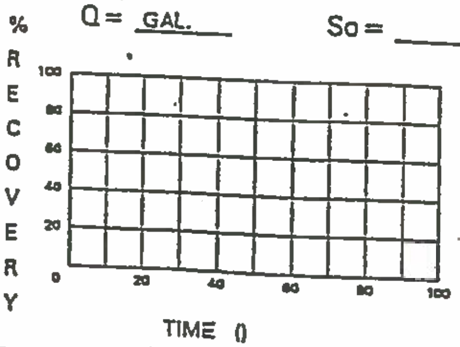

COMMENTS:

SUPERVISED BY: Robert G. Gerber, Inc. RAE
CHK'D BY: GCG

'WMDSM, WMWELL, 6/2/88
Tracking

WELL NUMBER: B-627A
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 6609.50
E 8831.98

SURFACE ELEVATION: 239.1 NGVD 1983
TOP OF CASING ELEV: 242.13 NGVD 1983

SITE NAME: WMDSM Phase X
LOCATION: Norridgewock, Maine

DRILLING SUMMARY:

TOTAL DEPTH: 56.5'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.03'
DRILLER: MTB

RIG: Mobile B-30
BIT(S):

DRILLING FLUID: water

PROTECTIVE CASING: 6"x7' Aluminum

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	6/16/95	8:30	6/21/95	10:00
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-3.03 / 3.97	P	242.13 / 235.13
-2.89 / 46	C	241.99 / 193.10
46 / 56	S	193.10 / 123.10
/		/
/		/

P = 6"x7' Aluminum protective casing

C = 2" PVC riser

S = 2" dia. 0.010 slotted screen

FILTER PACK: 44.0-56.5'

FINE SAND:

GROUT SEAL: 0.0-3.5', 3.5-40.5'

BENTONITE SEAL: 40.5-44.0'

WELL DEVELOPMENT:

Purged 54.6 gallons between 6/21 - 6/28.

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

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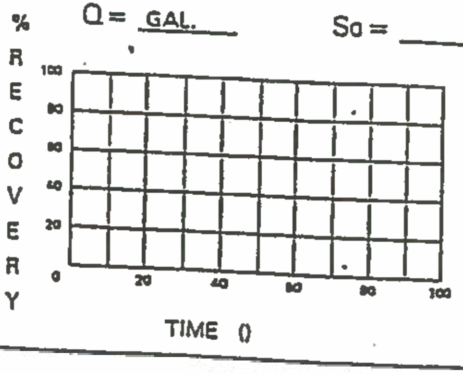
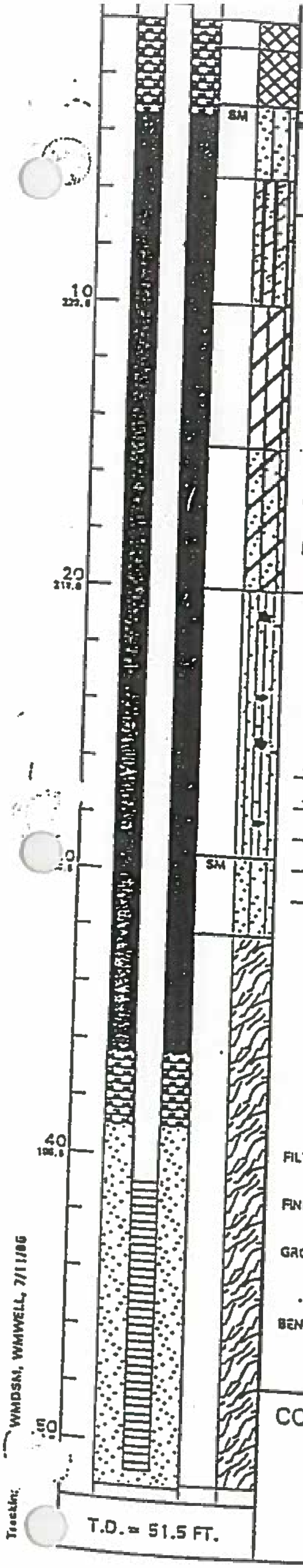


COMMENTS:

SUPERVISED BY: Robert G. Gerber Inc. LJA
CHK'D BY: ECB



WELL NUMBER: B-628A
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 6451.25
E 8741.29

SURFACE ELEVATION: 239.6 NGVD 1983
TOP OF CASING ELEV: 243.13 NGVD 1983

SITE NAME: WMDSM Phase X
LOCATION: Norridgewock, Maine

DRILLING SUMMARY:

TOTAL DEPTH: 51.5'
BOREHOLE DIAMETER: 4".
CASING STICK-UP: 3.53'
DRILLER: MTB

RIG: Mobile B-30
BIT(S):

DRILLING FLUID: water

PROTECTIVE CASING: 6"x7' Aluminum

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	6/21/95	13:00	6/27/95	9:00
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-3.53 / 3.47	P	243.13 / 235.13
-3.31 / 41	C	242.91 / 192.60
41 / 51	S	198.60 / 188.60
/		/
/		/

P = 6"x7' Aluminum protective casing

C = 2" PVC riser

S = 2" dia. 0.010 slotted screen

FILTER PACK: 39.0-51.5'

FINE SAND:

GROUT SEAL: 3.4-36.4'

BENTONITE SEAL: 0.0-3.4', 36.4-39.0'

WELL DEVELOPMENT:

Purged 81.0 gallons between 6/27 - 6/28.

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

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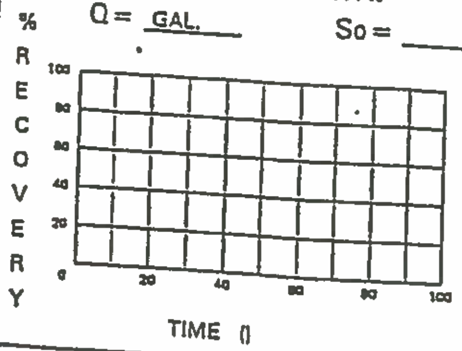


COMMENTS:

SUPERVISED BY: Robert G. Gerber, Inc. LJA
CHK'D BY: BCB

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-629B (MW)
Page 1 of 2
File No. 25437.15
Check RLS

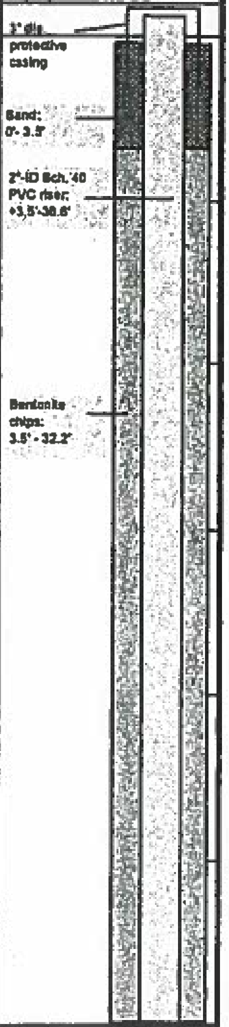
Contractor Maine Test Borings, Inc.
Foreman Tom Shaffer
Logged by Joel Moulton
Date Start/Finish 2/19/03 3/7/03
Boring Location 8439.22N, 8950.16E
GS Elev. 261.9 ft. Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time (hrs)	Depth (ft)	Ref. (PVC)	Stab
3/14/03		23.3'	PVC	6.5 days

Depth BGS (ft.)	Casing Blows	Sample Information					Sample Description & Classification	Stratum Desc.	Rmks
		No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data			
									1
5 (1.5 m)		S-1	24/24	5-7	9-16		S-1: Dense, brown, fine to medium SAND, trace Silt. Dry. (FILL)	fine to medium SAND (FILL)	
					25-60				
		S-2	24/18	7-9	38-85		S-2: Dense, brown, fine to medium SAND, trace Silt. Frozen. (FILL)		
					70-65				
10 (3.0 m)		S-3	24/24	9-11	22-24		S-3: Upper 21": Dense, brown, fine to medium SAND, trace Silt. Bottom 3": Grayish-brown, mottled, Clayey SILT, trace fine Sand. Moist.		
	3				24-35				
	4	S-4	24/24	11-13	13-19		S-4: Hard, grayish-brown, mottled, Clayey SILT, trace fine Sand. Moist.	+/- 10.75'	
	5				19-19				
	15	S-5	24/24	13-15	11-16		S-5: Very stiff, grayish-brown, mottled, Clayey SILT, trace fine Sand. Moist.		
15 (4.6 m)	20				14-12				
	HYD	S-6	24/24	15-17	6-9		S-6: Very stiff, grayish-brown to olive, mottled, Clayey SILT, trace fine Sand. Moist.		
	PUSH				10-10			CLAY CRUST	2
	│	S-7	24/24	17-19	7-8		S-7: Very stiff, grayish-brown to olive, mottled, Clayey SILT, trace fine Sand. Moist.		
	│				10-10				
20 (6.1 m)	│	S-8	24/24	19-21	3-4		S-8: Stiff, olive to brownish-gray, Clayey SILT, trace fine Sand. Wet.		
	│				5-5				
	│	S-9	24/24	21-23	3-2		S-9: Upper 18": Medium stiff, olive to brownish-gray, Clayey SILT, trace fine Sand. Bottom 6": Gray, Silty CLAY, trace fine Sand (lenses).		
	│				4-3			+/- 22.5'	
	│								
25 (7.6 m)	│								
	│	S-10	24/24	25-27	2-2		S-10: Soft, gray, Silty CLAY, trace fine Sand (lenses), trace organics.		
	│				2-3			Silty CLAY	
	│								
	↓								3

Equipment Installed



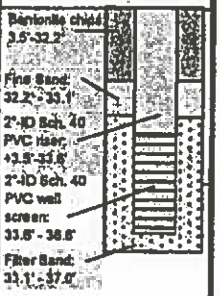
REMARKS

1. Borehole advanced from 0 to 30 feet using standard drive and wash techniques.
2. Groundwater encountered during drilling at approximately 19 feet.
3. Drill casing sheared off at approximately 31 feet BGS within original borehole on 2/21/2003; 5-foot length of HW casing lost within borehole. The drillers removed remaining HW drill casing, overdrilled the borehole using a 6-inch auger and filled the overdrilled original borehole with bentonite grout to the ground surface. A second borehole, which was installed approximately 6 feet upgradient (east) from the original borehole, was advanced from 0 to 30 feet using solid-stem augers and from 30 feet to the bottom of the borehole (38.4 feet) using standard drive and wash techniques. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed upon completion of borehole. A construction vehicle struck the protective casing of the well and severed the well at approximately 10 feet BGS. Therefore, the well was abandoned by removing PVC, overdrilling borehole, and grouting (bentonite) borehole to ground surface. Subsurface conditions/sample information above 30' from first borehole; below 30' from final borehole.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-629B (MW)
Page 2 of 2
File No. 25437.15
Check RLS

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks	Equipment Installed
30 (9.1m)								Silty	4	
		S-11	8/7	31-31.7	WOH-26/2"		S-11: Upper 6": Soft, gray, Silty CLAY, trace fine Sand (lenses). Bottom 1": Grayish-brown, fine to medium Sand, little Gravel, trace Silt (TILL)	CLAY +/- 31.7'		
					50/0"					
35 (10.7m)								TILL	5	
									6	
							Bottom of borehole at 37 feet		7	
									8	
40 (12.2m)										
45 (13.7m)										
50 (15.2m)										
55 (16.8m)										
60 (18.3m)										

REMARKS

4. After abandoning the monitoring well, another replacement boring was drilled 5 feet upgradient (northeast) of the second boring by advancing standard drive and wash techniques from 0 to 31 feet. A split spoon sample was collected at 31 feet. Standard drive and wash techniques were resumed following sample collection to the bottom of the borehole.
5. Obstructions encountered from 31.7 to 35 feet. Tricone roller bit used to advance borehole beyond obstructions. Based on drilling behavior and driller's comments, obstructions anticipated to be two small boulders.
6. Boring terminated at 37 feet due to drilling obstructions encountered.
7. Monitoring well installation (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion of test boring; stick up of protective casing and PVC measured to be approximately 4.0 and 3.5 feet, respectively.
8. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-629E (MW)
Page 1 of 1
File No. 25437.15
Check RLS

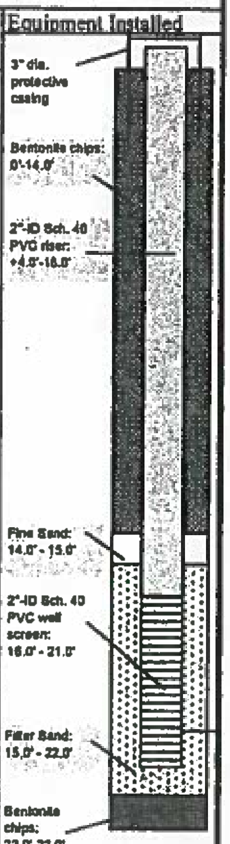
Contractor Maine Test Borings, Inc.
Foreman Tom Schaffer
Logged by Joel Moulton
Date Start/Finish 2/20/03 2/20/03
Boring Location 8434.35N; 8950.02E
GS Elev. 261.7 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref. top PVC	Stab.
2/20/03	1520	19'	PVC	0
2/21/03	830	7.9	PVC	15 hrs

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
									1
5 (1.5 m)								fine to medium SAND (FILL)	
10 (3.0 m)									
	15	S-1	24/24	10-12	18-20		S-1: Upper 16": Dense, brown, fine to medium SAND, trace Silt. Dry. Bottom 8": Light brown to grayish brown, mottled, Clayey SILT, trace fine Sand.		
	80				26-26			+/- 11.3'	
	74								
	89								
15 (4.6 m)	63								
	HYD	S-2	24/24	15-17	3-6		S-2: Stiff, grayish-brown, mottled, Clayey SILT, trace fine Sand. Moist.		
	PUSH				7-8			CLAY CRUST	
	↓								
20 (6.1 m)		S-3	24/24	19-21	2-3		S-3: Stiff, grayish-brown to olive, mottled, Clayey SILT, trace fine Sand. Wet.		2
					5-4				
		S-4	24/24	21-23	1-1		S-4: Upper 21": Soft, grayish-brown to olive, mottled, Clayey SILT trace fine Sand. Bottom 3": Gray, Silty CLAY, trace fine Sand (lenses).		
	↓				2-2			+/- 22.75'	3
							Bottom of boring at 23 feet		4
25 (7.6 m)								Silty CLAY	5

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 10 feet using solid-stem augers and from 10 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 19 feet.
3. Borehole terminated at 23.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be approximately 4.3 and 4.0 feet.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-629E (MW)

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-630B (MW)
Page 1 of 2
File No. 25437.15
Check RLS

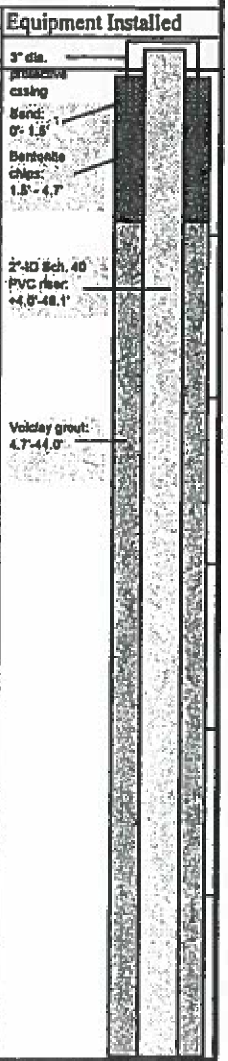
Contractor Maine Test Borings, Inc.
Foreman Tom Shaffer
Logged by Joel Moulton
Date Start/Finish 4/22/03 4/22/03
Boring Location 8968.05 N, 8767.89 E
GS Elev. 265.9 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time (hrs)	Depth (ft)	Ref. (PVC)	Stab.
4/22/03	1620	18.52	PVC	0
4/23/03	1700	25.82	PVC	24 hrs

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
								fine to medium SAND (FILL)	1
								+/- 3.5'	
5 (1.5 m)		S-1	24/18	5-7	4-8		S-1: Very stiff, brownish-gray, mottled, SILT, trace fine to medium Sand, trace Clayey Silt (layers), trace organics.	CLAY CRUST	2
					8-12				
10 (3.0 m)		S-2	24/24	10-12	3-3		S-2: Upper 12": Medium stiff, brownish-gray, mottled, SILT, trace fine to medium Sand, trace Clayey Silt (layers). Bottom 12": Gray, Silty CLAY with occasional lenses of fine to medium Sand.		
					2-1			+/- 11'	
15 (4.6 m)		S-3	24/24	15-17	1-WH		S-3: Very soft, gray, Silty CLAY, trace fine Sand with two 3" layers of fine to medium Sand vertically spaced approximately 12" apart.		
					WH-1				
20 (6.1 m)		S-4	24/24	20-22	WR-WR		S-4: Very soft, gray, Silty CLAY, trace fine Sand with fine to medium Sand layer in upper 12" and fine to medium Sand seams in bottom 12" vertically spaced approximately 2" apart.	Silty CLAY	
					WH-WH				
25 (7.6 m)		S-5	24/24	25-27	WR-WR		S-5: Very soft, gray, Silty CLAY, trace fine Sand with occasional Sand seams.		
					WR-WH				

Equipment Installed



REMARKS
1. Borehole advanced from 0 to 5 feet using solid stem augers and from 5 to 47 feet using standard drive and wash techniques.
2. Groundwater encountered during drilling at approximately 6 feet.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-630B(MW)

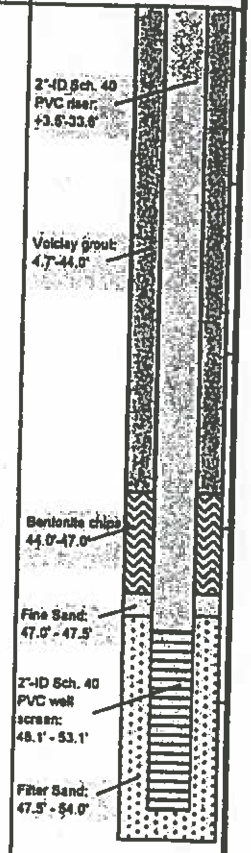
GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-630B (MW)
Page 2 of 2
File No. 25437.15
Check RLS

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
30 (9.1m)	HYD	S-6	24/24	30-32	WR-WR		S-6: Very soft, gray, Silty CLAY with occasional sand lenses.		
	PUSH				WR-WH				
35 (10.7m)		S-7	24/24	35-37	WR-WR		S-7: Very soft, gray, Silty CLAY, trace fine Sand.		
					WR-WR			Silty CLAY	
40 (12.2m)		S-8	24/24	40-42	WR-WR		S-8: Very soft, gray, Silty CLAY, trace fine Sand.		
					WR-WR				
45 (13.7m)		S-9	24/24	45-47	WR-WR		S-9: Upper 18": Very soft, gray, Silty CLAY, trace fine Sand. Bottom 6": gray, fine to medium Sand, little Silt, trace (subrounded to subangular) gravel.		
					WH-10			+/- 46.5'	3
50 (15.2m)								TILL	
55 (16.8m)							Bottom of borehole at 54 feet.		4 5 6
60 (18.3m)									

Equipment Installed



REMARKS

3. Borehole advanced from 47 to 54 feet using open-hole wash techniques, HW casing could not be advanced due to obstructions encountered from 47 to 48.2 feet and also from 48.8 to 49.9 feet. Based on driller's comments and observations, obstructions suspected to be boulders.
4. Borehole terminated at 54 feet. Borehole caved 0.9 feet before installation of monitoring well equipment.
5. Monitoring well installation (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion of test boring; stick up of protective casing and PVC measured to be approximately 4.2 and 4.0 feet, respectively.
6. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods; WC = Weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. B-630B (MW)

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8A CONSTRUCTION
Norridgewock, Maine

Boring No. B-630E (MW)
Page 1 of 1
File No. 25437.15
Check RLS

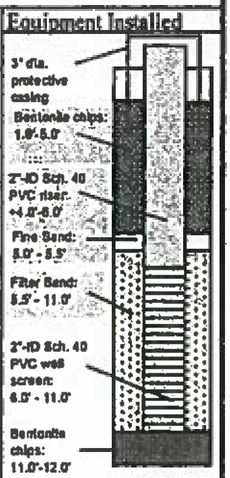
Contractor: Maine Test Borings, Inc.
Foreman: Tom Schaffer
Logged by: Joel Moulton
Date Start/Finish: 4/22/03 4/23/03
Boring Location: 8955.90 N, 8780.24 E
GS Elev.: 265.3 Datum: MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref. top PVC	Stab.

Depth BGS (ft.)	Casing Blows	Sample Information					Sample Description & Classification	Stratum Desc.	Rmks
		No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data			
								fine to medium SAND (FILL)	1
									2
								+/- 3.5'	
5 (1.5 m)									
		S-1	24/18	5-7	3-4		S-1: Stiff, grayish-brown to olive, mottled, SILT, little fine to medium Sand. Moist.	CLAY CRUST	
					9-9				
10 (3.0 m)									
		S-2	24/24	10-12	3-3		S-2: Upper 12": Grayish-brown to olive, mottled, SILT, little fine to medium Sand. Bottom 12": Gray, Silty CLAY, trace fine Sand.		
					2-2			+/- 11.0'	3
							Bottom of boring at 12.0 feet	Silty CLAY	4
									5
15 (4.6 m)									
20 (6.1 m)									2
									3
									4
25 (7.6 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 5 feet using solid-stem augers and from 5 feet to the bottom of the borehole using standard drive and wash techniques.
2. Based on observation of spoils collected from the auger flights, the soil from from 0 to 5 feet appears to be brown, fine to medium SAND, trace Silt (FILL).
3. Borehole terminated at 12.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be approximately 4.2 and 4.0 feet.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. B-630E (MW)

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-1008BR2 (MW)
Page 1 of 2
File No. 25478.20T6
Check IVS

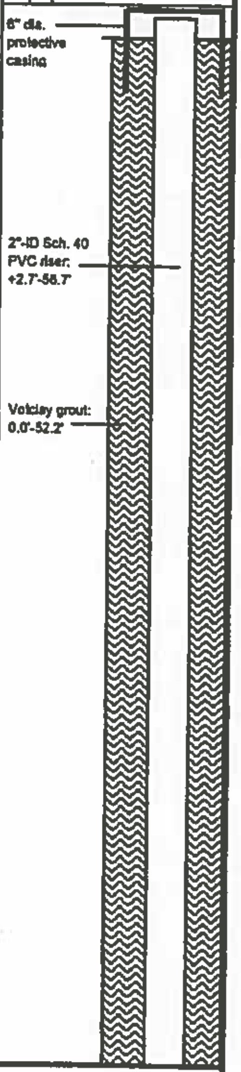
Contractor: Maine Test Borings, Inc.
Foreman: Gerry Rudnicki
Logged by: Keith Rudman
Date Start/Finish: 4/26/05 4/27/05
Boring Location: N10170.0, E9455.4
GS Elev.: 269.0 Datum: MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	
I.D.	4 in.	
Hammer Wt.	300 lbs	
Hammer Fall	16 in.	
Other	see notes	

Date	Time (hrs)	Depth (ft)	Ref.	Stab.
6/7/05		12.72	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
							No samples collected. Stratum descriptions based upon observation of drill spoils.		1
5 (1.5 m)									
								FILL	
10 (3.0 m)									
								+/-11.0'	
15 (4.6 m)									
20 (6.1 m)									
								GRAY CLAY	
25 (7.6 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 5 feet using solid stem augers and from 5 to 61.2 feet using standard drive and wash techniques.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing.

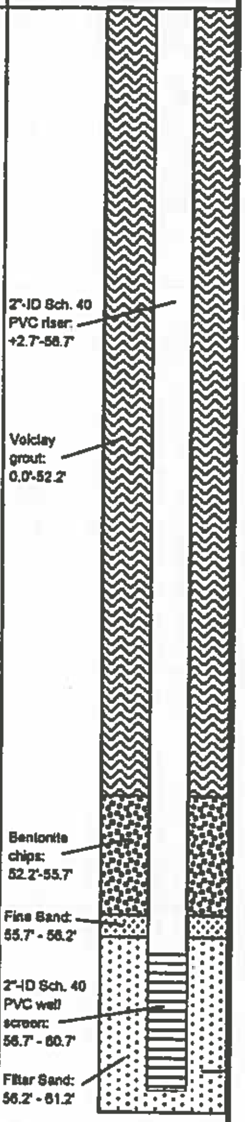
Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-1008BR2

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-1008BR2 (MW)
Page 2 of 2
File No. 25478.20T6
Check IVS

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (In.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks	Equipment Installed
30 (9.1m)							No samples collected. Stratum descriptions based upon observation of drill spoils.			
35 (10.7m)										
40 (12.2m)										
								GRAY CLAY		
45 (13.7m)										
50 (15.2m)										
								54.2'		
55 (16.8m)	84/10"								2	
	101									
	45									
	38							TILL		
	32									
60 (18.3m)	38									
	16									
	17/2"						Bottom of boring at 61.2 feet.		3, 4, 5	

REMARKS

2. Based upon drilling behavior, glacial till encountered at 54.2 feet.
3. Boring terminated at 61.2 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; as-built top of protective casing at Elev. 271.71 feet and top of PVC at Elev. 271.52 feet.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods; WC = Weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. B-1008BR2

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 8C' CONSTRUCTION
Norridgewock, Maine

Boring No. B-1008ER2 (MW)
Page 1 of 1
File No. 25478.20T6
Check IVS

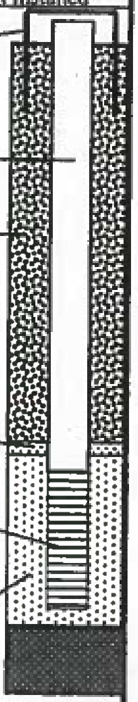
Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Keith Rudman
Date Start/Finish 4/27/05 4/27/05
Boring Location N10174.4, E9457.0
GS Elev. 268.7 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4 in.	1-3/8"
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 in.
Other	see notes	

Date	Time (hrs.)	Depth (ft.)	Ref.	Stab.
6/7/05		11.11	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
5 (1.5 m)								MISC. FILL	
		S-1	24/3	7-9	2-10		S-1: Dense, light gray, wood, some Gravel, little Silt. (FILL)		
					28-12				
10 (3.0 m)		S-2	24/12	9-11	6-9		S-2: V. stiff, gray-brown, Clayey SILT, trace fine Sand, appears reworked. (FILL)		
					12-13			+/- 11.0'	
		S-3	24/18	11-13	3-3		S-3: M. stiff, olive gray-brown, CLAY & SILT, with fine Sand lenses throughout.		
					3-4				
		S-4	24/19	13-15	1-1		S-4: V. soft to soft, olive gray-brown, CLAY & SILT, with Silt laminations.	CLAY CRUST	
15 (4.6 m)					1-1				
		S-5	24/12	15-17	1-1		S-5: Soft, gray-brown, SILT & CLAY, with fine Sand lenses throughout.		
					2-2			+/- 17.0'	
		S-6	24/24	17-19	WH/18"		S-6: V. soft, gray, Silty CLAY.	GRAY CLAY	
					1				
20 (6.1 m)							Bottom of boring at 19.0 feet		1, 2, 3
25 (7.6 m)									

Equipment Installed



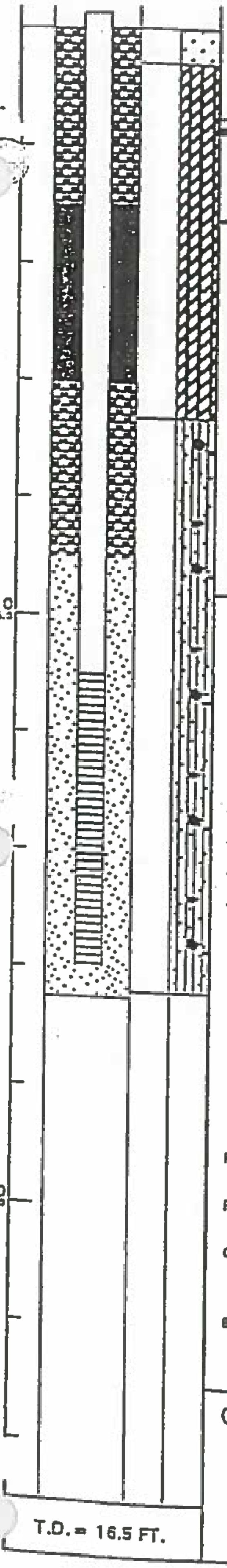
REMARKS

1. Boring terminated at 19.0 feet; no refusal encountered.
2. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; as-built top of protective casing at Elev. 271.65 feet and top of PVC at Elev. 271.50 feet.
3. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made a times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made

Boring No. B-1008ER2



T.D. = 16.5 FT.

WELL NUMBER: B-10408
BORING NO. X-REF:

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7848.09
E 8798.70

SURFACE ELEVATION: 245.0 NGVD 1983
TOP OF CASING ELEV: 248.67 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 16.5'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 3.67'
DRILLER: MTB

RIG: Mobile B-34
BIT(S):

DRILLING FLUID: Water

PROTECTIVE CASING: 3" Diameter, 7' steel pipe.

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	4/11/91	12:45	4/11/91	13:45
GEOPHYS.LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:	4/11/91	13:45	4/11/91	13:45

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☒ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S).	ELEVATION (ft NGVD 1983)
-3.67 / 4.03	P	248.67 / 240.97
-3.35 / 11	C	248.35 / 234.00
11 / 15	S	234.00 / 229.00
/		/
/		/

P - Protective casing.

C - 2" PVC flush jointed riser.

S - 2" PVC 0.010 screen.

FILTER PACK: 9.0'-16.5'

FINE SAND:

GROUT SEAL: 3.0'-6.0'

BENTONITE SEAL: 0'-3.0', 6.0'-9.0'

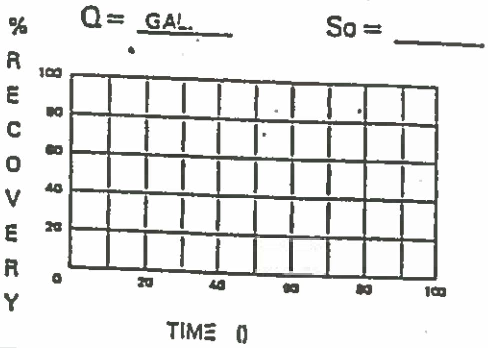
WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So =

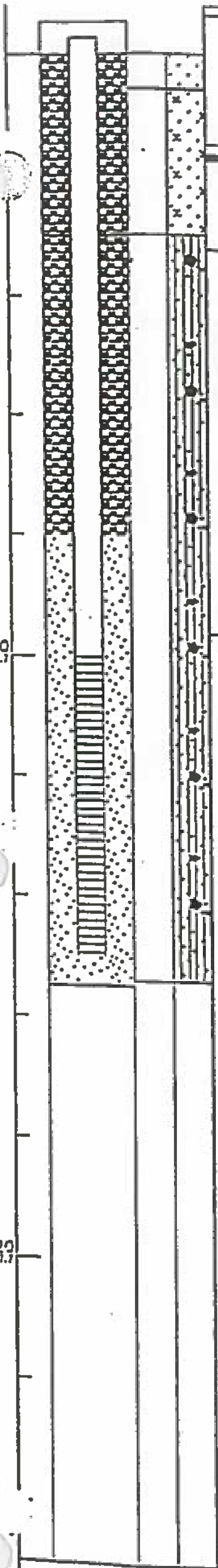


COMMENTS:

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

SUPERVISED BY: Robert G. Gerber Inc. RAE
CHK'D BY: ECS

Tracking C· ·"··WMDSM, WMWELL, 6/30/95



T.D. = 15.5 FT.

WELL NUMBER: B-10418

BORING NO. X-REF: ______

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 7507.42
E 9052.82

SURFACE ELEVATION: 247.7 NGVD 1983
TOP OF CASING ELEV: 250.43 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 15.5'
BOREHOLE DIAMETER: 4"
CASING STICK-UP: 2.73'
DRILLER: MTB

RIG: Mobile B-34
BIT(S): ______

DRILLING FLUID: Water

PROTECTIVE CASING: 3" Diameter, 7' steel pipe.

CONSTRUCTION TIME LOG:

	START		FINISH	
TASK:	DATE	TIME	DATE	TIME
DRILLING:	4/11/91	9:00	4/11/91	11:30
GEOPHYS. LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:	4/11/91	12:00	4/11/91	13:00

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☒ GEOPHYSICAL LOG ☐

CASING STRING(S): C = CASING S = SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-2.73 / 4.27	P	250.43 / 243.43
-2.48 / 10	C	250.18 / 237.70
10 / 15	S	237.70 / 232.70
/		/
/		/

P - Protective casing.

C - 2" PVC flush jointed riser.

S - 2" PVC 0.010 screen.

FILTER PACK: 8.0'-15.5'

FINE SAND: ______

GROUT SEAL: ______

BENTONITE SEAL: 0'-8.0'

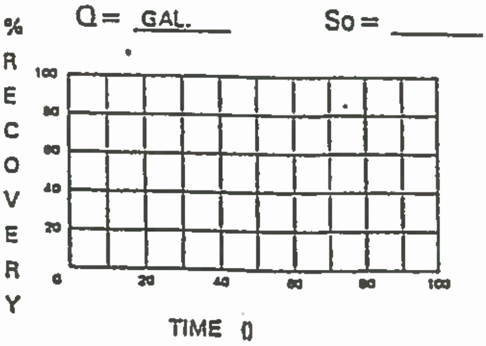
WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So = ______

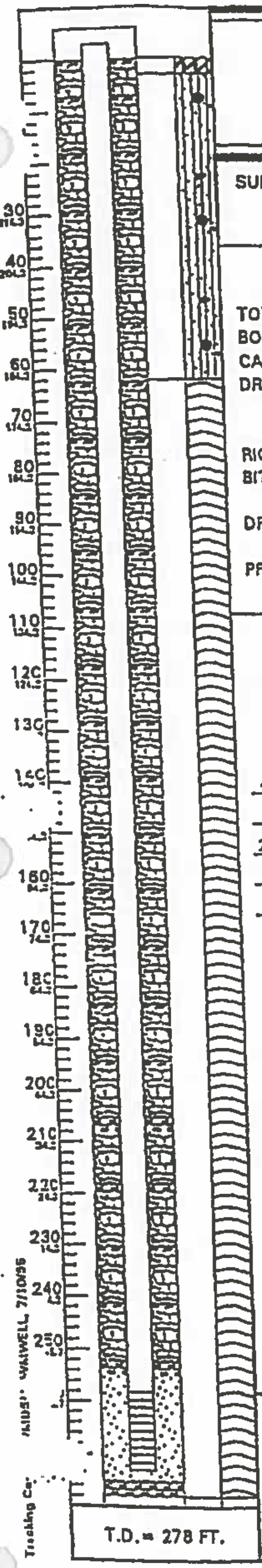


COMMENTS: ______

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

SUPERVISED BY: Robert G. Gerber, Inc. SEB
CHK'D BY: ECB

Troab.. Cor .WMDSM, WMWELL, 6/30/86



WELL NUMBER: B-1134B

BORING NO. X-REF: ________

MONITOR WELL CONSTRUCTION SUMMARY

SURVEY COORDS: N 4631.72
E 13563.24

SURFACE ELEVATION: 244.3 NGVD 1983
TOP OF CASING ELEV: 245.65 NGVD 1983

DRILLING SUMMARY:

TOTAL DEPTH: 278'
BOREHOLE DIAMETER: 6"
CASING STICK-UP: 1.35'
DRILLER: Goodwin Well
RIG:
BIT(S):
DRILLING FLUID: none
PROTECTIVE CASING: 6" Diameter steel pipe

CONSTRUCTION TIME LOG:

TASK:	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	10/02/97		10/05/97	
GEOPHYS. LOGGING:				
CASING:				
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				

SITE NAME: WMDSM
LOCATION: Norridgewock, Maine

WELL DESIGN & SPECIFICATIONS

BASIS: GEOLOGIC LOG ☐ GEOPHYSICAL LOG ☐

CASING STRING(S): C=CASING S=SCREEN

DEPTH (ft)	STRINGS(S)	ELEVATION (ft NGVD 1983)
-1.35 /	P	245.65 /
-.83 / 258.2	C	245.13 / -13.90
258.2 / 273.2	S	-13.90 / -28.90
/		/
/		/

P = 6" Diameter steel pipe

C = 2" PVC riser

S = 2" 0.010 Slotted screen

FILTER PACK:

FINE SAND: 255'-275'

GROUT SEAL: no seal

BENTONITE SEAL: 1' thick every 10'

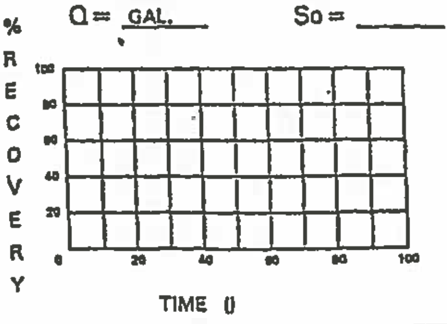
WELL DEVELOPMENT:

STABILIZATION TEST DATA:

TIME	pH	SPEC. COND.	TEMP. (°C)

RECOVERY DATA:

Q = GAL. So = ________



COMMENTS:

SUPERVISED BY: Robert G. Gerber, Inc. DAF
CHK'D BY: ECB

GZA GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 9 CONSTRUCTION
Norridgewock, Maine

Boring No.: W9-1E
Page: 1 of 1
File No.: 25381.15
Check: IVS

Contractor: Maine Test Borings, Inc.
Foreman: Gerry Rudnicki
Logged by: Joel Moulton
Date Start/Finish: 2/15/01-2/15/01
Boring Location: 10146.52N , 8670.23E
GS Elev.: 257.8 ft. Datum: MSL/NGVD

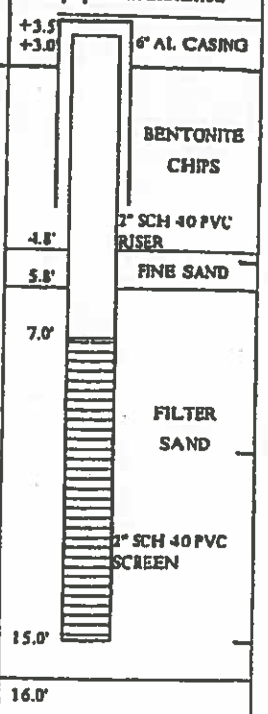
	Auger/ Casing	Sampler
Type:	HW	Split Spoon
O.D. / I.D.:	4 in.	2 in./1-3/8in.
Hammer Wt.:	300 lbs	140 lbs
Hammer Fall:	16 in.	30 in.
Other:	see notes	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
2/15/01	0900 hrs	14.8 ft.		
2/15/01	0950 hrs	13.0 ft.		

Depth	Casing Blows	Sample Information No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6 In.)		Sample Description & Classification	Stratum Desc.	Rmks.
									1
		S-1	24/24	1-3	3-9		S-1: Upper 12": Medium dense, brown to gray, fine to medium SAND and Silt. Bottom 12": Olive-brown, mottled, Clayey SILT, trace fine Sand.	fine to medium SAND 2'	
					12-15				
		S-2	24/24	3-5	9-13		S-2: Very stiff, olive-brown, mottled, Clayey SILT, trace fine Sand.	CLAY CRUST	
					14-20				
5'		S-3	24/24	5-7	4-5		S-3: Stiff, olive-brown, mottled, Clayey SILT, with six 1/4" to 2" fine SAND seams.		
					6-5				
		S-4	24/24	7-9	3-2		S-4: Soft to medium stiff, olive-brown, mottled, Clayey SILT, with four 1/4" to 1/2" fine SAND seams.		
					2-2				
10'		S-5	24/24	9-11	1-WH/18"		S-5: Olive-brown, Clayey SILT, with fine SAND seams; changing at 9.4' to very soft, gray Silty CLAY.	9.4' GRAY Silty CLAY	
		S-6	24/24	11-13	WR/18"		S-6: Very soft, gray, Silty CLAY, with one 1/2" fine SAND seam.		
					WH				
		S-7	24/24	13-15	WH/24"		S-7: Very soft, gray, Silty CLAY, with two 1/2" to 3/4" fine SAND seams.		
15'									2
							Bottom of boring at 16.0 feet		3 4 5
20'									
25'									

Equipment Installed



REMARKS

1. Borehole advanced using standard drive and wash techniques.
2. Groundwater encountered at approximately 14.8 feet.
3. Borehole terminated at 16.0 feet; no refusal encountered.
4. Monitoring well (2-inch-dia., Sch 40 PVC, machine slotted) installed in borehole upon completion; well pumped out subsequent to installation to allow formational recharge.
5. from Sackett & Brake Survey, Inc.: top of protective casing at El. 260.76; top of PVC well riser at El. 260.30.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed-piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded). WH = Weight of hammer; WR = Weight of rods.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: W9-1E

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 9 CONSTRUCTION
Norridgewock, Maine

Boring No.: W9-2E
Page: 1 of 1
File No.: 25381.15
Check: IVS

Contractor: Maine Test Borings, Inc.
Foreman: Gerry Rudnicki
Logged by: Joel Moulton
Date Start/Finish: 2/16/01-2/16/01
Boring Location: 9860.26N , 8400.42E
GS Elev.: 258.1 ft. Datum: MSL/NGVD

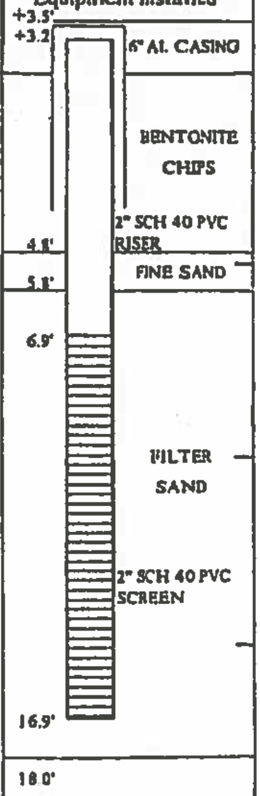
	Auger/ Casing	Sampler
Type:	HW	Split Spoon
O.D. / I.D.:	4 in.	2 in./1-3/8in.
Hammer Wt.:	300 lbs	140 lbs
Hammer Fall:	16 in.	30 in.
Other:	see notes	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
2/16/01	1030 hrs	16.9 ft.		
2/16/01	1120 hrs	16.0 ft.		

Depth	Casing Blows	Sample Information No.	Pen/ Rec. (In.)	Depth (Ft.)	Blows (/6 In.)		Sample Description & Classification	Stratum Desc.	Rmks.
								fine to medium 1.6' SAND	1
		S-1	24/20	1-3	6-13		S-1: Upper 8": Medium dense, brown, fine to medium SAND and Silt. Bottom 12": Olive-brown, mottled, Clayey SILT, trace fine to medium Sand.		
					13-13				
		S-2	24/24	3-5	7-11		S-2: Very stiff, olive-brown, mottled, Clayey SILT, trace fine to medium Sand, trace root material.		
					11-12				
5'		S-3	24/14	5-7	4-5		S-3: Stiff, olive-brown, Clayey SILT, trace fine to medium Sand.		
					6-8			CLAY CRUST	
		S-4	24/24	7-9	3-3		S-4: Medium stiff, olive-brown, Clayey SILT, with four 1/2" fine SAND seams.		
					4-5				
		S-5	24/24	9-11	2-3		S-5: Medium stiff, olive-brown, Clayey SILT, trace fine SAND.		
10'					4-4				
		S-6	24/24	11-13	1-2		S-6: Soft to medium stiff, olive-brown, Clayey SILT, trace fine SAND.		
					2-3				
		S-7	24/24	13-15	1-2		S-7: Soft to medium stiff, olive-brown, Clayey SILT, trace fine SAND; changing at 13.8' to gray, Silty CLAY.	13.8'	
					2-3				
15'		S-8	24/24	15-17	WR/6"		S-8: Very soft, gray, Silty CLAY.	GRAY Silty CLAY	
					WH/18"				2
							Bottom of boring at 18.0 feet		3 4 5
20'									
25'									

Equipment Installed



REMARKS

1. Borehole advanced using standard drive and wash techniques.
2. Groundwater encountered at approximately 16.9 feet.
3. Borehole terminated at 18.0 feet; no refusal encountered.
4. Monitoring well (2-inch-dia., Sch 40 PVC, machine slotted) installed in borehole upon completion; well pumped out subsequent to installation to allow formational recharge.
5. from Sackett & Brake Survey, Inc.: top of protective casing at El. 261.42; top of PVC well riser at El. 261.02.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed-piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: W9-2E

PROJECT: Crossroads Landfill

MONITORING WELL W11-1B INSTALLATION LOG

PROJECT LOCATION: Norridgewock, ME

PROJECT NUMBER: 983-6836

BORING LOCATION: N 8539.33 / E 11263.91

BORING TIME: 10/20/98 – 0850 to 10/20/98 – 1310

DATUM: 269.7' (Top of PVC 272.54')

Golder Associates
Manchester, New Hampshire

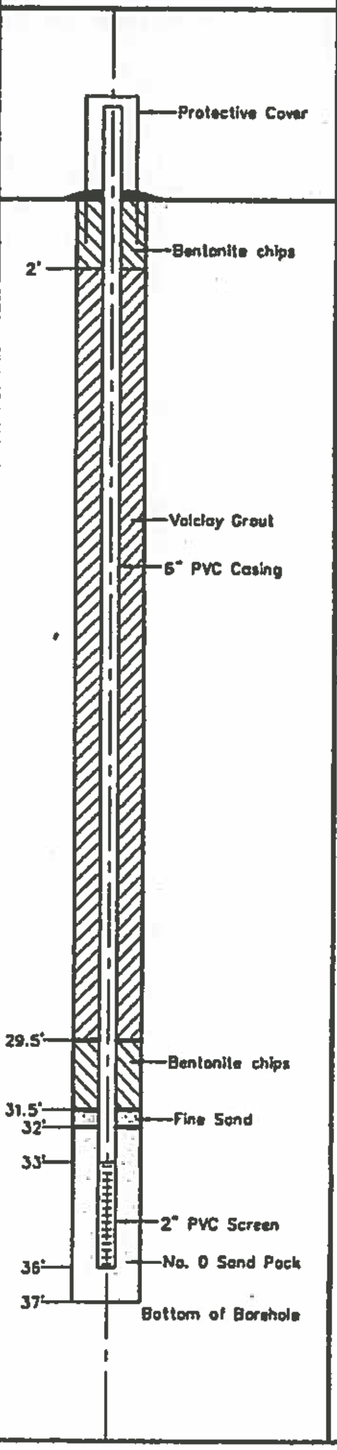
CASING
WELL CASING: 2 in.dia. 35.8) l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: 25 GAL
GROUT TYPE: Volclay Grout Type II

SCREEN
WELL SCREEN: 2 in.dia. 3 l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL Pure Gold Chips
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY 60 lbs
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION	
+5			
0	4" Drive and Wash	0–10.4' Hard to very stiff SILT or CLAYEY SILT with lenses of very fine sand from 5.0–6.5'. (Moist)	Elev. 0.00
5			
10		10.4'–34.0' Very soft gray CLAY, very uniform, saturated @ 10.4' bgs.	10.4
15			
25			
30			
35		34.0'–36.0' Hard gray SILTY CLAY, little to some sand and gravel (TILL)	34.0
		36.0'–37.0' BGS BEDROCK	36.0
		End Boring @ 37.0' BGS.	37.0
40			

WELL SKETCH



INSTALLATION NOTES

Augered with 4" drive and wash to 37' BGS. (1' into bedrock)

1.0' of sand was placed in the bottom of the bore hole.

3' of screen was set from 36' to 33' bgs. 2" solid PVC was added to the surface.

Filter sand was added around the screen up to 32' bgs. and a 6" fine filter sand was added up to 31.5'bgs.

A 2' bentonite seal was added up to 29.5' bgs.

The remainder of the borehole was grouted with volclay grout.

The upper 4' of the borehole was augered with 10" OD augers to facilitate the installation of a 6" aluminum protective standpipe.

Groundwater @ 24.3' BGS ▼
10/20/98

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Giguere

SHEET 1 OF 1

LOGGED: M. Zoranski
CHECKED:
DATE:

PROJECT: Crossroads Well Instalation

MONITORING WELL W11-1E INSTALLATION LOG

PROJECT LOCATION: ME

PROJECT NUMBER: 983-6838

BORING LOCATION: N8339.63 E11381.87

BORING TIME: 0830/07-27-99 to 0930/07-27-99

DATUM: 288.51' msl

Golder Associates
Manchester, New Hampshire

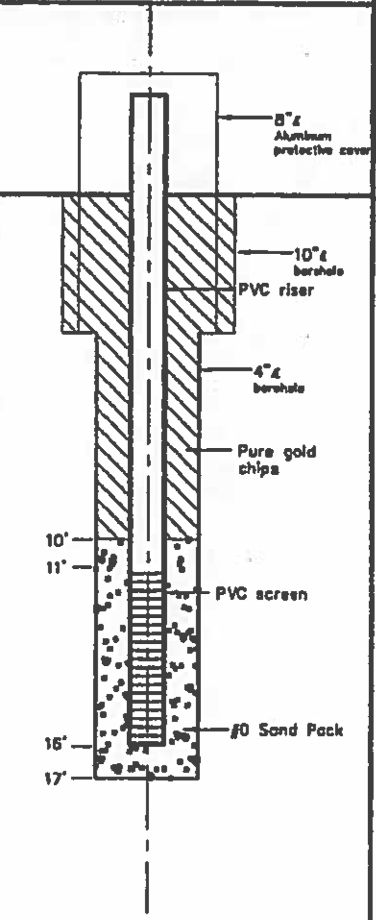
CASING
WELL CASING: 2 in.dia. 14 l.f.
CASING TYPE: PVC
JOINT TYPE: Flush Thread
GROUT QUANTITY: none
GROUT TYPE: NA

SCREEN
WELL SCREEN: 2 in.dia. 5 l.f.
SCREEN TYPE: PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: Pure Gold Chips
INSTALLATION METHOD: Gravity
FILTER PACK QTY: 40 lbs.
FILTER PACK TYPE: #0 Sand
INSTALLATION METHOD: Gravity

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION	INSTALLATION NOTES
+5			
0	4" Drive & Wash	0.0-0.2 TOPSOIL 0.0-9.5' Firm light brown SILTY CLAY with lenses of very fine sand. The clay is mottled red and has partings throughout. (CL)	
5			
10		9.5'-17.0' Soft gray CLAY, very uniform no intermediate particle sizes. (CH)	
15			
		End boring at 17'bgs	
20			
25			
30			
35			

WELL SKETCH



DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: J.Rudnicke

SHEET 1 OF 1

LOGGED: MZ
CHECKED:
DATE:

PROJECT: Crossroads Landfill
PROJECT LOCATION: Norridgewock, ME
PROJECT NUMBER: 983-6836
BORING TIME: 10/20/98 – 0955 to 10/20/98 – 1130

MONITORING WELL W11-2E INSTALLATION LOG

BORING LOCATION: N 7859.43 / E 11693.68
DATUM: 283.7' (Top of PVC 286.63')

Golder Associates
Manchester, New Hampshire

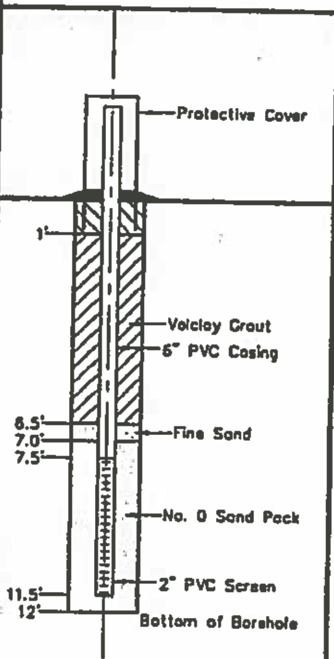
CASING
WELL CASING: 2 in.dia. 10.5 l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: N/A
GROUT TYPE: Pure Gold Chips

SCREEN
WELL SCREEN: 2 in.dia. 4' l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: Pure Gold Chips
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY: 25 lbs
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION	Elev.
+5			
0	4" Drive and Wash	0–0.5' Compact red-brown SILTY SAND	0.00
		0.5–8.0' Stiff brown SILTY CLAY with red staining from 0.5'–2.0' bgs. Saturated @ 6.0' bgs.	0.5'
5			
		8.0'–12.0' bgs Very soft gray CLAY, saturated.	8.0'
10			
		End Boring @ 12.0' BGS.	12.0'
15			
20			
25			
30			
35			

WELL SKETCH



INSTALLATION NOTES

Augered with 4" drive and wash to 12' BGS.

6" of sand was placed in the bottom of the borehole.

4' of screen was set from 11.5' to 7.5' bgs. 2" solid PVC was added to the surface.

Filter sand was added around the screen up to 7' bgs. and a 6" fine filter sand was added up to 6.5'bgs.

The remainder of the borehole was filled with pure gold Bentonite chips.

A 6" aluminum protective cover was anchored in place.

▼

Groundwater @ 5.05' BGS
10/20/98

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Ciguere

SHEET 1 OF 1

LOGGED: M. Zorenski
CHECKED:
DATE:

PROJECT: Crossroads Well Instalation

MONITORING WELL W11-3E INSTALLATION LOG

Golder Associates
Manchester, New Hampshire

PROJECT LOCATION: ME

PROJECT NUMBER: 983-6836

BORING LOCATION: N8248.50 E10441.27

BORING TIME: 1700/07-26-99 to 1745/07-26-99

DATUM: 258.84'msl

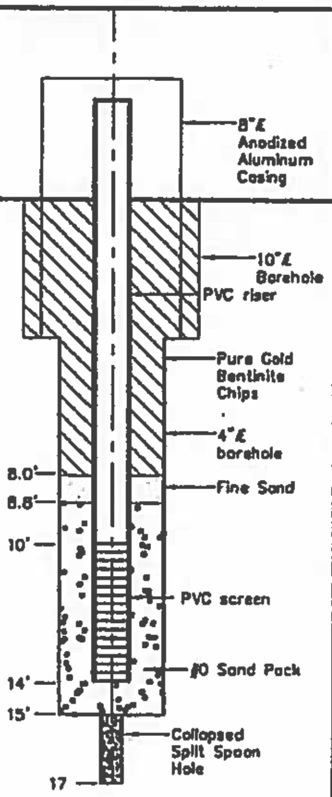
CASING
WELL CASING: 2 in.dia. 13 l.f.
CASING TYPE: PVC
JOINT TYPE: Flush Thread
GROUT QUANTITY: none
GROUT TYPE: NA

SCREEN
WELL SCREEN: 2 in.dia. 4 l.f.
SCREEN TYPE: PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: Pure Gold Chips
INSTALLATION METHOD: Gravity
FILTER PACK QTY: 40 lbs.
FILTER PACK TYPE: #0 Sand
INSTALLATION METHOD: Gravity

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION
+5		
0	4" Drive & Wash	0.0–0.2 TOPSOIL
		1.2–9.0 Firm to soft olive gray to brown SILTY CLAY with very fine sand lenses at 6" intervals and reddish mottling throughout. Dry to wet. (CL)
5		
10		9.0'–17.0' Soft gray CLAY trace clay concretions. Very uniform clay. (CH)
15		
		End boring at 17'bgs
20		
25		
30		
35		

WELL SKETCH



INSTALLATION NOTES

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: J.Rudnicke

SHEET 1 OF 1

LOGGED: MZ
CHECKED:
DATE:

PROJECT: Crossroads Well Instalation
PROJECT LOCATION: ME
PROJECT NUMBER: 963-6636
BORING TIME: 1250/07-28-99 to 1500/07-28-99

MONITORING WELL W11-4E INSTALLATION LOG

BORING LOCATION: N7591.59 E10574.83
DATUM: 277.21' msl

Golder Associates
Manchester, New Hampshire

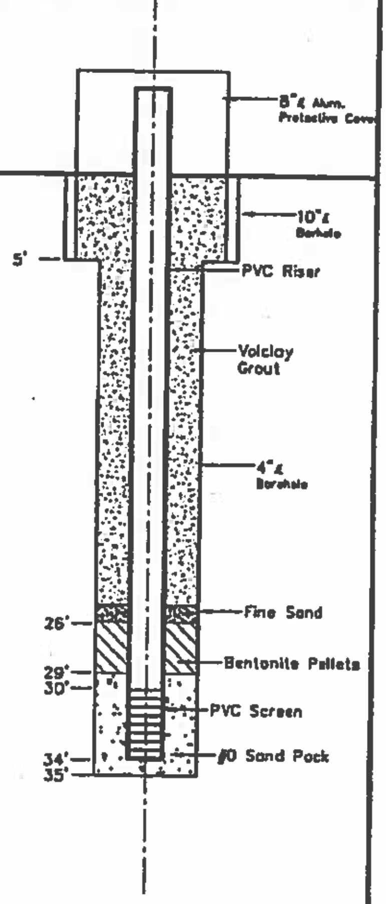
CASING
WELL CASING: 2 in.dia. 33' l.f.
CASING TYPE: PVC
JOINT TYPE: Flush Thread
GROUT QUANTITY: 30 gallons
GROUT TYPE: Volclay

SCREEN
WELL SCREEN: 2 in.dia. 4' l.f.
SCREEN TYPE: Slotted-flush thread
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL Pure Gold Chips
INSTALLATION METHOD: Gravity
FILTER PACK QTY 75 lbs.
FILTER PACK TYPE: #0 Sand
INSTALLATION METHOD: Gravity

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION
+10		
0	4" Drive & Wash	0.0-19.0' FILL Dense dark brown fine-medium SAND little to some silt. moist. (Fill for berm construction.
-10		
-20		19.0'-28.0' Hard to soft olive gray CLAY with reddish mottling and partings, and very fine sand lenses. Dry. (CL)
-30		28.0'-35.0' Soft gray CLAY. (CH)
		End boring at 35'bgs
-40		
-50		
-60		
-70		

WELL SKETCH



INSTALLATION NOTES

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: J.Rudnicke

SHEET 1 OF 1

LOGGED: MZ
CHECKED:
DATE:

PROJECT: Crossroads Landfill
PROJECT LOCATION: Norridgewock,'ME
PROJECT NUMBER: 983-6836

MONITORING WELL W11-5B INSTALLATION LOG

BORING LOCATION: N 7102.30 / E 11082.56
BORING TIME: 10/21/98 – 0900 to 10/21/98 – 1310
DATUM: 270.4' (Top of PVC 273.19')

Golder Associates
Manchester, New Hampshire

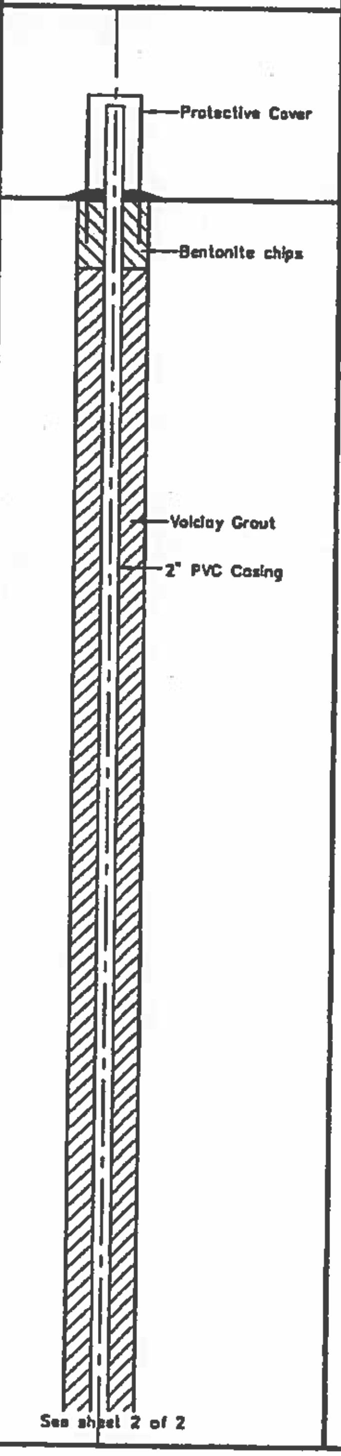
CASING
WELL CASING: 2 in.dia. 58.5 l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: 30 GAL
GROUT TYPE: Volclay Grout

SCREEN
WELL SCREEN: 2 in.dia. 4 l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL Pure Gold Chips
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY 125 lbs
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION		INSTALLATION NOTES
+5	4" Drive and Wash			Augered with 4" drive and wash to 59.8' BGS. 0.3' of sand was placed in the bottom of the borehole. 4' of screen was set from 59.5' to 55.5' bgs. 2" solid PVC was added to the surface. Filter sand was added around the screen up to 54.5' bgs and a 6" fine filter sand was added up to 54.0' A 2' bentonite seal was added up to 52' bgs. The remainder of the borehole was grouted with volclay and a 6" protective cover was installed.
0		0-16.2' FILL: Compact to very dense brown fine SAND, trace to little SILT.	Elev. 0.00	
5				
10				
15		16.2'-38.0' Very soft grey CLAY.		
20				
25				
30				Groundwater @ 29.35' BGS ▼ 10/21/98
35				

WELL SKETCH



DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Giguere

SHEET 1 OF 2

LOGGED: M. Zarenski
CHECKED:
DATE:

PROJECT: Crossroads Landfill

MONITORING WELL W11-5B INSTALLATION LOG

PROJECT LOCATION: Norridgewock, ME

PROJECT NUMBER: 983-6836

BORING TIME: 10/21/98 - 0900 to 10/21/98 - 1310

BORING LOCATION: N 7102.30 / E 11082.56

DATUM: 270.4' (Top of PVC 273.19')

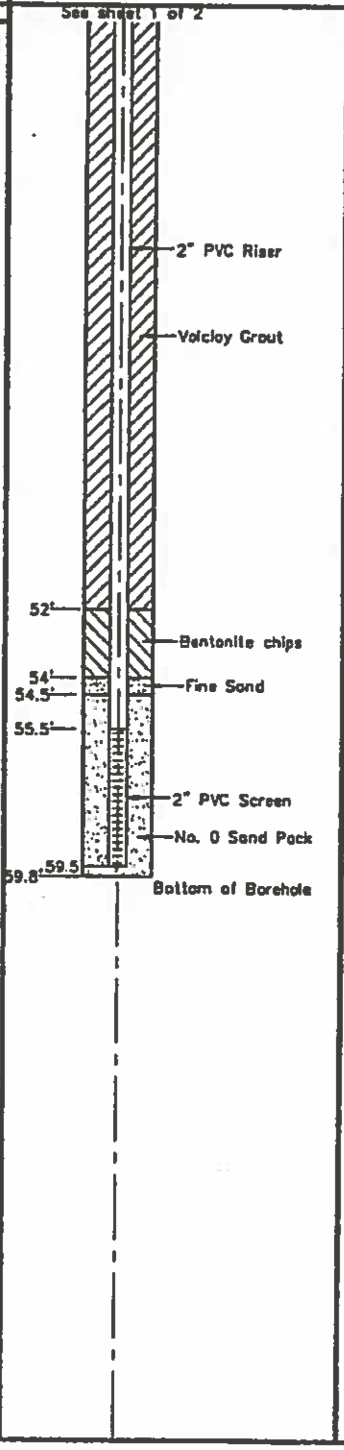
Golder Associates
Manchester, New Hampshire

CASING
WELL CASING: 2 in.dia. 58.5 l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: 30 GAL
GROUT TYPE: Volclay Grout

SCREEN
WELL SCREEN: 2 in.dia. 4 l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: Pure Gold Chips
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY: 125 lbs.
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET	BORING METHOD	SOIL DESCRIPTION	Elev.	WELL SKETCH	INSTALLATION NOTES
35	4" Drive and Wash	16.2'-58.0' Very soft gray CLAY.	35	See sheet 1 of 2	
40					
45					
50					
55					
		58.0'-59.2' BGS TILL			
		59.2 BEDROCK			
60		End Boring @ 59.8' BGS.			
65					
70					
75					



DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Giguere

SHEET 2 OF 2

LOGGED: M. Zoranski
CHECKED:
DATE:

PROJECT: Crossroads Landfill

MONITORING WELL W11-5E INSTALLATION LOG

PROJECT LOCATION: Norridgewock, ME

PROJECT NUMBER: 983-6836

BORING LOCATION: N 7105.99 / E 11079.27

BORING TIME: 10/21/98 – 1210 to 10/21/98 – 1310

DATUM: 270.3' (Top of PVC 273.28')

Golder Associates
Manchester, New Hampshire

CASING
WELL CASING: 2 in.dia. 21.5 l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: 15 GAL
GROUT TYPE: VOLCLAY GROUT

SCREEN
WELL SCREEN: 2 in.dia. 4 l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: BENTONITE CHIPS
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY: 50 lbs
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET: +5, 0, 5, 10, 15, 20, 25, 30, 35

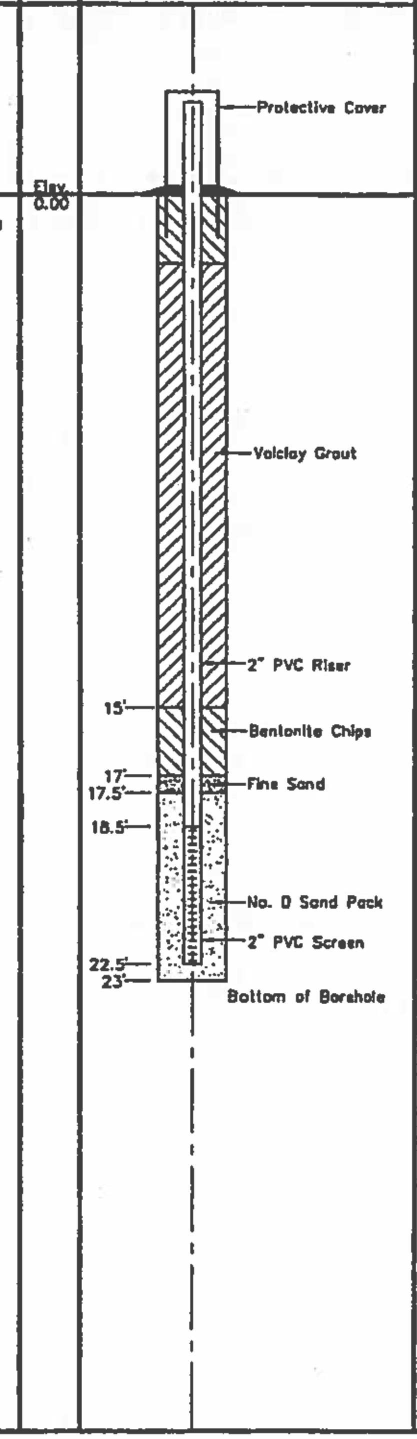
BORING METHOD: 4" Drive and Wash

SOIL DESCRIPTION

0-15' No Splitspoon Samples W11-5B which was sampled at 5' intervals.

Wash sample description; Brown fine SAND.

WELL SKETCH



INSTALLATION NOTES

Augered with 4" drive and wash to 23' BGS.

6" of sand was placed in the bottom of the bore hole.

4' of screen was set from 22.5' to 18.5' bgs. 2" solid PVC was added to the surface.

Filter sand was added up to 17.5' bgs.

6" of fine sand was added up to 17.0' bgs.

A 2' bentonite seal was added up to 15' bgs.

The remainder of the borehole was grouted with volclay and a 6" protective cover was anchored in place.

▼ Groundwater @ 15.60' below PVC 10/21/98.

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Ciguera

SHEET 1 OF 1

LOGGED: M. Zarenski
CHECKED:
DATE:

PROJECT: Crossroads Landfill

MONITORING WELL W11-6E INSTALLATION LOG

PROJECT LOCATION: Norridgewock, ME
PROJECT NUMBER: 983-6836
BORING TIME: 10/22/98 – 0645 to 10/22/98 – 0830
BORING LOCATION: N 7180.63 / E 11461.64
DATUM: 271.4' (Top of PVC 274.89')

Golder Associates
Manchester, New Hampshire

CASING
WELL CASING: 2 in.dia. 17.5 l.f.
CASING TYPE: SCH 40 PVC
JOINT TYPE: FLUSH THREADED
GROUT QUANTITY: 12 GAL
GROUT TYPE: VOLCLAY GROUT

SCREEN
WELL SCREEN: 2 in.dia. 4 l.f.
SCREEN TYPE: SLOTTED SCH 40 PVC
SLOT SIZE: .010"
CENTRALIZERS: N/A
DRILLING MUD TYPE: N/A

SEALS
BENTONITE SEAL: PURE GOLD CHIPS
INSTALLATION METHOD: GRAVITY
FILTER PACK QTY: – lbs
FILTER PACK TYPE: #0 SAND
INSTALLATION METHOD: GRAVITY

DEPTH SCALE FEET: +5, 0, 5, 10, 15, 20, 25, 30, 35

BORING METHOD: 4" Drive and Wash

SOIL DESCRIPTION

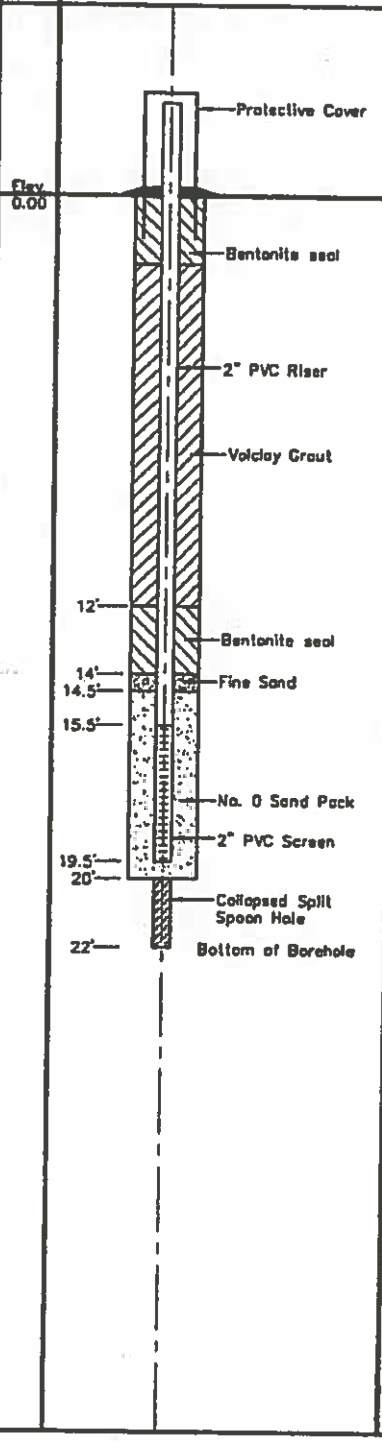
0–14' FILL Compact to dense brown, fine to medium SAND, trace gravel, trace silt. Moist

14.0'–18.0' Hard brown SILTY CLAY with one very fine sand lense @ 18.3' bgs. Saturated

18.0'–22.0' bgs Firm gray CLAY, saturated.

End Boring @ 22.0' BGS.

WELL SKETCH



INSTALLATION NOTES

Borehole was advanced to 22' bgs (20' – 22' split spoon only) The spoon hole from 20–22' subsequently collapsed.

6" of sand was placed in the bottom of the borehole to 19.5' bgs.

4' of screen was set from 19.5' to 15.5' bgs. 2" solid PVC was added to the surface.

Sand was added up to 14.5' bgs. and 6" of fine sand was added up to 14.0'

A 2' bentonite chip seal was added up to 12' bgs.

The remainder of the borehole was grouted with volclay and a 6" protective cover was anchored in place.

▼ Groundwater @ 13' BGS
10/22/98

DRILL RIG: Mobile B-53
DRILLING CONTRACTOR: Maine Test Boring
DRILLER: E. Giguere

SHEET 1 OF 1

LOGGED: M. Zoranski
CHECKED:
DATE:

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-1B
Page 1 of 1
File No. 25406.12
Check RLS

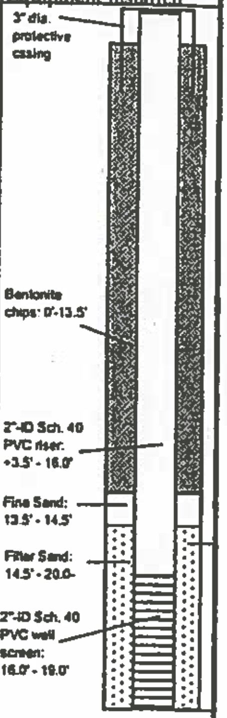
Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Joel Moulton
Date Start/Finish 2/26/02 2/26/02
Boring Location 6980.94N, 12239.38E
GS Elev. 248.8 ft. Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HSA/HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	.

Date	Time	Depth (ft.)	Ref. top PVC	Stab.
2/27/02	1100	7.1	PVC	
2/28/02	0900	7.77	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
								0.2' Fine to Med. Sand	1
		S-1	24/24	1-3	1-5		S-1: Upper 6": Brown, fine to medium SAND, little Silt, trace organics. Moist. Bottom 18": Stiff, brownish-gray, mottled, Clayey SILT, trace fine Sand.		
					5-11			1.5' CLAY CRUST	
		S-1	24/24	3-5	4-4		S-2: Top 18": Stiff to medium stiff, brownish-gray, mottled, Clayey SILT, trace fine Sand. Bottom 6": Gray, Silty CLAY, trace fine sand lenses.		
5 (1.5 m)					4-4			4.5'	
	12								
	13								2
	13								
	13							Silty CLAY	
10 (3.0 m)	13								
	12	S-3	24/24	10-12	WR		S-3: Very soft, gray, Silty CLAY, trace fine sand (lenses).		
	11				WH/12"-1				
	10							+/-12.5'	
	18								
15 (4.6 m)	58								
	44	S-4	24/8	15-17	15-12		S-4: Medium dense, gray to brownish-gray, fine to medium SAND, some Gravel, little Silt (Till). Moist.	TILL	
	54				10-13				
	36								
	63								
20 (6.1 m)	50								
		S-5	24/6	20-21.1	36-24		S-5: Very dense, gray to brownish-gray, fine to medium SAND, some Gravel, little Silt (Till). Moist.		3
					75/1"		Bottom of boring at 21.1 feet	+/-21.1'	4
									5
								Possible Bedrock	
25 (7.3 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 5 feet using solid-stem augers and from 5 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 7 feet.
3. Borehole terminated at 21.1 feet at refusal (possible bedrock).
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be 3.5 feet and 3.25 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods; WC = Weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. W12-1B

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-1E
Page 1 of 1
File No. 25406.12
Check RLS

Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Joel Moulton
Date Start/Finish 2/26/02 2/26/02
Boring Location 6822.46N, 12347.30E
GS Elev. 258.7 ft. Datum MSL/NGVD

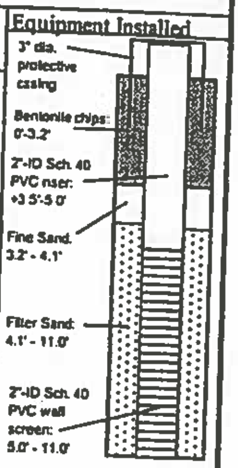
	Auger/ Casing	Sampler
Type	HSA/HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref.	Stab.
			top PVC	
2/26/02	1650	3.66	PVC	
2/27/02	1120	12	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (In)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification
5 (1.5 m)	21	S-1	24/24	5-7	5-7		S-1: Stiff, greyish-brown, mottled, Clayey SILT, trace fine Sand.
	29				6-9		
	22	S-2	24/24	7-9	2-4		S-2: Stiff, greyish-brown, mottled, Clayey SILT, trace fine Sand.
	28				5-6		
10 (3.0 m)	open hole	S-3	24/24	9-11	3-3		S-3: Medium stiff, greyish-brown to olive, mottled, Clayey SILT, trace fine Sand.
	↓				3-4		
							Bottom of boring at 11.0 feet
15 (4.6 m)							
20 (6.1 m)							
25 (7.6 m)							

Stratum Desc.	Rmks
Topsoil	1
0.3' Fine Sand	
+/-1.5'	2
CLAY CRUST	3 4 5

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 5 feet using solid-stem augers and from 5 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 3.6 feet.
3. Borehole terminated at 11.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be 3.5 feet and 3.1 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted), T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized), V = in-situ vane shear test (undisturbed and remolded), WH = Weight of hammer, WR = Weight of rods; WC = Weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. W12-1E

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-2E
Page 1 of 2
File No. 25406.12
Check RLS

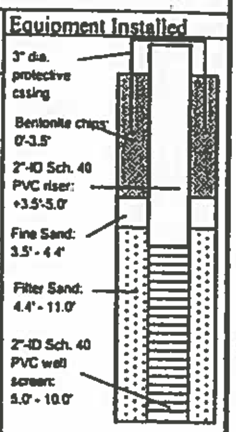
Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Joel Moulton
Date Start/Finish 2/25/02 2/25/02
Boring Location 6452.39 N, 12592.74E
GS Elev. 265.7 ft. Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref.	Stab.
			top PVC	
2/26/02	0845	5.22'	PVC	
2/26/02	1640	5.92'	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information					Sample Description & Classification	Stratum Desc.	Rmks
		No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data			
								Topsoil 0.2'	1
		S-1	24/24	1-3	1-1		S-1: Very loose, brown to grayish-brown, fine to medium SAND, trace Silt, trace organics (root fibers). Moist.	Fine to Medium SAND	
					1-1				
		S-2	24/20	3-5	3-8		S-2: Medium dense, grayish-brown, fine to medium SAND, little Silt. Moist.		
					12-12				
5 (1.5 m)	24	S-3	24/24	5-7	4-8		S-3: Upper 18": Medium dense, grayish-brown, fine to medium SAND, little Silt. Wet. Bottom 6": Grayish-brown, mottled, Clayey SILT, trace fine Sand.		2
	21				9-6			6.5'	
	17	S-4	24/24	7-9	4-4		S-4: Top 12" - brown, mottled, Clayey SILT, trace fine sand. Bottom 12" - grayish brown to olive, Silty CLAY	CLAY CRUST	
	18				6-5				
10 (3.0 m)	24	S-5	24/24	9-11	3-4		S-5: Medium dense, olive to gray, Silty CLAY, trace fine Sand with 1/4" to 1/2" fine to medium Sand seam.		
					6-7				
							Bottom of boring at 11.0 feet		3
									4
									5
15 (4.6 m)									
20 (6.1 m)									
25 (7.6 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 1 feet using solid-stem augers and from 1 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 5.2 feet.
3. Borehole terminated at 11.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be 3.4 feet and 3.2 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods; WC = Weight of casing

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

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Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-3E
Page 1 of 2
File No. 25406.12
Check RLS

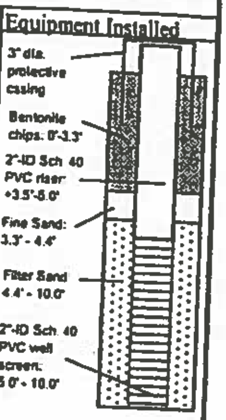
Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Joel Moulton
Date Start/Finish 3/1/02 3/1/02
Boring Location 6686.74N, 11535.98E
GS Elev. 243.4 ft. Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref. top PVC	Stab.
3/1/02	1030	6.68'	PVC	
3/1/02	1340	11.0'	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No	Pen/Rec (in)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
		S-1	24/24	1-3	1-6		S-1: Top 3" - brown, fine to medium SAND, trace Silt, trace root fibers (moist). Bottom 21" - Stiff, grayish-brown, mottled, Clayey SILT, trace fine Sand.	Topsoil	1
					8-9			+/-1.2'	
		S-2	24/24	3-5	7-7		S-2: Stiff, grayish-brown, mottled, Clayey SILT, trace fine Sand with 1" fine to medium sand seams 4-6" apart.		
5 (1.5 m)					7-8				
	2	S-3	24/24	5-7	5-5		S-3: Stiff, grayish-brown to olive, mottled, Clayey SILT with 1/4" sand seams approximately 6-8" apart.	CLAY CRUST	2
	29				6-6				
		S-4	24/24	7-9	1-2		S-4: M. stiff, grayish-brown to olive, Clayey SILT, trace fine Sand.		
					3-3				
10 (3.0 m)		S-5	24/24	9-11	1-2		S-5: Top 21" - same as above. Bottom 3" - gray, Silty CLAY, trace fine Sand, trace organics.		
					2-3				
							Bottom of boring at 11.0 feet	+/-10.8' Silty CLAY	3 4 5
15 (4.6 m)									
20 (6.1 m)									
25 (7.3 m)									

Equipment Installed



REMARKS
1. Borehole advanced from 0 to 1 feet using solid-stem augers and from 1 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 6.5 feet.
3. Borehole terminated at 11.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective steel casing and PVC measured to be 3.5 feet and 3.0 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized), V = in-situ vane shear test (undisturbed and remolded), WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. W12-3E

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WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-4B
Page 1 of 2
File No. 25406.12
Check RLS

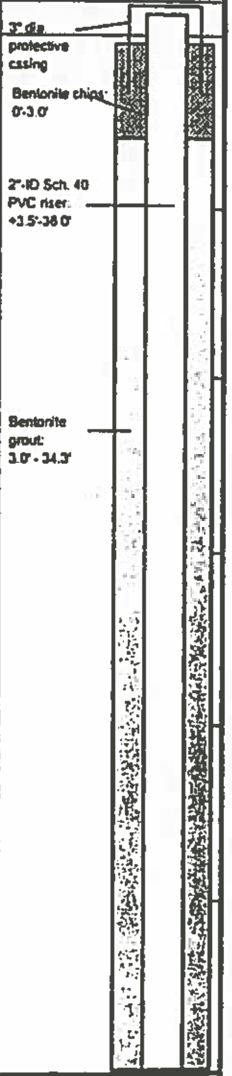
Contractor Maine Test Borings, Inc.
Foreman Gerry Rudnicki
Logged by Joel Moulton
Date Start/Finish 2/27/02 2/27/02
Boring Location 6150.71N, 11953.46E
GS Elev. 248.5 ft. Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time (hrs)	Depth (ft)	Ref. (PVC)	Stab.
2/28/02	1140	17.5	PVC	
3/1/02	1320	17.93	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
								f-m	1
		S-1	24/24	1-3	2-9		S-1: Upper 4": Brown, fine to medium SAND, trace Silt. Moist. Lower 20": Very stiff, brown to brownish-gray, mottled, Clayey SILT, trace to little fine SAND.	SAND	
					13-15			1.3'	
5 (1.5 m)		S-2	24/24	4-6	4-6		S-2: Stiff, grayish-brown, mottled, Clayey SILT with 1/8" to 1/4" Sand seams approximately 3" apart.	CLAY	
	14				6-7			CRUST	
	21								
	23								
	31								
10 (3.0 m)	35	S-3	24/24	9-11	WH-2		S-3: Medium stiff, gray, Silty CLAY with 1/4" to 1/2" Sand seams approximately 6" apart.	8.5' +/-	
	14				3-2				
	20								
	25								
	24								
15 (4.6 m)	23	S-4	24/24	14-16	WH/24"		S-4: Very soft, gray, Silty CLAY, trace fine Sand.		
	18								
	13								2
	16								
	16								
20 (6.1 m)	15	S-5	24/24	19-21	WR		S-5: Very soft, gray, Silty CLAY, trace fine Sand, trace organics.	Silty	
	12				WH/18"			CLAY	
	9								
	12								
	12								
25 (7.3 m)	15	S-6	24/24	24-26	WR		S-6: Very soft, gray, Silty CLAY, trace fine Sand, trace organics.		
	26				WH/18"				
	22								
	20								
	14						S-7: Very soft, gray, Silty Clay, trace fine Sand, trace organics.		
	12	S-7	24/24	29-31	WR/12"				

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 40 feet using standard drive and wash techniques.
2. Groundwater encountered at approximately 17.5 feet.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded), WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. W12-4B

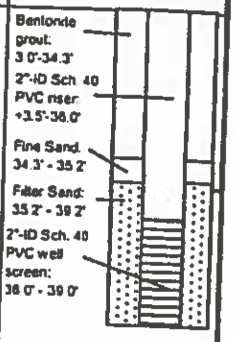
GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No.	W12-4B
Page	2 of 2
File No.	25406.12
Check	RLS

Depth BGS (ft.)	Casing Blows	Sample Information					Sample Description & Classification	Stratum Desc.	Rmks
		No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data			
30 (9.1m)	12	S-7	24/24	29-31	WH-1		S-7: Very soft, gray, Silty CLAY, trace fine Sand, trace organics.	Silty CLAY	
	12								
	15								
	36								
35 (10.7m)	30	S-8	24/6	34-36	24-11		S-8: Medium dense, gray, fine to medium SAND, some coarse Gravel (subangular), little Silt.	33.5' +/- TILL	
	39				9-13				
	31								
	40								
	200								
	50/0"								
40 (12.2m)							Bottom of borehole at 39.2 feet (roller bit/casing refusal).	39.2' Possible Rock	3 4 5
45 (13.7m)									
50 (15.2m)									
55 (16.8m)									
60 (18.3m)									

Equipment Installed



REMARKS

3. Boring terminated at 39.2 feet at refusal (confirmed with tri-cone roller bit); likely on bedrock.
4. Monitoring well installation (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion of test boring; stick up of protective casing and PVC measured to be approximately 3.7 and 3.3 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized), V = in-situ vane shear test (undisturbed and remolded); WH = Weight of hammer; WR = Weight of rods; WC = Weight of casing.

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Boring No. W12-4B

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-4E
Page 1 of 2
File No. 25406.12
Check RLS

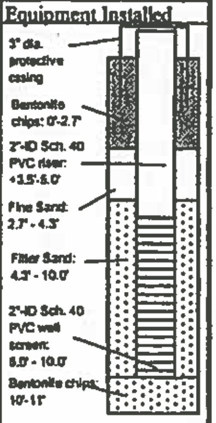
Contractor: Maine Test Borings, Inc.
Foreman: Gerry Rudnicki
Logged by: Joel Moulton
Date Start/Finish: 2/28/02 2/28/02
Boring Location: 6154.85N, 11960.25E
GS Elev.: 248.8 ft. Datum: MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref. top PVC	Stab.
2/28/02	1500	5.3'	PVC	
3/1/02	1315	7.24'	PVC	

Depth BGS (ft.)	Casing Blows	No.	Pen/Rec (in.)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
									1
		S-1	24/18	1-3	2-3		S-1: Upper 14": Brown, fine to medium SAND, trace Silt, trace organics (root fibers). Moist. Lower 4 ": Brown, grayish-brown, mottled, Clayey SILT, trace fine Sand.	f-m SAND	
					10-10			2.2'	
		S-2	24/24	3-5	8-8		S-2: Very stiff, brown to grayish-brown, mottled, Clayey SILT, trace to little fine Sand. Moist.		
5 (1.5 m)					9-11				
	23	S-3	24/24	5-7	4-6		S-3: Stiff, brown to olive, Clayey SILT with 1/4" sand seams spaced approximately 3" apart vertically. Moist.	CLAY	2
	17				7-8			CRUST	
	15	S-4	24/24	7-9	2-4		S-4: Stiff, brown to olive, mottled, Clayey SILT, trace fine Sand. Moist.		
	24				5-6				
10 (3.0 m)		S-5	24/24	9-11	2-3		S-5: Upper 10": Brown to olive, mottled, Clayey SILT, trace fine Sand. Lower 14": Medium stiff, gray, Silty CLAY with fine Sand lenses.		
					3-3			9.8' +/-	3
							Bottom of boring at 11.0 feet	Silty	4
								CLAY	5
15 (4.6 m)									
20 (6.1 m)									
25 (7.3 m)									

Equipment Installed



REMARKS

1. Borehole advanced from 0 to 1 feet using solid-stem augers and from 1 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 7 feet.
3. Borehole terminated at 11.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be 3.5 feet and 3.2 feet, respectively.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized); V = in-situ vane shear test (undisturbed and remolded); WH = weight of hammer; WR = weight of rods; WC = weight of casing.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

WMDSM - PHASE 12 CONSTRUCTION
Norridgewock, Maine

Boring No. W12-5E
Page 1 of 1
File No. 25406.12
Check RLS

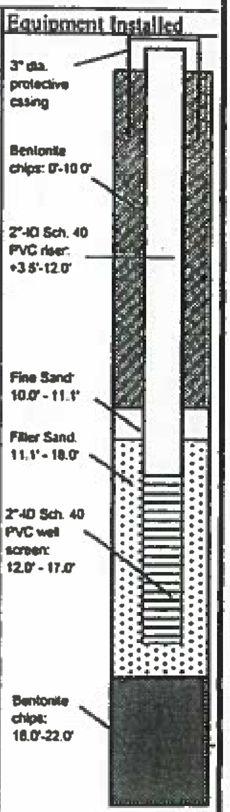
Contractor Maine Test Borings, Inc.
Foreman Mike Porter
Logged by Robyn Saunders
Date Start/Finish 5/8/02 5/8/02
Boring Location 6371.15N; 11709.17E
GS Elev. 258.0 Datum MSL/NGVD

	Auger/ Casing	Sampler
Type	HW	Split Spoon
I.D.	4-1/2"/4-1/4"	1-3/8in.
Hammer Wt.	300 lbs	140 lbs.
Hammer Fall	16 in.	30 inches
Other	see notes	

Date	Time	Depth (ft.)	Ref. top PVC	Stab.
2/28/02	1500	5.3'	PVC	
3/1/02	1315	7.24'	PVC	

Depth BGS (ft.)	Casing Blows	Sample Information No.	Pen/Rec (in)	Depth (Ft.)	Blows/ 6"	Field Test Data	Sample Description & Classification	Stratum Desc.	Rmks
									1
5 (1.5 m)	44	S-1	24/20	5-7	25-24		S-1: Very dense, brown, fine to medium SAND, trace coarse Sand, trace Silt. (FILL)	fine to medium SAND (FILL)	
	85				27-38				
	102								
	120								
	129								
10 (3.0 m)	35	S-2	24/12	10-12	14-15		S-2: Dense, brown, fine to medium SAND, trace coarse Sand, trace Silt. (FILL)		
	39				16-25				2
	57	S-3	24/12	12-14	12-11		S-3: Medium dense, brown, fine to medium SAND, trace coarse Sand, trace Silt. (FILL)		
	90				14-21				
	85								
15 (4.6 m)		S-4	24/24	15-17	8-10		S-4: Very stiff, brown to olive, mottled, Clayey SILT, trace fine Sand. Moist.	+/- 14.5'	
					10-12			CLAY CRUST	
		S-5	24/24	17-19	3-3		S-5: Stiff, brown to olive, mottled, Clayey SILT, trace fine Sand. Moist.		
					5-7				
20 (6.1 m)		S-6	24/24	20-22	WR-3		S-6: Soft, gray Silty CLAY.	+/- 19.5'	
					WH/12"			Silty CLAY	
							Bottom of boring at 22 feet		3
									4
25 (7.6 m)									5

Equipment Installed



REMARKS
1. Borehole advanced from 0 to 10 feet using solid-stem augers and from 10 feet to the bottom of the borehole using standard drive and wash techniques.
2. Groundwater encountered at approximately 10 feet.
3. Borehole terminated at 22.0 feet; no refusal encountered.
4. Monitoring well (2-inch, Sch 40 PVC, machine-slotted) installed in borehole upon completion; stick up of protective casing and PVC measured to be approximately 3.5 and 3.4 feet.
5. Well developed subsequent to installation to allow formational recharge; turbidity readings measured during development.

S-1 = split-spoon sample (blow counts provided if SPT test conducted); T = thin-wall Shelby tube sample (hydraulic-actuated, fixed piston sampler utilized), V = in-situ vane shear test (undisturbed and remolded), WH = weight of hammer, WR = weight of rods; WC = weight of casing

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

Boring No. W12-5E

APPENDIX C

MONITORING WELL INTEGRITY AND SURFACE WATER INSPECTION FORMS

MONITORING WELL INTEGRITY FORM

WMNA Well I.D.

Permit Well I.D.

Facility Name: **Crossroads Landfill Norridgewock, ME**

Evaluator:

Evaluation Date:

	Y	N	NA	CARS
LOCATION				
1. Is the well location appropriately shown on a facility permit and/or design drawing?..	☐	☐	☐	☐
2. Are the wells in hard to find areas adequately flagged?..................	☐	☐	☐	☐
3. Is the well elevation information correct?......................................	☐	☐	☐	☐
WELL CHARACTERISTICS & INTEGRITY				
4. Is the well ☐ Aboveground? ☐ Flush with the surface?				
5. No physical damage to wells?..	☐	☐	☐	☐
6. Is the well labeled on the outside?..	☐	☐	☐	☐
7. Is the well labeled on the inside?..	☐	☐	☐	☐
8. Does the well have protective posts?..	☐	☐	☐	☐
a. How many?__________				
b. Are the posts painted or flagged?...	☐	☐	☐	☐
9. Are the wells in or near a low point?..	☐	☐	☐	☐
a. No evidence of ponded water around the well?..........................	☐	☐	☐	☐
10. Do aboveground wells have weep holes at the base of the protective casing?...	☐	☐	☐	☐
11. Does the area around the well appear clean (i.e., no mounds of waste; no dead animals)?..	☐	☐	☐	☐
12. Is the casing secure (attempt to move along two perpendicular axes)?..	☐	☐	☐	☐
13. Is the surface seal void of differential erosion around and under the base?..	☐	☐	☐	☐
14. Is the surface seal free of cracks?...	☐	☐	☐	☐
15. Is the surface seal sloped to prevent ponding in the immediate vicinity of the surface seal?...	☐	☐	☐	☐
16. Is the monitoring well locked to prevent unauthorized access?.......	☐	☐	☐	☐
17. Is the cap void of large gaps which breach security?....................	☐	☐	☐	☐
18. Is the locking cap free of rust?...	☐	☐	☐	☐

Comments:

NOTE:

Response box legend:
Y=YES
N=NO [A negative response must be identified as an "A" unless a comment is made that demonstrates compliance]
NA=Not Applicable
CARS=Compliance Action Reporting System

p:\project\1998\983-6836\WQMP\Final\GW inspection form.xls

Surface Water Sampling Location Inspection Form

Location ________ Date ________ Sampler ________
Temp. ________ Weather ________

Comments

1. Is location easy to access?
2. Is location labeled sufficiently?
3. Is flow obstructed
4. Is there evidence of significant erosion or changes in the stream channel?
5. Note changes in water color or sediment load?

Location ________ Date ________ Sampler ________
Temp. ________ Weather ________

Comments

1. Is location easy to access?
2. Is location labeled sufficiently?
3. Is flow obstructed
4. Is there evidence of significant erosion or changes in the stream channel?
5. Note changes in water color or sediment load?

Location ________ Date ________ Sampler ________
Temp. ________ Weather ________

Comments

1. Is location easy to access?
2. Is location labeled sufficiently?
3. Is flow obstructed
4. Is there evidence of significant erosion or changes in the stream channel?
5. Note changes in water color or sediment load?

p:\projects\1998\983-6836\WQMP\Final\SW Inspection form.xls

APPENDIX D
MICROPURGING PROCEDURE

APPENDIX D
MICROPURGING PROCEDURE

1.0 INTRODUCTION

Micropurging (low-flow/low-stress) is a method of purging monitoring wells to allow the collection of representative samples while minimizing the volume of purging required. The basic principal is to purge the well at a rate no faster than the formation is capable of yielding under minimal drawdown conditions, while obtaining stabilization of field parameters prior to and during sample collection.

2.0 PURPOSE

The purpose of this procedure is to provide specific protocol for determining the rate and volume to micropurge wells for water quality sampling during the spring, summer and fall monitoring events.

3.0 PROCEDURE

3.1 Pumping Rate

While monitoring water levels in the well, the pumping rate will be adjusted to minimize turbidity and limit drawdown in the well. The purge rate will not exceed a maximum drawdown of 6-inches. The maximum flow rate for this method is 1,000 milliliters per minute (1 liter per minute), and the minimum flow rate is 50 milliliters per minute. The procedure will be completed as follows:

- Prior to purging, record the depth to static water to the nearest 0.01-foot.
- Record the time and begin purging the well at the lowest possible setting.
- Record and maintain the purge rate.
- Measure and record the depth to static water at regular intervals. If water levels in the well drop, decrease the purge rate and record this new purge rate.
- If the drawdown in the well is greater than one-foot at a purge rate of 50 mL/min the modified direct draw sampling procedure, described below, will be used.

3.2 Purge Volume

The volume purged from the well will be no less than the volume of the sampling device (i.e. tubing). Wells will be purged until stabilization criteria are met. Purge water will be analyzed for turbidity, specific conductance, pH, dissolved oxygen, Eh, and temperature at regular intervals (no less than 3 minute intervals). Continue to purge the well until the following stabilization criterion are achieved for three consecutive readings:

- temperature - within 0.1 degree Celsius
- turbidity - within 10%
- specific conductance - within 10%
- pH - within 0.1 standard unit

- dissolved oxygen - within 10%
- Eh - within 10%
- flow rate - within 10% static water level - within 6 inches over a 15-minute period

Record the time to stabilize and total volume purged.

3.3 Modified Direct Draw Sampling Procedure

Direct-draw sampling indicates sampling without purging the well. This method will only be used in wells with installed, dedicated sampling devices. If the drawdown in the well is greater than one-foot at a purge rate of 50 mL/min during the April annual event, a modified direct draw sampling procedure will be performed. The procedure will be completed as follows:

- Record the depth to static water level to the nearest 0.01-foot.
- Determine volume of the sampling device (i.e. tubing).
- Purge one sampling device volume from the well.
- Collect a set of field parameters: turbidity, specific conductance, pH, dissolved oxygen, Eh, and temperature.
- Collect the sample.
- Collect a second set of field parameters.

APPENDIX E
LEACHATE COLLECTION AND LEAK DETECTION SAMPLING LOCATION PHOTOGRAPHS

Project Title: Water Quality Monitoring Plan

PHOTO 1

Direction: Northwest

Description:

Leak detection sampling location for 1LD, 2LD, 3LD

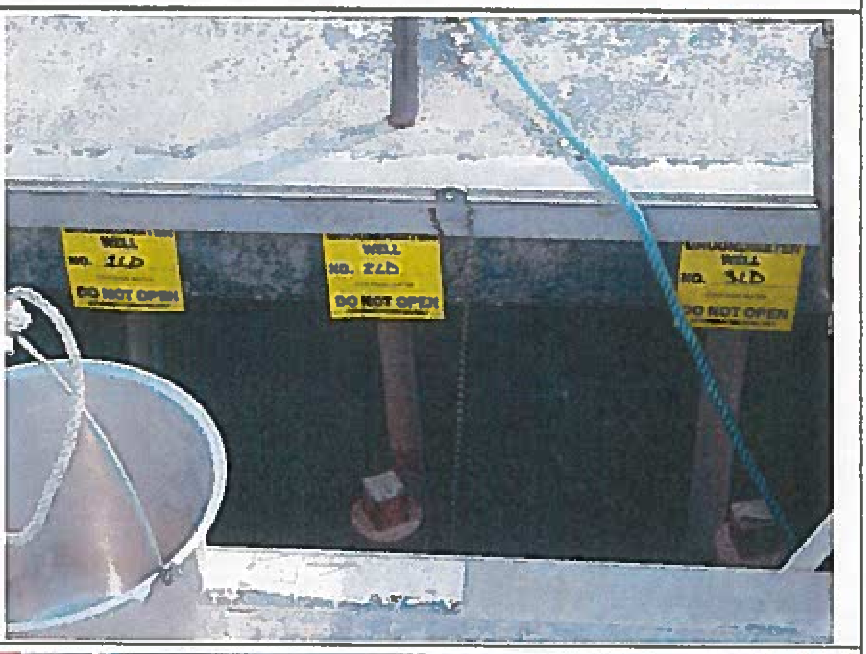


PHOTO 2

Direction: Northwest

Description:

Leachate collection sampling location for 45LC

PHOTO 3

Direction: Northeast

Description:

Leachate collection sampling location for 45SD

PHOTO 4

Direction: East

Description:

Leak detection sampling location for 5BLD, 4ALD, 4BLD

PHOTO 5

Direction: Northwest

Description:

Leak detection sampling location for 7LC

PHOTO 6

Direction: West

Description:

Leak detection sampling location for 7LD

PHOTO 7 Direction: East Description: Leak detection sampling location for 9ALC and Leak detection sampling location for 9ALD	
PHOTO 8 Direction: Northwest Description: Leak detection sampling location for 9BLC and Leak detection sampling location for 9BLD	

PHOTO 9

Direction: East

Description:

Leak detection sampling location for 9CLC and Leak detection sampling location for 9CLD

PHOTO 10

Direction: Northeast

Description:

Leak detection sampling location for 10ALC and Leak detection sampling location for 10ALD

PHOTO 11

Direction: Northwest

Description:

Leak detection sampling location for 10BLC

PHOTO 12

Direction: Northwest

Description:

Leak detection sampling location for 10BLC and Leak detection sampling location for 10BLD

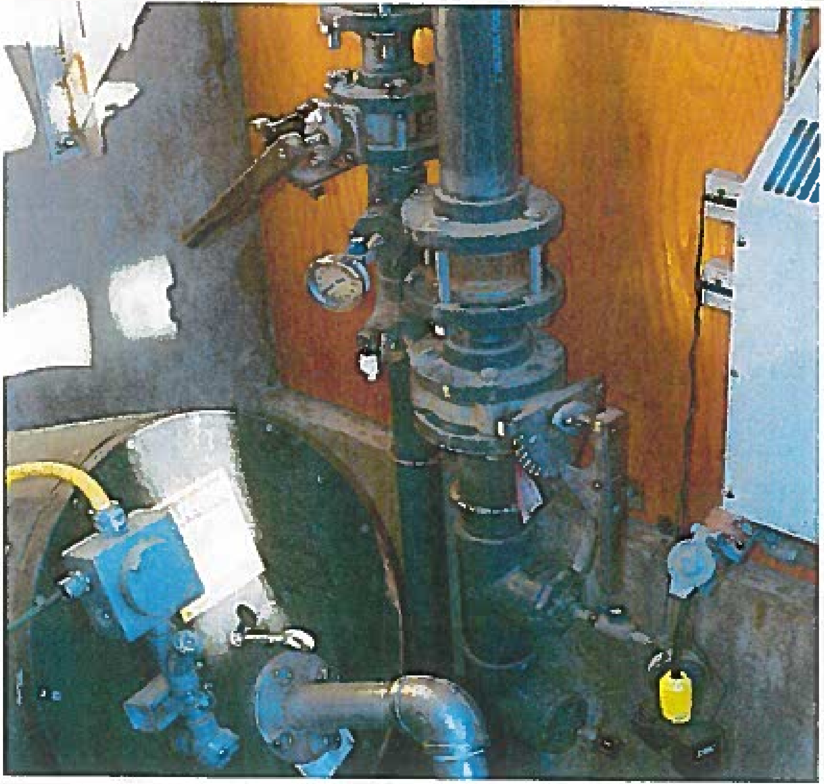


PHOTO 13

Direction: East

Description:

Leak detection sampling location for 11ALC and Leak detection sampling location for 11ALD

PHOTO 14

Direction: Northwest

Description:

Leak detection sampling location for 11BLC and Leak detection sampling location for 11BLD

PHOTO 15

Direction: Northwest

Description:

Leak detection sampling location for 11CLC and Leak detection sampling location for 11CLD

PHOTO 16

Direction: Northwest

Description:

Leak detection sampling location for 12ALC and Leak detection sampling location for 12ALD

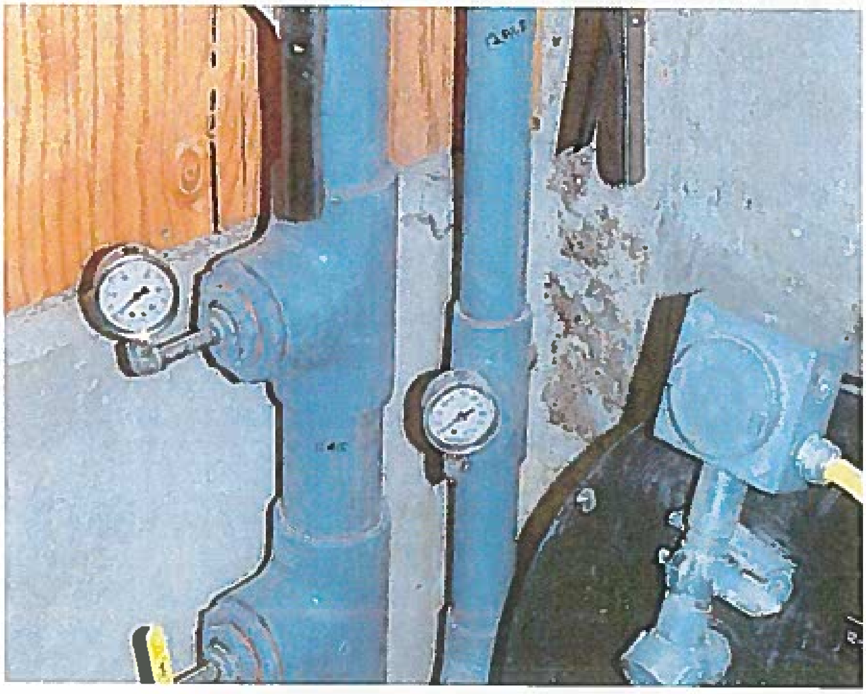
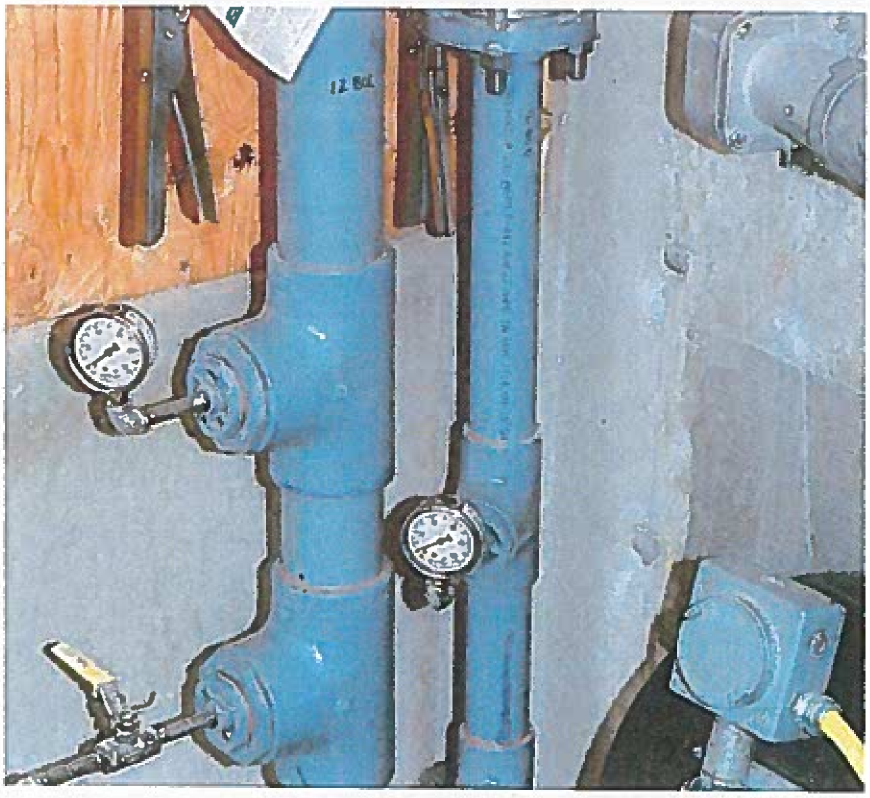


PHOTO 17

Direction: Northwest

Description:

Leak detection sampling location for 12BLC and Leak detection sampling location for 12BLD



APPENDIX F

MAXIMUM CONTAMINANT LEVELS, SECONDARY MAXIMUM CONTAMINANT LEVELS, MAXIMUM EXPOSURE GUIDELINES, AND SURFACE WATER QUALITY CRITERIA

Maine CDC
Maximum Exposure Guidelines (MEGs) for Drinking Water

October 19, 2012
Environmental and Occupational Health Programs

Maine Center for Disease
Control and Prevention
An Office of the
Department of Health and Human Services

Paul R. LePage, Governor
Mary C. Mayhew, Commissioner

Maximum Exposure Guidelines (MEG) for Drinking Water
Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS[a]	2012 MEG (ppb)	EPA HEALTH ADVISORY (ppb)	EPA OR STATE MCL (ppb)
INORGANICS					
Aluminum	7429-90-5	ATSDR	7000		
Ammonia	7664-41-7	EPA HA	30000	30000	
Ammonium sulfamate	7773-06-0	IRIS	1000	2000	
Antimony	7440-36-0	IRIS	3	6	6
Arsenic	7440-38-2	EPA MCL	10		10
Barium	7440-39-3	IRIS	1000		2000
Beryllium	7440-41-7	IRIS	10		4
Boron	7440-42-8	IRIS	1000	6000	
Cadmium	7440-43-9	ATSDR	1	5	5
Chloramine	10599-90-3	EPA DWEL	700	3000	4000
Chlorate	14866-68-3	ME-CDC	7		
Chlorine dioxide	10049-04-4	IRIS	200	800	800
Chlorite	7758-19-2	IRIS	200	800	1000
Chromium (total)	7440-47-3	DWEL	20		100
Chromium III	16065-83-1	IRIS	10000		
Chromium VI (soluble salts)	18540-29-9	IRIS	20		
Cobalt	7440-48-4	PPRTV	10		
Copper	7440-50-8	ATSDR	500		1300
Cyanide	57-12-5	IRIS	4	200	200
Fluoride	7782-41-4	MCL	2000		4000
Iodide	20461-54-5	ME-CDC	300		
Iron	7439-89-6	PPRTV	5000		
Lead	7439-92-1	ME-CDC	10		15
Manganese	7439-96-5	IRIS	500	300	
Mercury (mercuric chloride)	7487-94-7	IRIS	2	2	2
Molybdenum	7439-98-7	IRIS	40	40	
Nickel (soulble salts)	7440-02-0	ITER	20	100	
Nitrate (as N)	14797-55-8	IRIS	10000		10000
Nitrite (as N)	14797-65-0	IRIS	1000		1000
Radon	10043-92-2	ME-CDC	4000 pCi/L		
Selenium	7782-49-2	ATSDR	40	50	50
Silver	7440-22-4	IRIS	40	100	
Sodium	7440-23-5	EPA DWEL	20000		
Strontium	7440-24-6	IRIS	4000	4000	
Thallium (chloride)	7791-12-0	IRIS	0.6		2
Uranium	7440-61-1	DWEL	20		30
Vanadium	7440-62-2	HEAST	200		
White Phosphorous	7723-14-0	IRIS	0.1	0	
Zinc	7440-66-6	IRIS	2000	2000	
ORGANICS					
Acenaphthene	83-32-9	IRIS	400		
Acetamiprid	135410-20-7	OPP	500		
Acetochlor	34256-82-1	OPP	10		
Acetone	67-64-1	IRIS	6000		
Acrolein	107-02-8	IRIS	4		
Acrylamide	79-06-1	IRIS	0.7		
Acrylonitrile	107-13-1	IRIS	0.6		
Alachlor	15972-60-8	CA-OEHHA	6		2
Aldicarb	116-06-3	IRIS	7	7	3
Aldicarb sulfone	1646-88-4	IRIS	7	7	2
Aldrin	309-00-2	IRIS	0.02		
Allyl chloride	107-05-1	CA-OEHHA	20		
Ametryn	834-12-8	IRIS	60	60	

Maximum Exposure Guidelines (MEG) for Drinking Water
Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS[a]	2012 MEG (ppb)	EPA HEALTH ADVISORY (ppb)	EPA OR STATE MCL (ppb)
Anthracene	120-12-7	IRIS	2000		
Asulam	3337-71-1	IRIS	40		
Atrazine	1912-24-9	CA-OEHHA	2		3
Azinophos - methyl	86-50-0	OPP	10		
Baygon (propoxur)	114-26-1	IRIS	30	3	
Bentazon	25057-89-0	IRIS	200	200	
Benzo(a)anthracene	56-55-3	IRIS	0.5		
Benzene	71-43-2	ATSDR	4		5
Benzo(a)pyrene	50-32-8	IRIS	0.05		0
Benzo(b)fluoranthene	205-99-2	IRIS	0.5		
Benzoic Acid	65-85-0	IRIS	30000		
Benzo(k)fluoranthene	207-08-9	IRIS	5		
Benzyl chloride	100-44-7	IRIS	2		
Biphenyl (1,1-)	92-52-4	IRIS	400		
Boscalid	188425-85-6	OPP	200		
Bromacil	314-40-9	OPP	70	70	
Bromochloromethane	74-97-5	EPA DWEL	100	90	
Bromodichloromethane	75-27-4	IRIS	6		80
Bromoform	75-25-2	IRIS	40		80
Bromomethane	74-83-9	IRIS	10	10	
Butadiene (1,3-)	106-99-0	CA-OEHHA	0.1		
Butylate	2008-41-5	IRIS	400	400	
Butyl benzyl phthalate	85-68-7	PPRTV	200		
Captan	133-06-2	CA-OEHHA	200		
Carbaryl	63-25-2	IRIS	70		
Carbofuran	1563-66-2	IRIS	40		40
Carbon disulfide	75-15-0	IRIS	600		
Carbon tetrachloride	56-23-5	IRIS	5		5
Carboxin	5234-68-4	IRIS	700	700	
Chloral hydrate	302-17-0	IRIS	70		
Chloramben (Amiben)	133-90-4	IRIS	100	100	
Chlordane/Nonachlor	12789-03-6	IRIS	1		2
Chlorendic Acid	115-28-6	CA-OEHHA	4		
Chloroaniline (4-)	106-47-8	PPRTV	2		
Chlorobenzene	108-90-7	IRIS	100		
Chloroform	67-66-3	IRIS	70	70	80
bis-2-Chloroethyl ether	111-44-4	IRIS	0.3		
bis-2-Chloro isopropyl ether	108-60-1	IRIS	300	300	
Chloromethane	74-87-3	EPA DWEL	20	30	
Chlorophenol (2-)	95-57-8	IRIS	40	40	
Chlorothalonil	1897-45-6	IRIS	100		
Chlorotoluene (2- or ortho-)	95-49-8	IRIS	100	100	
Chlorotoluene (4- or para-)	106-43-4	PPRTV	500	100	
Chlorpyrifos	2921-88-2	ATSDR	10	2	
Chrysene	218-01-9	IRIS	50		
Cyanazine	21725-46-2	HEAST	1	1	
Dacthal (DCPA)	1861-32-1	IRIS	70	70	
Dalapon	75-99-0	IRIS	200	200	200
DDD	72-54-8	IRIS	1		
DDE	72-55-9	IRIS	1		
DDT	50-29-3	IRIS	1		
Di-(2-ethylhexyl)adipate	103-23-1	IRIS	300	400	400
Di-(2-ethylhexyl)phthalate (PAE)	117-81-7	IRIS	30		6
Diallate (Avadex)	2303-16-4	HEAST	6		
Diazinon	333-41-5	ATSDR	5	1	

Maximum Exposure Guidelines (MEG) for Drinking Water

Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS[a]	2012 MEG (ppb)	EPA HEALTH ADVISORY (ppb)	EPA OR STATE MCL (ppb)
Dibenz(a,h)anthracene	53-70-3	IRIS	0.05		
Dibromo-3-chloropropane (1,2-) (DBCP)	96-12-8	PPRTV	0.4		0
Dibromochloromethane	124-48-1	IRIS	4	60	80
Dicamba	1918-00-9	IRIS	200	4000	
Dichlobenil	1194-65-6	OPP	9		
Dichlorobenzamide (2,6-) (BAM)	2008-58-4	OPP	10		
Dichlorobenzene (1,3- or meta)	541-73-1	ATSDR	1	600	
Dichlorobenzene (1,2- or ortho)	95-50-1	ATSDR	200	600	600
Dichlorobenzene (1,4- or para-)	106-46-7	CA-OEHHA	70	75	75
Dichlorobenzidine (3,3-)	91-94-1	IRIS	0.8		
Dichlorodifluoromethane	75-71-8	IRIS	1000	1000	
Dichloroethane (1,1-)	75-34-3	CA-OEHHA	60		
Dichloroethane (1,2-)	107-06-2	IRIS	4		5
Dichloroethylene (1,1-)	75-35-4	IRIS	40		7
Dichloroethylene (cis-1,2-)	156-59-2	IRIS	10	70	70
Dichloroethylene (trans-1,2-)	156-60-5	IRIS	100	100	100
Dichloromethane	75-09-2	IRIS	40		5
Dichlorophenol (2,4-)	120-83-2	IRIS	20	20	
Dichlorophenoxyacetic acid (2,4-)	94-75-7	IRIS	70		70
Dichloropropane (1,2-)	78-87-5	CA-OEHHA	10		5
Dichloropropane (1,3-)	142-28-9	PPRTV	100		
Dichloropropene (1,3-)	542-75-6	IRIS	4		
Dieldrin	60-57-1	IRIS	0.02		
Diethyl phthalate (PAE)	84-66-2	IRIS	6000		
Diisopropyl methylphosphonate	1445-75-6	IRIS	600	600	
Dimethylformamide (N,N-)	68-12-2	HEAST	700		
Dimethylphenol (2,4-)	105-67-9	IRIS	100		
Dimethylphenol (2,6-)	576-26-1	IRIS	4		
Dibutylphthalate	84-74-2	IRIS	700		
Dinitrobenzene (1,2- or ortho)	528-29-0	PPRTV	0.7		
Dinitrobenzene (1,3- or meta)	99-65-0	IRIS	0.7	1	
Dinitrobenzene (1,4- or para)	100-25-4	PPRTV	0.7		
Dinitrophenol (2,4-)	51-28-5	IRIS	10		
Dinitrotoluene (2,4-)	121-14-2	CA-OEHHA	1		
Dinitrotoluene (2,6-)	606-20-2	IRIS	0.5		
Dinoseb	88-85-7	IRIS	7	7	7
Dioxane (1,4-)	123-91-1	IRIS	4		
Diphenamid	957-51-7	IRIS	200	200	
Diphenylamine	122-39-4	IRIS	200		
Diquat	85-00-7	IRIS	20		20
Disulfoton	298-04-4	IRIS	0.3	1	
Dithiane (1,4-)	505-29-3	IRIS	70	80	
Diuron	330-54-1	IRIS	10		
Endosulfan	115-29-7	IRIS	40		
Endothall	145-73-3	IRIS	100	50	100
Endrin	72-20-8	IRIS	2	2	2
Epichlorohydrin	106-89-8	IRIS	40		
Ethylbenzene	100-41-4	CA-OEHHA	30	700	700
Ethyl chloride	75-00-3	PPRTV	7		
Ethylene dibromide (EDB)	106-93-4	IRIS	0.2		0
Ethylene glycol	107-21-1	IRIS	10000	14000	
Ethylene glycol monobutyl ether	111-76-2	IRIS	700		
Ethylene thiouria (ETU)	96-45-7	IRIS	0.6		
Fenamiphos	22224-92-6	IRIS	2	1	
Ferbam	14484-63-1	ME-CDC	4		

Maximum Exposure Guidelines (MEG) for Drinking Water

Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS[a]	2012 MEG	EPA HEALTH ADVISORY	EPA OR STATE MCL
			(ppb)	(ppb)	(ppb)
Fluometuron	2164-17-2	IRIS	90	90	
Fluoranthene	206-44-0	IRIS	300		
Fluorene	86-73-7	IRIS	300		
Fluorotrichloromethane	75-69-4	IRIS	2000	2000	
Fluridone	59756-60-4	IRIS	600		
Folpet	133-07-3	IRIS	100		
Fonofos	944-22-9	IRIS	10	10	
Formaldehyde	50-00-0	IRIS	100	1000	
Glyphosate	1071-83-6	IRIS	700		700
Heptachlor	76-44-8	ATSDR	0.07		0
Heptachlor epoxide	1024-57-3	IRIS	0.04		0
Hexachlorobenzene	118-74-1	IRIS	0.2		1
Hexachlorobutadiene	87-68-3	IRIS	4		
Hexachlorocyclohexane (alpha-)	319-84-6	IRIS	0.06		
Hexachlorocyclohexane (beta-)	319-85-7	IRIS	0.2		
Hexachlorocyclohexane (gamma-) (Lindane)	58-89-9	ATSDR	0.03		0
Hexachlorocyclopentadiene	77-47-4	IRIS	40		50
Hexachloroethane	67-72-1	IRIS	5	1	
Hexachlorophene	70-30-4	IRIS	2		
Hexane (n-)	110-54-3	HEAST	400		
Hexazinone	51235-04-2	IRIS	200	400	
HMX (cyclo-tetramethylenetetranitramine)	2691-41-0	IRIS	400	400	
Imidacloprid	138261-41-3	OPP	400		
Indeno(1,2,3-cd)pyrene	193-39-5	IRIS	0.5		
Isophorone	78-59-1	IRIS	400	100	
Isopropylmethylphosphonate	1832-54-8	IRIS	700	700	
Isopropyltoluene (p-cymene)	99-87-6	ME-CDC	70		
Malathion	121-75-5	ATSDR	100	500	
Maleic hydrazide	123-33-1	IRIS	4000	4000	
Mancozeb	8018-01-7	OPP	6		
Maneb	12427-38-2	OPP	6		
MCPA (2-Methyl-4-chlorophenoxyacetic acid)	94-74-6	IRIS	4	30	
Mesotrione	104206-82-8	OPP	50		
Metalaxyl	57837-19-1	IRIS	400		
Methanol	67-56-1	IRIS	4000		
Methomyl	16752-77-5	IRIS	200	200	
Methoxychlor	72-43-5	IRIS	40	40	40
Methoxyfenozide	161050-58-4	OPP	700		
Methyl ethyl ketone	78-93-3	IRIS	4000	4000	
Methyl isobutyl ketone	108-10-1	HEAST	500		
Methyl methacrylate	80-62-6	IRIS	10000		
Methyl parathion	298-00-0	IRIS	2	1	
Methyl tert butyl ether (MTBE)	1634-04-4	MCL	35		35
Methylnaphthalene (2-)	91-57-6	IRIS	30		
Methylphenol (2-)	95-48-7	IRIS	40		
Methylphenol (3-)	108-39-4	IRIS	40		
Methylphenol (4-)	106-44-5	HEAST	4		
Metolachlor	51218-45-2	IRIS	100	700	
Metribuzin	21087-64-9	IRIS	200	70	
Chlorobenzene	108-90-7	IRIS	100		
Naphthalene	91-20-3	IRIS	10	100	
Napropamide	15299-99-7	OPP	800		
Nitrobenzene	98-95-3	IRIS	1		
Nitroguanidine	556-88-7	IRIS	700	700	
Nitrophenol (p-)	100-02-7	EPA DWEL	60	60	

Maximum Exposure Guidelines (MEG) for Drinking Water

Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS(a)	2012 MEG	EPA HEALTH ADVISORY	EPA OR STATE MCL
			(ppb)	(ppb)	(ppb)
Norflurazon	27314-13-2	OPP	10		
Oxamyl (Vydate)	23135-22-0	IRIS	200		200
Paraquat	1910-42-5	IRIS	3	30	
Parathion	56-38-2	HEAST	4		
PCNB (pentachloronitrobenzene)	82-68-8	IRIS	2		
Pentachlorophenol	87-86-5	IRIS	0.9		1
Perchlorate	14797-73-0	ME-CDC	0.8		
Phenol	108-95-2	IRIS	2000	2000	
Phorate	298-02-2	HEAST	1.0		
Picloram	1918-02-1	IRIS	500		500
Polychlorinated biphenyls (PCBs)	1336-36-3	IRIS	0.5		1
Prometon	1610-18-0	IRIS	100	400	
Prometryn	7287-19-6	IRIS	30		
Pronamide	23950-58-5	OPP	10		
Propachlor	1918-16-7	IRIS	90		
Propanil	709-98-8	IRIS	40		
Propazine	139-40-2	IRIS	100	10	
Propham	122-42-9	IRIS	100	100	
Propiconazole	60207-90-1	IRIS	9		
Propylene glycol	57-55-6	PPRTV	140000		
Pyrene	129-00-0	IRIS	200		
RDX (1,3,5-trinitro-1,3,5-triazine)	121-82-4	IRIS	3	2	
Resorcinol (1,3-Benzenediol)	108-46-3	ME-CDC	100		
Rotenone	83-79-4	IRIS	30		
Simazine	122-34-9	IRIS	4		4
Styrene	100-42-5	IRIS	100	100	100
Tebufenozide	112410-23-8	OPP	100		
Tebuthiuron	34014-18-1	IRIS	500	500	
Terbacil	5902-51-2	IRIS	90	90	
Terbufos	13071-79-9	HEAST	0.2	0	
Tetrachlorodibenzo-p-dioxin (2,3,7,8-)	1746-01-6	IRIS	0.000003		3 E-5
Tetrachloroethane (1,1,1,2-)	630-20-6	IRIS	10	70	
Tetrachloroethane (1,1,2,2-)	79-34-5	IRIS	2		
Tetrachloroethylene	127-18-4	IRIS	40	10	5
Tetrahydrofuran	109-99-9	IRIS	600		
Thiram	137-26-8	IRIS	40		
Toluene	108-88-3	IRIS	600		1000
Toxaphene	8001-35-2	IRIS	0.3		3
Tribenuron methyl	101200-48-0	IRIS	6		
Trichloroethane (1,1,1-)	71-55-6	IRIS	10000		200
Trichloroethane (1,1,2-)	79-00-5	IRIS	6	3	5
Trichloroethylene	79-01-6	IRIS	4		5
Fluorotrichloromethane	75-69-4	IRIS	2000	2000	
Trichlorophenol (2,4,5-)	95-95-4	IRIS	700		
Trichlorophenol (2,4,6-)	88-06-2	PPRTV	7		
Trichlorophenoxyacetic acid (2,4,5-)	93-76-5	IRIS	70	70	
Trichlorophenoxypropionic acid (2,4,5-)	93-72-1	IRIS	60		
Trichloropropane (1,2,3-)	96-18-4	IRIS	0.01		
Trichlorobenzene (1,2,4-)	120-82-1	IRIS	70		
Trichlorobenzene (1,3,5-)	108-70-3	DWEL	40		
Triclopyr acid	55335-06-3	OPP	400		
Trifluralin	1582-09-8	IRIS	50	10	
Trinitroglycerol (nitroglycerin)	55-63-0	EPA HA	5	5	
Trinitrophenol (2,4,6-)	88-89-1	ME-CDC	60		
Trinitrotoluene (2,4,6-)	118-96-7	IRIS	4	2	

Maximum Exposure Guidelines (MEG) for Drinking Water

Maine Center for Disease Control, Maine Department of Human Services

October 19, 2012

CHEMICALS	CASRN	MEG BASIS[a]	2012 MEG (ppb)	EPA HEALTH ADVISORY (ppb)	EPA OR STATE MCL (ppb)
Tris (1,3-dichloroisopropyl) phosphate	13674-87-8	ME-CDC	10		
Vinyl acetate	108-05-4	HEAST	7000		
Vinyl Chloride	75-01-4	IRIS	0.2		2
Xylenes	1330-20-7	IRIS	1000		10000
Zineb	12122-67-7	IRIS	400		
Ziram	137-30-4	OPP	4		
Petroleum Hydrocarbon Fractions					
C5-C8 Aliphatics	NA	MassDEP	300		
C9-C12 Aliphatics	NA	MassDEP	700		
C9-C18 Aliphatics	NA	MassDEP	700		
C19-C36 Aliphatics	NA	MassDEP	10000		
C9-C10 Aromatics	NA	MassDEP	200		
C11-C22 Aromatics	NA	MassDEP	200		

NOTES:

MEG - Maximum Exposure Guideline
MCL - Maximum Contaminant Level
EPA - U.S. Environmental Protection Agency
CASRN - Chemical Abstracts Service Registration Number
ppb - parts per billion, i.e. micrograms per liter
(a) Please see "MEG Procedures 2010.doc" for derivation methods, abbreviations listed below.
NC - Non-cancer Risk Based Concentration
CA - Cancer Risk Based Concentration
IRIS - Integrated Risk Information System; June 2010
CA-OEHHA - California Office of Environmental Health Hazard Assessment; June 2010
ATSDR - Agency for Toxic Substances and Disease Registry; December 2009
PPRTV - Provisional Peer-Reviewed Toxicity Values (developed by Superfund Technical Support Center); April 2010
HEAST - Health Effects Assessment Summary Tables; July 1997
ITER - International Toxicity Estimates for Risk; June 2010
EPA HA - EPA Lifetime Health Advisory
DWEL - EPA Drinking Water Exposure Limit
RSC - Relative Source Contribution
EPA OW - EPA Office of Water
EPA MCL - EPA Maximum Contaminant Level
MassDEP - Massachusetts Department of Environmental Protection, 2008
OPP - EPA Office of Pesticides Program; June 2010
ME-CDC - Maine Center for Disease Control and Protection

06-096 DEPARTMENT OF ENVIRONMENTAL PROTECTION

Chapter 584: Surface Water Quality Criteria for Toxic Pollutants

SUMMARY: This rule establishes ambient water quality criteria for toxic pollutants in the surface waters of the State. The rule also sets forth procedures that may be used to determine alternative statewide criteria or site-specific criteria adopted as part of a licensing proceeding.

1. **Criteria and Applicability.** The ambient water quality criteria established by this rule are applicable to all surface waters of the State. These criteria are intended to prevent the occurrence of toxic pollutants in toxic amounts as prohibited by both the US Clean Water Act and State law and protect aquatic life and human health. Aquatic life criteria are intended to assure that toxic pollutants are not present in concentrations or amounts that would cause acute and or chronic adverse impacts on organisms in, on or using the surface waters. Human health criteria are intended to assure that toxic pollutants are not present in concentrations or amounts that would cause adverse impact to persons who eat organisms or drink water taken from the surface waters. In the case of marine waters the consumption of water will not be considered for application of human health criteria.

2. **Narrative Water Quality Criteria.** Except as naturally occurs, surface waters must be free of pollutants in concentrations which impart toxicity and cause those waters to be unsuitable for the existing and designated uses of the water body.

3. **Numerical Water Quality Criteria**

A. **Statewide Criteria**

(1) **Statewide Criteria for toxic pollutants with national water criteria.** Except as naturally occur, levels of toxic pollutants in surface waters must not exceed federal water quality criteria as established by USEPA, pursuant to Section 304(a) of the Clean Water Act, or alternative criteria established below.

Statewide criteria are contained in Appendix A of this rule.

(2) **Alternative Statewide Criteria.** Alternative statewide criteria must be adopted through rulemaking. Alternative statewide criteria must be based on sound scientific rationale and be as protective as EPA's water quality criteria. Such criteria must also be protective of the most sensitive designated and existing uses of the water body, including, but not limited to, habitat for fish and other aquatic life, human consumption of fish and drinking water supply after treatment. A proposal for alternative statewide criteria must be initiated in accordance with petition for rulemaking provisions of the State Administrative Procedures Act, 5 M.R.S.A., Section 8055, and include a thorough literature search of the properties of the toxicant, including but not limited to its toxicity, carcinogenicity, teratogenicity, mutagenicity, bioaccumulation/bioconcentration, and regulation by other states or foreign countries. Any such proposal must also take into consideration, at a minimum, the following:

(a) **Aquatic Life Criteria**. Physical, chemical or biological conditions found in Maine waters that differ from the information used as the basis for national criteria from the USEPA. When toxicity testing is to be done, the procedures in 3(B)(1) will be used. Ambient data must be collected in general conformance with Chapter 530, section 4(D) and have sufficient geographic distribution to reflect variation of the characteristics in question. Where discharges may affect the factors used to determine water quality criteria, significant sources representative of the pollutant, characteristics and geographic distribution will be evaluated as part of a proposal.

(b) **Human Health Criteria**. Changes to statewide criteria for the protection of human health must be supported by information following the general methods and considerations specified by USEPA in "Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)," EPA-822-B-00-004, USEPA, Office of Science and Technology, Washington, D.C., 65 Federal Register No. 214, pp. 66443-66482, November 3, 2000. The Board shall consider this information and information provided by the Department of Human Services.

The Board may request additional materials and shall consider all relevant information when determining whether to adopt alternative statewide criteria.

(3) **Statewide criteria for toxic pollutants lacking national criteria.** The requirements of section 3(A)(2) also apply to the adoption of criteria for toxic pollutants not having water quality criteria established by USEPA, pursuant to Section 304(a) of the Clean Water Act.

B. Site-Specific Criteria. Site-specific numerical criteria for a toxic substance reflecting specific circumstances different from those used in, or not considered in the derivation of the statewide criteria, or for toxic pollutants lacking national criteria, must be adopted by the Board only as part of a waste discharge license proceeding, pursuant to 38 MRSA Sections 413, 414, and 414-A. Site-specific criteria must be based on sound scientific rationale, be as protective as federal water quality criteria and must be protective of the most sensitive designated and existing uses of the water body, including, but not limited to, habitat for fish and other aquatic life, human consumption of fish and drinking water supply after treatment.

Establishment of site-specific criteria must be initiated with a request that the Board assume jurisdiction for issuance of a license. Where the Department finds a request for site-specific criteria may affect other sources discharging to the same waterway, it may, pursuant to 38 MRSA, Section 414-A(5)(A), reopen for modification those licenses for consideration in the same proceeding. The information necessary to ensure that criteria are adequately evaluated must be submitted by a person requesting alternative criteria. The adequacy of this information shall be determined by the Board and may include, among other things, a literature search, user surveys and consumption rate calculations. A literature search of the properties of toxicants includes, but is not limited to, its toxicity, carcinogenicity, teratogenicity, mutagenicity, bioaccumulation/bioconcentration, and regulation by other states or foreign countries. Requests must provide information identifying specific uses of the water body in question, and any other relevant site-specific circumstance or information different from those used, or any not considered, in the derivation of the statewide criteria. Relevant information includes such things as sensitive or unique physical, chemical or biological conditions of the waterbody, rare or significant plant or wildlife communities and habitats located in the water body, or human populations having distinct uses or needs with regard to the water body.

Any request to the Board to establish site-specific criteria must also include, at a minimum, the following. A plan of study must be submitted to the Department for review and approval prior to the beginning of the studies, and may include the consideration of existing relevant scientific information as well as proposals for site-specific investigations.

(1) **Aquatic Life Criteria**

(a) Minimum requirements include toxicity tests conducted generally according to the USEPA Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005-a, USEPA, Office of Water, Washington, DC, August, 1994, and applicable Water-effect Ratio Guidance or other guidance for development of site specific criteria approved by the Department.

(b) For complex effluents with more than one potentially toxic pollutant, both dilution waters (receiving water and laboratory water) must be spiked with all pollutants present in the effluent in significant amounts, except the pollutant of interest, or the whole effluent at levels representative of the calculated receiving water concentrations at the appropriate design flow. Pollutants present in significant amounts relative to toxic levels must be determined by means of periodic testing within two years of submitting the plan of study to the Department. The pollutant of interest must be added at various concentrations bracketing the target concentration (the existing or anticipated criterion) to determine an appropriate site-specific criterion. This procedure must be repeated for each pollutant for which site-specific criteria are to be proposed.

(c) For discharges to freshwater, the water flea (*Ceriodaphnia dubia*) reproductive and survival test, and the brook trout (*Salvelinus fontinalis*), or other salmonid approved by the Department, survival and growth tests must be conducted. For discharges to marine waters, Mysid shrimp (*Mysidopsis bahia*) survival test, and the sea urchin (*Arbacia punctulata*) fertilization test must be conducted.

(d) Results should be based on measured concentrations.

(e) For heavy metal tests, the metal must be added in the form of inorganic salts of relatively high solubility, such as nitrate salts or in some cases, chloride or sulfate salts.

(f) Sufficient testing must be conducted to properly characterize seasonal variations and the water quality criteria of concern. Receiving water and effluent sampling must be representative of expected conditions and exclude periods of floods, storm events and abnormal operation of the discharge source.

(2) **Human Health Criteria.** Persons requesting site specific criteria for the protection of human health must provide information following the general methods and considerations specified by USEPA in "Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)," EPA-822-B-00-004, USEPA, Office of Science and Technology, Washington, D.C., 65 Federal Register No. 214, pp. 66443-66482, November 3, 2000. The Board shall consider this information and information provided by the Department of Human Services. In determining if site specific criteria are appropriate, the Board shall first evaluate whether

there is an identifiable population(s) using a water body whose use(s) is distinct from that of the population considered when establishing the statewide criteria. If the Board identifies such a population, it shall consider activities or customs that would constitute a use of the water body substantially different in type or extent than that upon which statewide criteria are based. The Board shall consider, among other things, the following:

(a) Studies designed and implemented to provide accurate information regarding the fact and extent of specific human activities that create a potential exposure to toxics in the water body, including such things as the rate of consumption of organisms, use of a water body as a drinking water supply, recreation in and on the water, and other specific uses of the water body established by local cultural or commercial practices;

(b) The importance of organisms affected by a toxic substance, taking into consideration their places in the food chain and the degree to which they are used or consumed by humans;

(c) Scientific evidence typically relied upon by experts in the field of toxicology showing the potential effect of a toxic substance in the discharge that is the subject of the licensing, on human health, given a particular established use of the water body; and

(d) Unique characteristics of the water body or organisms depending on it that effect exposure of humans to toxics in the water body.

4. **Risk levels.** For any pollutant believed to be carcinogenic, a risk level that would result, at most, in one additional cancer per one million people (risk of 1×10^{-6}) exposed to the carcinogen must be used in determining the human health criterion. Notwithstanding the above, the Department shall utilize a 10^{-4} risk level when calculating ambient water quality criteria for inorganic arsenic.

5. The following assumptions have been used to determine the statewide criteria contained in Appendix A of this rule.

A. **Form of metals.** All metals criteria must be considered as total metal.

NOTE: Persons may request that the Department express criteria for metals as the dissolved form by submitting the appropriate information to allow recalculation of relative toxicity using conversion factors and translator procedures published by EPA: "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion", EPA 823-B-96-007, USEPA, Office of Water, Washington, DC, June 1996.

B. **Ambient water physical characteristics.** Fresh water quality must be calculated using a pH of 7.0, a temperature of 25 degrees Celsius, and a hardness of 20 mg/L. Marine water quality must be calculated using a pH of 8.0, a temperature of 20 degrees Celsius, and a salinity of 30 parts per thousand. Estuarine water quality must be calculated using a pH of 8.0, a temperature of 20 degrees Celsius and a salinity of 20 parts per thousand.

NOTE: These characteristics, however, may vary depending on the location of the discharge. The relative criteria for a pollutant subject to these considerations may be recalculated in any given licensing proceeding using the actual local ambient physical water characteristics. See Chapter 530.

C. **Human health assumptions.** Human health criteria are determined assuming consumption of 2 Liters of water and 32.4 grams of organisms per day taken from surface waters of the State by a person weighing 70 kg. Notwithstanding the above, when calculating human health criteria for inorganic arsenic, the Department shall utilize a state-wide consumption value of 138 grams of organisms per day.

AUTHORITY:	38 MRSA Sections 341-H, 420, and 464(5)
EFFECTIVE DATE:	October 9, 2005 (filing 2005-402, 06-096 Chapter 530.5 repealed and replaced by this rule and Chapter 530)
EFFECTIVE DATE:	July 29, 2012 – filing 2012-211

Chapter 584. Appendix A. Statewide criteria for toxic pollutants with national water quality criteria for Priority Pollutants and non Priority Pollutants. Patterned after the EPA's National Recommended Water Quality Criteria of November 2002 and December 2003. "FR Cite/Source" refers to the EPA publication from which the criteria are derived. The "Gold Book" is Quality Criteria for Water: 1986. EPA 440/5-86-001.

1. Table I. Criteria for Priority Pollutant listed pursuant to 304(a) of the Clean Water Act. See also the footnotes following this table.

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
Antimony	7440360					5.5 B	350 B	65FR66443
Arsenic	7440382	340 A,K	150 A,K	69 A,bb	36 A,bb	1.3 M,S,aME	3.7 M,S,aME	65FR31682 57FR60848
Beryllium	7440417					Z		65FR31682
Cadmium	7440439	0.42 E,K,bb	0.08 E,K,bb	40 bb	8.85 bb	Z		65FR31682 EPA-822-R-01-001
Chromium III	16065831	483 E,K	23.1 E,K			Z Total		EPA820/B-96-001 65FR31682
Chromium VI	18540299	16 K	11 K	1,108 bb	50 bb	Z Total		65FR31682
Copper	7440508	3.07 E,K,cc	2.36 E,K,cc	5.78 cc,ff	3.73 cc,ff	1,300 U		65FR31682
Lead	7439921	10.52 E,bb,gg	0.41 E,bb,gg	221 bb	8.52 bb	Z		65FR31682
Mercury	7439976	See Title 38 MRSA, Sections 420 (1-B) and 413(11)						
Nickel	7440020	120.2 E,K	13.4 E,K	75 bb	8.28 bb	400 B	1,000 B	65FR31682

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
Selenium	7782492	L,R	5.0	291 bb,dd	71 bb,dd	162 Z	2,250	62FR42160 65FR31682 65FR66443
Silver	7740224	0.23 G, E		2.24 G				65FR31682
Thallium	7440280					0.17	0.25	68FR75507
Zinc	7440666	30.6 E,K	30.6 E,K	95 bb	86 bb	6,000 U	14,000 U	65FR31682 65FR66443
Cyanide	57125	22 K,Q	5.2 K,Q	1 Q,bb	1 Q,bb	140 jj	140 jj	68FR75507
Asbestos	1332214					7x10^6 fibers/L I		57FR60848
2,3,7,8-TCDD Dioxin	1746016	Also see Title 38 MRSA Section 420(2)				2.7E-9 J	2.8E-9 J	65FR66443
Acrolein	107028	3	3			3.9 ll	5.0 ll	74FR27535 74FR46587
Acrylonitrile	107131					0.04 B	0.13 B	65FR66443
Benzene	71432					0.58 B	7.55 B	IRIS 01/19/00 65FR66443
Bromoform	75252					4.2B	73 B	65FR66443
Carbon Tetrachloride	56235					0.23 B	0.89 B	65FR66443

Priority Pollutant	CAS Number	Freshwater		Saltwater		Human Health For Consumption of:		FR Cite/ Source
		CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	
Chlorobenzene	108907					120 B, U, Z	840 B,U	68FR75507
Chlorodibromomethane	124481					0.40 B	6.94 B	65FR66443
Chloroethane	75003							
2-Chloroethylvinyl Ether	110758							
Chloroform	67663					5.4 P	94 P	62FR42160
Dichlorobromomethane	75274					0.53 B	9.3 B	65FR66443
1,1-Dichloroethane	75343							
1,2-Dichloroethane	107062					0.38 B	19.8 B	65FR66443
1,1-Dichloroethylene	75354					320 Z	3,900	68FR75507
1,2-Dichloropropane	78875					0.50 B	7.9 B	65FR66443
1,3-Dichloropropene	542756					0.34	11.4 B	68FR75507
Ethylbenzene	100414					435	1,150	68FR75507
Methyl Bromide	74839					46 B	800 B	65FR66443
Methyl Chloride	74873							65FR31682
Methylene Chloride	75092					4.6 B	320 B	65FR66443

Priority Pollutant	CAS Number	Freshwater		Saltwater		Human Health For Consumption of:		FR Cite/ Source
		CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	
1,1,2,2-Tetrachloroethane	79345					0.16 B	2.2 B	65FR66443
Tetrachloroethylene	127184					0.59	1.77	65FR66443
Toluene	108883					1,200 Z	8,100	68FR75507
1,2-Trans-Dichloroethylene	156605					140 Z	5,500	68FR75507
1,1,1-Trichloroethane	71556					Z		65FR31682
1,1,2-Trichloroethane	79005					0.58 B	8.42 B	65FR66443
Trichloroethylene	79016					2.37	16.2	65FR66443
Vinyl Chloride	75014					0.025	1.32	68FR75507
2-Chlorophenol	95578					55.2 B,U	80.6 B,U	65FR66443
2,4-Dichlorophenol	120832					63.3 B,U	160 B,U	65FR66443
2,4-Dimethylphenol	105679					280 B	460 B,U	65FR66443
2-Methyl-4,6-Dinitrophenol	534521					12.5	155	65FR66443
2,4-Dinitrophenol	51285					68.4 B	2,900 B	65FR66443
2-Nitrophenol	88755							
4-Nitrophenol	100027							

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
3-Methyl-4-Chlorophenol	59507					U	U	
Pentachlorophenol	87865	8.72 F,K	6.69 F,K	13 bb	7.9 bb	0.25 B	1.64 B,H	65FR66443 65FR31682
Phenol	108952					10,514 B,U,H	462,963 B,U,H	74FR27535
2,4,6-Trichlorophenol	88062					0.93 B	1.31 B	65FR66443
Acenaphthene	83329					430 B,U	540 B,U	65FR66443
Acenaphthylene	208968							
Anthracene	120127					7,100 B	22,000 B	65FR66443
Benzidine	92875					0.00006 B	0.0001 B	65FR66443
Benzo(a)Anthracene	56553					0.003 B	0.01 B	65FR66443
Benzo(a)Pyrene	50328					0.003 B	0.01 B	65FR66443
Benzo(b)Fluoranthene	205992					0.003 B	0.01 B	65FR66443
Benzo(ghi)Perylene	191242							
Benzo(k)Fluoranthene	207089					0.003 B	0.01 B	65FR66443

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
Bis2-ChloroethoxyMethane	111911							
Bis2-ChloroethylEther	111444					0.029 B	0.28 B	65FR66443
Bis2-ChloroisopropylEther	108601					1,350 B	35,000 B	65FR66443
Bis2-EthylhexylPhthalate^{X}	117817					0.8 B	1.19 B	65FR66443
4-BromophenylPhenylEther	101553							
Butylbenzyl Phthalate^{W}	85687					900 B	1,050 B	65FR66443
2-Chloronaphthalene	91587					650 B	850 B	65FR66443
4-ChlorophenylPhenylEther	7005723							
Chrysene	218019					0.003 B	0.01 B	65FR66443
Dibenzo(a,h)Anthracene	53703					0.003 B	0.01 B	65FR66443
1,2-Dichlorobenzene	95501					330	700	68FR75507
1,3-Dichlorobenzene	541731					250	520	65FR31682
1,4-Dichlorobenzene	106467					50	105	68FR75507
3,3'-Dichlorobenzidine	91941					0.013 B	0.015 B	65FR66443

Priority Pollutant	CAS Number	Freshwater CMC (µg/L)	Freshwater CCC (µg/L)	Saltwater CMC (µg/L)	Saltwater CCC (µg/L)	Human Health For Consumption of: Water and Organisms (ug/L)	Human Health For Consumption of: Organisms Only (ug/L)	FR Cite/ Source
Diethyl Phthalate^W	84662					13,000 B	24,000 B	65FR66443
Dimethyl Phthalate^W	131113					221,000	600,000	65FR66443
Di-n-Butyl Phthalate^W	84742					1,400 B	2,400 B	65FR66443
2,4-Dinitrotoluene	121142					0.11	1.83	65FR66443
2,6-Dinitrotoluene	606202							
i-n-Octyl Phthalate	117840							
1,2-Diphenylhydrazine	122667					0.03 B	0.11 B	65FR66443
Fluoranthene	206440					71 B	75 B	65FR66443
Fluorene	86737					950 B	2,100 B	65FR66443
Hexachlorobenzene	118741					0.0002 B	0.0002 B	65FR66443
Hexachlorobutadiene	87683					0.43 B	9.96 B	65FR66443
Hexachlorocyclopentadiene	77474					39 U	600 U	68FR75507
Hexachloroethane	67721					1.04 B	1.78 B	65FR66443

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
Ideno(1,2,3-cd)Pyrene	193395					0.003 B	0.01 B	65FR66443
Isophorone	78591					35 B	520 B	65FR66443
Naphthalene	91203							
Nitrobenzene	98953					16.7 B	370 B,H	65FR66443
N-Nitrosodimethylamine	62759					0.00069 B	1.63 B	65FR66443
N-Nitrosodi-n-Propylamine	621647					0.005 B	0.27 B	65FR66443
N-Nitrosodiphenylamine	86306					2.23 B	3.24 B	65FR66443
Phenanthrene	85018							
Pyrene	129000					710 B	2,160 B	65FR66443
1,2,4-Trichlorobenzene	120821					25	38	68FR75507
Aldrin	309002	3.0 G		1.3 G		0.000027 B	0.000027 B	65FR31682 65FR66443
alpha-BHC	319846					0.0017 B	0.0026 B	65FR66443
beta-BHC	319857					0.006 B	0.009 B	65FR66443

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
gamma-BHC (Lindane)	58899	0.95 K		0.16 G		0.68 Z	0.1	68FR75507
delta-BHC	319868							
Chlordane	57749	2.4 G	0.0043 G,aa	0.09 G	0.004 G, aa	.00044	0.00044	65FR31682 65FR66443
4,4'-DDT	50293	1.1 G,ii	0.001 G,aa,ii	0.13 G,ii	0.001 G,aa,ii	0.00012 B	0.00012 B	65FR31682 65FR66443
4,4'-DDE	72559					0.00012 B	0.00012 B	65FR66443
4,4'-DDD	72548					0.00017 B	0.00017 B	65FR66443
Dieldrin	60571	0.24 K	0.056 K,O	0.71 G	0.0019 G,aa	0.000029 B	0.000029 B	65FR31682 65FR66443
alpha-Endosulfan	959988	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	39 B	48 B	65FR31682 65FR66443
beta-Endosulfan	33213659	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	39 B	48 B	65FR31682 65FR66443
Endosulfan Sulfate	1031078					39 B	48 B	65FR66443
Endrin	72208	0.086 K	0.036 K,O	0.037 G	0.0023 G,aa	0.032	0.032	68FR75507
Endrin Aldehyde	7421934					0.16 B	0.16 B,H	65FR66443

		Freshwater		Saltwater		Human Health For Consumption of:		
Priority Pollutant	CAS Number	CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	Water and Organisms (ug/L)	Organisms Only (ug/L)	FR Cite/ Source
Heptachlor	76448	0.52 G	0.0038 G,aa	0.053 G	0.0036 G,aa	0.000043 B	0.000043 B	65FR31682 65FR66443
Heptachlor Epoxide	1024573	0.52 G,V	0.0038 G,V,aa	0.053 G,V	0.0036 G,V,aa	0.000021 B	0.000021 B	65FR31682 65FR66443
Polychlorinated Biphenyls PCBs:			0.014 N,aa		0.03 N,aa	0.000035 B,N	0.000035 B,N	65FR31682 65FR66443
Toxaphene	8001352	0.73	0.0002 aa	0.21	0.0002 aa	0.00015 B	0.000155 B	65FR31682 65FR66443

Footnotes to Table I:

A. This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.

B. This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF)from the 1980 Ambient Water Quality Criteria document was retained in each case.

E. The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 20 mg/L. Also see part 7 below.

F. Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869);CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.0.

G. This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA440/5-80-046), Endrin (EPA440/5-047), Heptachlor (440/580-052), Hexachlorocyclohexane (EPA440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

H. No criterion for protection of human health from consumption of aquatic organisms excluding water was present in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

I. This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act.

J. These values are not applicable to bleach karft pulp mills. See 38 M.R.S.A., section 420(2)(I).

K. This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

L. The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/l and 12.83 µg/l, respectively.

M. EPA is currently reassessing the criteria for arsenic.

N. This criterion applies to total PCBs (e.g. the sum of all congener or all isomer or homolog or Aroclor analyses).

O. The derivation of the CCC for this pollutant did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

P. Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.

Q. This recommended water quality criterion is expressed as µg free cyanide (as CN)/L.

[illegible] This value for Selenium was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303(c) aquatic life criterion. EPA is currently working on this criterion and so this value might change substantially in the near future.

S. This recommended water quality criterion refers to the inorganic form only.

U. The organoleptic effect criterion is more stringent than the value for priority toxic pollutants. Also see Part 6.

V. This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

W. Although EPA has not published a final criteria document for this compound, it is EPA's understanding that sufficient data exist to allow calculation of aquatic criteria. It is anticipated that industry intends to publish in the peer reviewed literature draft aquatic life criteria generated in accordance with EPA Guidelines. EPA will review such criteria for possible issuance as national WQC.

X. There is a full set of aquatic life toxicity data that show that BEHP is not toxic to aquatic organisms at or below its solubility limit.

Y. This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha- endosulfan and beta-endosulfan.

Z. A more stringent MCL has been issued. Also see part 6 below.

aa This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated Biphenyls (EPA 440/5-80-019), Toxaphene (EPA 440/5-86-038). The CCC is currently based on the Final Residual Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the FRV procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.

bb This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical NationalWater Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA 440/5-84-032), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).

cc When the concentration of dissolved organic copper is elevated, copper is substantially less toxic and use of Water-Effects Ratios might be appropriate.

dd The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 µg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

ff This recommended water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60FR22228-222237, May 4, 1995).

gg EPA is actively working on this criterion and so this recommended water quality criterion may change substantially in the near future.

ii This criterion applies to DDT and it metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).

jj. This criterion is expressed as total cyanide, even though the IRIS RfD used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme condition the refluxing with sulfuric acid to liberate the CN-moiety. Thus these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in water body is present in a complex form (e.g. $Fe_4[Fe(CN)_6]_3$), this recommended criterion mat be over conservative.

ll. This criterion has been revised to reflect the Environmental Protection Agency's cancer slope factor (CSF) or reference dose (RfD), as contained in the Integrated Risk Information System (IRIS) as of (Final FR Notice June 10, 2009). The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

ME As noted in 06-096 CMR 584.4 and CMR 584.5.C, when calculating ambient water quality (human health) criteria for inorganic arsenic, a 10^{-4} risk level and a state-wide consumption value of 138 grams of organisms per day shall be utilized. Other values specific to inorganic arsenic shall include a bioconcentration factor of 26 L/kg, a cancer slope (potency) factor of 1.75 mg/kg/day, and an inorganic factor of 30%. The subject body weight of 70 kg and water consumption rate of 2 L/day remain consistent with human health criteria for other pollutants.

2. Table II. Criteria for Non-Priority Pollutants. See also the footnotes following this table.

Non Priority Pollutant	CAS Number	Freshwater		Saltwater		Human Health For Consumption of:		FR Cite/Source
		CMC (µg/L)	CCC (ug/L)	CMC (µg/L)	CCC (ug/L)	Water and Organisms (µg/L)	Organisms Only (ug/L)	
Aluminum pH 6.5 - 9.0	7429905	750 G	87 G,L					53FR33178
Ammonia	7664417	24,100 D	3,000 D	7,300 D	1,100 D			EPA822-R-99-014 EPA440-588-004
Barium	7440393					1,000 A		Gold Book
Boron		Narrative Statement – See document						Gold Book
[illegible]loride	16887006	860,000 G	230,000 G					53FR19028
Chlorine	7782505	19	11	13	7.5	C		Gold Book
Chlorophenoxy Herbicide 2,4,5,-TP	93721					10 A		Gold Book
Chlorophenoxy Herbicide 2,4,D	94757					100 A,C		Gold Book
Chloropyrifos	2921882	0.083 G	0.041 G	0.011 G	0.0056 G			Gold Book
Demeton	8065483		0.1 F		0.1 F			Gold Book
Ether, Bis Chloromethyl	542881					0.000079 E	0.00016 E	65FR66443
Guthion	86500		0.01 F		0.01 F			Gold Book
Hexachlorocyclo-hexane-Technical	319868					0.0123	0.0414	EPA 440/5-80-054

Non Priority Pollutant	CAS Number	Freshwater		Saltwater		Human Health For Consumption of:		FR Cite/Source
		CMC (µg/L)	CCC (ug/L)	CMC (µg/L)	CCC (ug/L)	Water and Organisms (µg/L)	Organisms Only (ug/L)	
Iron	7439896		1000 F			300 A		Gold Book
Malathion	121755		0.1 F		0.1 F			Gold Book
Manganese	7439965					B	100 A	Gold Book
Methoxychlor	72435		0.03 F		0.03 F	100 A,C		Gold Book
Mirex	2385855		0.001 F		0.001 F			Gold Book
Nitrates	14797558					10,000 A		Gold Book
Nitrosamines						0.0008	1.24	Gold Book
itrophenols	25550587					68	2,860	65FR66443
Nonylphenol	84852153	28	6.6	7	1.7			71FR9337
Nitrosodibutylamine,N	924163					0.0061 A	0.118 A	65FR66443
Nitrosodiethylamine,N	55185					0.0008 A	1.24 A	Gold Book
Nitrosopyrrolidine,N	930552					0.016	18.4	65FR66443
Diazanon	333415	0.17	0.17	0.82	0.82			71FR9336
Parathion	56382	0.065 J	0.013 J					Gold Book
Pentachlorobenzene	608935					0.79 E	0.81 E	65FR66443
Sulfide-Hydrogen Sulfide	7783064		2.0 F		2.0 F			Gold Book

Non Priority Pollutant	CAS Number	Freshwater		Saltwater		Human Health For Consumption of:		FR Cite/Source
		CMC (µg/L)	CCC (ug/L)	CMC (µg/L)	CCC (ug/L)	Water and Organisms (µg/L)	Organisms Only (ug/L)	
Tetrachlorobenzene,1,2,4,5-	95943					0.55 E	0.58 E	65FR66443
Tributyltin TBT		0.46 Q	0.072 Q	0.42 Q	0.0074 Q			69FR342
Trichlorophenol,2,4,5-	95954					1,300 B,E	2,000 B,E	65FR66443

Footnotes to Table II:

A This human health criterion is the same as originally published in the Red Book (EPA 440/9-76-023, July 1976) which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the Gold Book (Quality Criteria for Water: 1986. EPA 440/5-86-001).

B The organoleptic effect criterion is more stringent than the value presented in the non priority pollutant table.

C A more stringent Maximum Contaminant Level (MCL) has been issued by EPA under the Save Drinking Water Act. Refer to drinking water regulations 40CFR141 or Safe Drinking Water Hotline (1-800-426-4791) for values. Also see part 6 below.

Aquatic life criteria are pH, temperature and/or salinity dependent. See part 7(C) for fresh water and reference document for marine waters. The values presented in the table are based on pH of 7.0 and temperature of 25°C in fresh waters; and pH of 8.0, temperature of 20°C and salinity of 30 parts per thousand in marine waters.

E This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) used to derive the original criterion was retained in each case.

F The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).

G This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Aluminum (EPA 440/5-86-008); Chloride (EPA 440/5-88-001); Chloropyrifos (EPA 440/5-86-005).

J This value is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

L There are three major reasons why the use of Water-Effect Ratios might be appropriate. (1) The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH= 6.5-6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time. (2) In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide. (3) EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg aluminum/L, when either total recoverable or dissolved is measured.

N This value was announced (62FR42554, August 7, 1997) as a proposed 304(a) aquatic life criterion. Although EPA has not responded to public comment, EPA has published this as a 304(a) criterion as guidance for States and Tribes to consider when adopting water quality criteria.

ADDITIONAL NOTES

3. Criteria Maximum Concentration and Criterion Continuous Concentration
The Criteria Maximum Concentration (CMC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The Criterion Continuous Concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two of the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedence, and chronic frequency of allowed exceedence. Because 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States.

4. Criteria Recommendations for Priority Pollutants, Non Priority Pollutants
This compilation lists all priority toxic pollutants and some non priority toxic pollutants, and both human health effect and aquatic organism effect criteria issued pursuant to CWA §304(a). Blank spaces indicate that EPA has no CWA §304(a) criteria recommendations. For a number of non-priority toxic pollutants not listed, CWA §304(a) "water + organism" human health criteria are not available, but EPA has published MCLs under the SDWA that may be used in establishing water quality standards to protect water supply designated uses. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. Also listed are the Chemical Abstracts Service CAS registry numbers, which provide a unique identification for each chemical.

5. Water Quality Criteria published pursuant to Section 304(a) or Section 303(c) of the CWA
Many of the values in the compilation were published in the California Toxics Rule. Although such values were published pursuant to Section 303(c) of the CWA, they represent the EPA's most recent calculation of water quality criteria and are thus the Agency's 304(a) criteria.

6. Maximum Contaminant Levels and Organoleptic Effects
The compilation includes footnotes for pollutants with Maximum Contaminant Levels (MCLs) more stringent than the recommended water quality criteria in the compilation. MCLs for these pollutants are not included in the compilation, but can be found in the appropriate drinking water regulations (10-144 CMR Chapter 231, 40 CFR 141.11-16 and 40 CFR 141.60-63). In addition to toxic effects, some pollutants impart organoleptic effects (e.g., taste and odor) that may impair uses of the waters of the State by making water and edible aquatic life unpalatable but not toxic to humans. Pollutants with organoleptic effect criteria more stringent than the criteria based on toxicity (e.g., included in both the priority and non-priority pollutant tables) are

footnoted as such. For both MCL and organoleptic effects, the Department will consider all available information regarding such characteristics in regulating the discharge of pollutant to ensure the uses of the waters of the State are protected in all respects.

7. Specific Chemical Calculations

A. Selenium Aquatic Life

This compilation contains aquatic life criteria for selenium that are the same as those published in the proposed CTR. In the CTR, EPA proposed an acute criterion for selenium based on the criterion proposed for selenium in the Water Quality Guidance for the Great Lakes System (61 FR 58444). The GLI and CTR proposals take into account data showing that selenium's two prevalent oxidation states in water, selenite and selenate, present differing potentials for aquatic toxicity, as well as new data indicating that various forms of selenium are additive. The new approach produces a different selenium acute criterion concentration, or CMC, depending upon the relative proportions of selenite, selenate, and other forms of selenium that are present. EPA is currently undertaking a reassessment of selenium, and expects the 304(a) criteria for selenium will be revised based on the final reassessment (63FR26186). However, until such time as revised water quality criteria for selenium are published by the Agency, the recommended water quality criteria in this compilation are EPA's current 304(a) criteria.

B. Parameters for Calculating Freshwater Metals Criteria That Are Hardness-Dependent

Chemical	m_A	b_A	m_C	b_C
Cadmium	1.0166	-3.924	0.7409	-4.719
Chromium III	0.8190	3.7256	0.8190	0.6848
Copper	0.9422	-1.700	0.8545	-1.702
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59	--	--
Zinc	0.8473	0.884	0.8473	0.884

Hardness-dependant metals' criteria, as total metal, may be calculated from the following.

$$CMC = \exp\{m_A\ [\ln(\text{hardness})] + b_A\}$$

$$CCC = \exp\{m_C\ [\ln(\text{hardness})] + b_C\}$$

C. Calculation of Freshwater Ammonia Criterion

1. The one-hour average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CMC (acute criterion) calculated using the following equations.

To support all species of fish:

$$CMC = \frac{0.275}{1 + 10^{7.204-pH}} + \frac{39.0}{1 + 10^{pH-7.204}}$$

2. The thirty-day average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CCC (chronic criterion) calculated using the following equation:

(a) To support all life stages of fish:

$$CCC = \frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \quad x \quad MIN\ (2.85,\ 1.45 \text{ x } 10^{(0.028 \text{ x } (25-T)})$$

(b) In addition, the highest four-day average within the 30-day period does not exceed 2.5 times the CCC.

APPENDIX G

STATISTICAL ANALYSIS PROGRAM FOR GROUNDWATER QUALITY MONITORING

STATISTICAL ANALYSIS PROGRAM FOR GROUNDWATER QUALITY MONITORING CROSSROADS LANDFILL
Norridgewock, Maine

Prepared for:

Waste Management Disposal Services of Maine

Prepared by:

EAGON & ASSOCIATES, INC.
Worthington, Ohio

November 2016

EAGON & ASSOCIATES, INC.
100 Old Wilson Bridge Road, Suite 115
Worthington, Ohio 43085
(614) 888-5760

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STATISTICAL ANALYSIS PROGRAM
FOR GROUNDWATER QUALITY MONITORING
CROSSROADS LANDFILL

INTRODUCTION

This document presents a revised statistical program for the evaluation of groundwater quality data for the Crossroads Landfill. Based on a conference call with the Maine Department of the Environment (MDEP) on October 25, 2016, an alternate statistical approach was discussed for statistical evaluation of the site groundwater quality results. This statistical program has been designed using both interwell and intrawell statistical methods that will provide for the identification of statistically significant trends and statistically significant water-quality results above background to meet the requirements of Chapter 405(3)B. Figure 1 displays the locations of the monitoring wells at the Crossroads Landfill and Table 1 lists the wells in the monitoring program.

STATISTICAL PROGRAM

General Conditions

Statistical analyses will be performed for the wells included on Table 1 on an annual basis following the 2017 First Tri-Annual sampling event. The Mann-Kendall trend test will be used to analyze groundwater quality data from all wells in the monitoring system. Interwell prediction limits will be used to statistically analyze the data from the downgradient wells in the Phreatic and Till monitoring units for Phases 11 and 12 (Table 1). Due to the spatial and hydrogeologic variability in the vicinity of Phases 1-10, interwell statistical analysis will not be performed on groundwater quality from these areas. The parameters to be statistically analyzed are listed on Table 2. A moving background window approach will be utilized for statistical analysis such that data collected within the previous 5 years will be used in the statistical background periods. A moving window approach will be utilized so that the interwell prediction limits are representative of current groundwater quality conditions. The median nondetect result (reporting limit) is used to substitute for nondetect results in background for all statistical analyses. All analyses will be performed consistent with the USEPA Unified Guidance document (2009) and ASTM Standard D7048-04 (2004).

Statistical Methods for Inorganic Parameters

Mann-Kendall Trend Analysis

The Mann-Kendall trend test will be used to identify statistically significant upward or downward trends for all wells included on Table 1. The test will be performed at the 95% confidence level with alpha = 0.05 being split between each tail resulting in an actual 97.5% overall confidence level. The DUMPStat software does not perform the Mann-Kendall analysis for datasets comprised of greater than 75% nondetect data due to the high fraction of nondetect data. Statistical trend analysis will not be performed for highly nondetect parameters (i.e., greater than 75%). However, time-series graphs will be provided for all parameters listed on Table 2 with the exception of VOCs. A summary table identifying any wells having statistically significant trends will be included in the First Tri-Annual Report along with a discussion of the results.

Interwell Prediction Limits

Interwell prediction limits will be used to compare up- and downgradient water quality for Phases 11 and 12. Water-quality data from the upgradient wells in Phases 11 and 12 will be pooled to calculate interwell prediction limits for the Phreatic and Till monitoring units for the parameters shown on Table 2. Normality testing will be performed using the multiple group version of the Shapiro-Wilks normality test. In addition, outlier testing will be performed using Dixon's outlier test and identified outliers will be removed prior to calculation of the interwell statistical limits. The following rules apply to the calculation of the interwell prediction limits:

1. If the detection frequency for the pooled upgradient data set is greater than 50%:
    a. If the data are normally distributed, normal prediction limits will be computed.

b. If the data are lognormally distributed, lognormal prediction limits will be computed.

c. If neither normally nor lognormally distributed, a nonparametric prediction limit will be computed.

2. If the background detection frequency is less than 50%, a nonparametric prediction limit will be computed.

The most recent result for each well/parameter will be compared to the prediction limits. Summary tables displaying the calculated prediction limits and downgradient results exceeding the prediction limits will be provided. These results will be further discussed in the First Tri-Annual Report.

Statistical Method for Volatile Organic Compounds

A monitoring measurement at or above the laboratory specific practical quantification limit (PQL) for a volatile organic compound (VOC) will be considered a statistically significant increase. Confirmatory resampling may be conducted in the event that a result exceeds the PQL for a VOC. If the resample or reanalysis does not confirm a statistically significant increase, the well will continue in detection monitoring.

DOCUMENTATION OF STATISTICAL ANALYSIS RESULTS

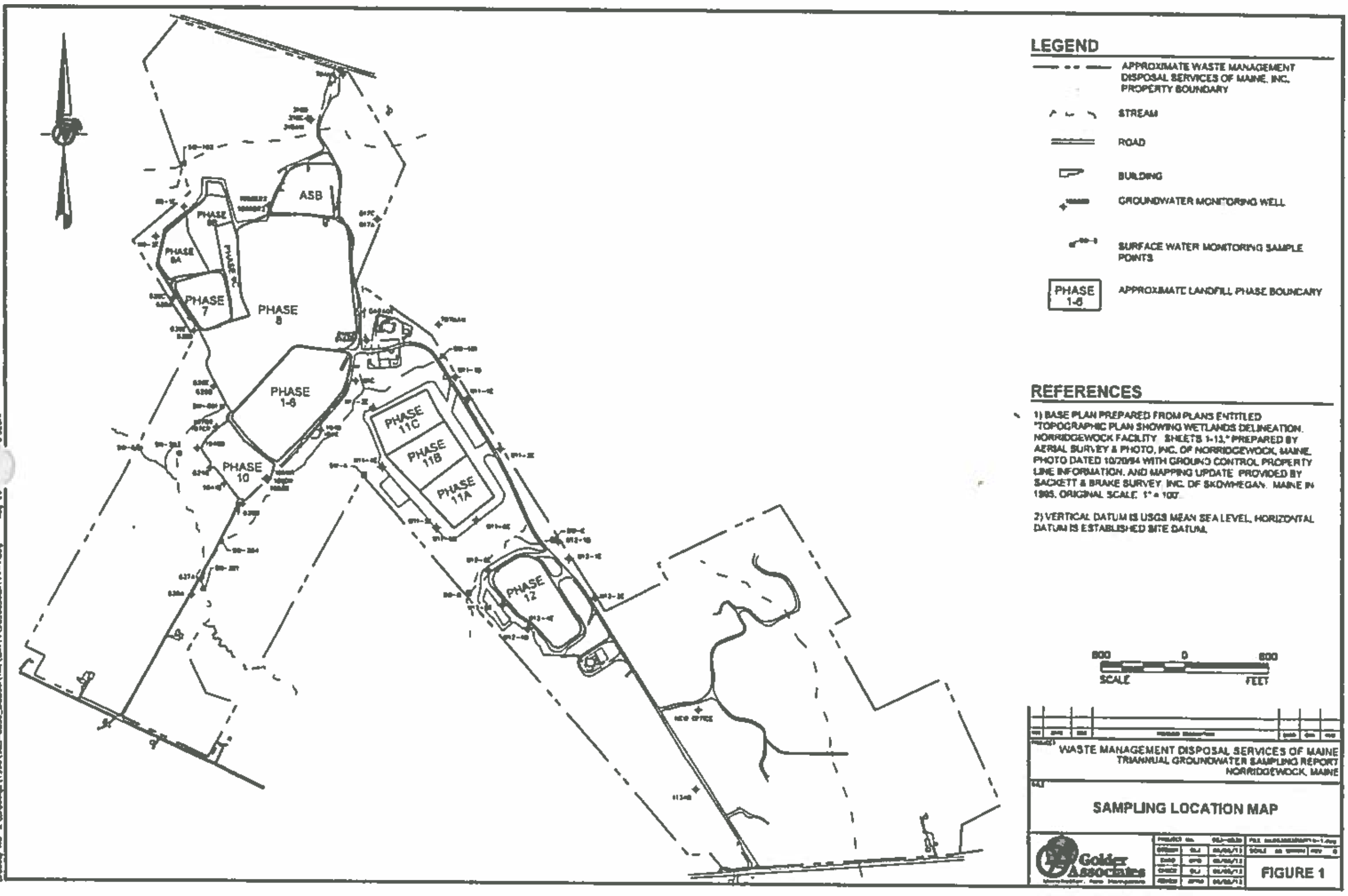
A statistical analysis report will be completed annually and presented in the First Tri-Annual Sampling Report. Time-series graphs with applicable protection standards will be presented for each well/parameter and the results of the prediction limit comparisons will be included.

SUMMARY

The Mann-Kendall trend test will be performed for all monitoring wells in the detection monitoring system. Interwell prediction limit analyses will be performed for the downgradient wells in Phases 11 and 12 in the Phreatic and Till monitoring units. Groundwater quality data from the upgradient wells in Phases 11 and 12 will be pooled to calculate the prediction limits. For VOCs, a confirmed detection at or above the PQL will be considered a statistically significant increase.

The statistical report will be incorporated into the First Tri-Annual Monitoring Report to put the results into temporal and spatial context, as well as incorporating them with other data analysis. The April 2017 monitoring results will be the first groundwater quality results to be evaluated in accordance with this program.

FIGURES



REFERENCES

1) BASE PLAN PREPARED FROM PLANS ENTITLED "TOPOGRAPHIC PLAN SHOWING WETLANDS DELINEATION, NORRIDGEWOCK FACILITY SHEETS 1-13," PREPARED BY AERIAL SURVEY & PHOTO, INC. OF NORRIDGEWOCK, MAINE, PHOTO DATED 10/20/94 WITH GROUND CONTROL PROPERTY LINE INFORMATION, AND MAPPING UPDATE PROVIDED BY SACKETT & BRAKE SURVEY, INC. OF SKOWHEGAN, MAINE IN 1995. ORIGINAL SCALE 1" = 100'.

2) VERTICAL DATUM IS USGS MEAN SEA LEVEL, HORIZONTAL DATUM IS ESTABLISHED SITE DATUM.

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE
TRIANNUAL GROUNDWATER SAMPLING REPORT
NORRIDGEWOCK, MAINE

SAMPLING LOCATION MAP

FIGURE 1

TABLES

TABLE 1. MONITORING SYSTEM SUMMARY
CROSSROADS LANDFILL

Monitoring Wells - Phases 1 through 10 **Statistical Method: Mann-Kendall Trend Analysis**					
Till Zone		**Bedrock Zone**		**Phreatic Zone**	
Upgradient	**Downgradient**	**Upgradient**	**Downgradient**	**Upgradient**	**Downgradient**
310C	1008BR2	310D	104D	310AW	1008ER2
	101C	617C	106DR	617A	106WR
	1040B		107CR		618AR
	1041B		1134B		620A
	104C		627A		629E
	106CR		628A		630E
	107BR				W9-1E
	618CR				W9-2E
	620C				
	624B				
	626B				
	629B				
	630B				
Monitoring Wells - Phases 11 and 12 **Statistical Method: Interwell Prediction Limits, Mann-Kendall Trend Analysis**					
Till Zone		**Bedrock Zone**		**Phreatic Zone**	
Upgradient	**Downgradient**	**Upgradient**	**Downgradient**	**Upgradient**	**Downgradient**
W11-1B	W11-5B	N/A	N/A	W11-1E	W11-3E
W12-1B	W12-4B			W11-2E	W11-4E
				W12-1E	W11-5E
				W12-2E	W11-6E
					W12-3E
					W12-4E
					W12-5E

TABLE 2. STATISTICAL PARAMETER AND METHOD SUMMARY
CROSSROADS LANDFILL

Constituent	Mann-Kendall Trend Analysis	Interwell Prediction Limits	Detections at or Above PQL
Alkalinity	X	X	
Aluminum	X		
Ammonia	X		
Arsenic	X	X	
Barium	X		
Calcium	X	X	
Chloride	X	X	
Chromium	X		
Copper	X		
Dissolved Oxygen	X	X	
Iron	X	X	
Magnesium	X	X	
Manganese	X	X	
Nitrogen, nitrate	X	X	
ORP	X		
pH	X	X	
Potassium	X	X	
Sodium	X	X	
Specific Conductance	X	X	
Sulfate	X	X	
Total Dissolved Solids	X	X	
Total Organic Carbon	X	X	
Vanadium	X		
Zinc	X		
VOCs			X