

**TOWN OF HARTLAND
SECURE SLUDGE LANDFILL
WASTE MANAGEMENT PLAN UPDATE**

Prepared for:

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1.0 INTRODUCTION

As required by Chapter 405 of the State of Maine Solid Waste Rules (SWMRs), the Town of Hartland (the "Town") has developed this Waste Sampling Plan to identify methods for characterization and analysis of the types of waste authorized for disposal at the Hartland Secure Sludge Landfill ("Landfill").

1.1 Accepted Waste Streams

Prior to 2016, the waste streams permitted for disposal at the Landfill were: sewage sludge from the Hartland wastewater treatment plant (WWTP), sludge from WWTPs in other municipalities, and Irving Tannery pre-treatment and leather waste. In September 2016, the MEDEP issued Solid Waste License #S-003463-WU-Q-N, which outlined provisions for the acceptance of these and additional waste streams, as follows:

Hartland WWTP Sewage Sludge

The Landfill is permitted to accept WWTP sludge from the Hartland WWTP. The Town of Hartland historically completed initial characterization of waste generated at their wastewater treatment plant (WWTP) and has annually sampled the sludge in accordance with an October 8, 1986 Board Order. Due to elevated chromium levels detected in the WWTP sludge in 2012 and 2013, the Town conducted an MEDEP-approved evaluation of the causes and concluded that it was related to changes in pre-treatment process which occurred at the Tannery. Changes were made to the tannery pre-treatment process, and chromium results have since been below the required thresholds. No additional or future changes to the pre-treatment process at the Tannery or WWTP are anticipated. With the exception of the elevated chromium results in 2012 and 2013, chemical results have remained consistent and within acceptable levels for disposal in their landfill over the history of sludge sampling and analysis conducted. As allowed under Chapter 405.6.C(5)(b), because the Town of Hartland owns both the Landfill and the Hartland WWTP, they are not required to perform further waste characterization of this waste stream unless changes to the pre-treatment or treatment process have taken place.

Sewage Sludge from Other Municipalities' WWTPs

The landfill is permitted to accept sewage sludge from other municipalities. Prior to accepting WWTP sludge from any other municipalities, the Town shall characterize the waste in accordance with this Waste Management Plan to confirm that it is acceptable. Prior to the disposal of WWTP sludge from other municipalities, the Town will notify the MEDEP and provide information which includes: sludge characterization data (as required by 06-096 CMR 405.6(C)(5)); an estimate of the quantity of sludge to be disposed; and any pertinent changes to the O&M Manual and/or Cell Development Plan, as needed to handle the waste.

Tannery Pre-Treatment Waste

Pre-treatment waste from the Irving Tannery is acceptable for disposal in the Landfill. This material may include grease, hair, paint chips and blue hide scraps. Pre-treatment waste shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Leather Waste

Leather waste generated at the Irving Tannery is acceptable for disposal in the Landfill. This material may include blue hide scraps, blue hide trim stock, blue hide shavings, and blue hide buffing dust. Leather wastes shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Paper Mill Sludge

Paper mill sludge is generally defined as the non-hazardous waste generated from paper mill wastewater treatment plant. Currently, there are no entities proposing to dispose of paper mill sludge at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Short Paper Fiber

Short paper fiber is derived from pulp and paper manufacturing and consists primarily of wood fibers that are too short to bond in the paper-making process. Currently, there are no entities proposing to dispose of short paper fiber at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Ash

06-096 C.M.R. Chapter 400, § 1(N) defines ash as the residue or the residual remaining after the combustion of materials such as coal, wood, oil, sludge or municipal solid waste. The Phase II and Phase III areas of the Landfill meet the current design standards outlined in SWMR, Chapter 401. As such, ash meeting the waste characterization criteria is acceptable for disposal at the Landfill. Currently, there are no entities proposing to dispose of ash at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Construction and Demolition Debris (CDD)

The Phases II and Phase III areas of the Landfill meet the current design standards outlined in SWMR, Chapter 401; as such CDD is acceptable for disposal at the Landfill, provided that it contains no gypsum wallboard, contains no gypsum wallboard fines/residues, and that the material is pre-ground prior to acceptance. As outlined in the Landfill Solid Waste License #S-003463-WU-Q-N, the MEDEP notes that the definition of CDD as specified in 06-096 C.M.R. Chapter 400, § 1(FF) is broad, and that it may contain gypsum wallboard and gypsum fines/residues that when placed within a landfill may negatively impact landfill gas quantity and quality. The CDD must contain no fines prior to acceptance at the Landfill. Currently, there are no entities proposing to dispose of CDD at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Non-Hazardous Contaminated Soils

The Secure Sludge Landfill is permitted to accept non-hazardous contaminated soils from MEDEP-supervised remedial activities. The Secure Sludge Landfill is also permitted to accept non-hazardous contaminated snow and ice from MEDEP-supervised remedial activities. Currently, there are no entities proposing to dispose of non-hazardous contaminated soils at the Landfill; however, prior to either of these wastes being disposed onsite, they shall be characterized and found to be acceptable in accordance with this Waste Management Plan.

Non-Friable Asbestos Containing Materials

The Landfill is permitted to accept non-friable asbestos containing materials. The Asbestos Management Rules, 06-096 C.M.R. Chapter 425, § 1(Z) (amended February 2011) define asbestos-containing material as any material containing asbestos in quantities greater than or equal to 1 percent by volume as determined by weight, visual evaluation, and/or point count analysis. Further, Non-friable asbestos is any material that contains more than one percent asbestos, but cannot be pulverized under hand pressure. . Prior to these wastes being disposed onsite, they shall be characterized and found acceptable in accordance with this Waste Management Plan.

Backwash Filtrate from Drinking Water Treatment Plants

Backwash filtrate from drinking water treatment plants refers to particulates that are removed during maintenance of a filter media used for potable drinking water treatment. This material is acceptable for disposal at the Landfill. Currently, there are no entities proposing to dispose of backwash filtrate at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found acceptable in accordance with this Waste Management Plan.

Dredge Materials

06-096 C.M.R. Chapter 400, § 1(RR) defines dredge materials as sand, silt, mud, gravel, rock or other sediment or material removed from beneath any surface water. The Phase II and Phase III areas of the Landfill meet the current design standards outlined in SWMR, Chapter 401; as such, dredge materials are acceptable for disposal at the Landfill. Currently, there are no entities proposing to dispose of this material at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found acceptable in accordance with this Waste Management Plan.

Wood Waste

06-096 C.M.R. Chapter 400, § 1(LLII) defines wood wastes as brush; stumps; lumber; bark; wood chips; shavings; slabs; edgings; slash; sawdust; wood from production rejects; and wood pallets that are not pressure treated or visibly contaminated, and from which fasteners have been removed; that are not mixed with other solid or liquid waste. The Phase II and Phase III areas of the Landfill meet the current design standards outlined in SWMR, Chapter 401; as such, wood waste is acceptable for disposal at the Landfill. The Town anticipates that this material would be applied as cover material. Prior to these wastes being disposed onsite, they shall be characterized and found acceptable in accordance with this Waste Management Plan.

Shredder Residue

06-096 C.M.R. Chapter 400, § 1(Bbb) defines shredder residue as waste generated from the shredding of automobiles, white goods, and other scrap machinery. The Phase II and Phase III areas of the Landfill meet the current design standards outlined in SWMR, Chapter 401; as such, shredder residue is acceptable for disposal at the Landfill. Currently, there are no entities proposing to dispose of shredder residue at the Landfill; however, prior to these wastes being disposed onsite, they shall be characterized and found acceptable in accordance with this Waste Management Plan.

2.0 WASTE CHARACTERIZATION

2.1 Initial Characterization of Wastes

Prior to accepting waste streams, the wastes must be analyzed to ensure that they are not classified as a hazardous waste. The Waste Generator will be responsible to ensure that representative samples are collected and analyzed for the correct parameters by a certified laboratory prior to disposing of the respective waste in the Landfill. Depending on the waste type, the landfill attendant shall provide the generator with a list of laboratory parameters to be analyzed and analysis methods to be utilized. The analysis results shall then be provided to the landfill attendant a minimum of one week prior to the anticipated first day of disposal. The results will then be reviewed and compared to the thresholds in this report to ensure the waste is acceptable for disposal in the landfill. When the waste is approved for disposal, the attendant shall notify the Waste Generator. All laboratory results shall be maintained at the Landfill, which will be provided to MEDEP annually in the solid waste annual report.

2.2 Ongoing Characterization of Waste

Ongoing characterization for the waste accepted at the Hartland landfill shall be conducted by the Waste Generator. The Waste Generator will be responsible to ensure representative samples are collected at the necessary frequency and analyzed for the correct parameters by a certified laboratory. The landfill attendant shall provide the generator with a list of laboratory parameters to be analyzed and analysis methods to be utilized. The analysis results shall then be provided to the landfill attendant. The results will then be reviewed and compared to the thresholds listed in this report to ensure the waste is acceptable for ongoing disposal in the landfill. The landfill attendant shall be responsible to track ongoing analysis frequencies and shall notify the generator prior to a scheduled analysis. If the analysis result is not submitted to the attendant before the scheduled analysis submittal date, the Town shall not accept the waste until the analysis is submitted. All laboratory results shall be maintained at the Landfill, which will be provided to MEDEP annually in the solid waste annual report.

2.3 Analytical Parameters and Sampling Frequency

Waste streams which are permitted for disposal at the Landfill shall be analyzed and characterized in accordance with Chapter 405, as follows.

Waste Stream	Analytical Parameter	Frequency
Hartland WWTP Sewage Sludge	Exempt from further characterization unless changes to the pre-treatment or treatment process occur	
WWTP and Paper Mill Sewage Sludge	<ul style="list-style-type: none"> • Complete TCLP, as listed in Section 4.4 (USEPA Method 1311, Federal Register/Volume 55, No. 126, 1992); • For beneficial use only: total arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc (USEPA Method SW-846); and • Sulfide Reactivity 	<p>Prior to initial acceptance; and</p> <p>Annually, or one sample per 500 tons of material disposed, whichever is more frequent</p>
Ash ⁽¹⁾	<ul style="list-style-type: none"> • TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) (USEPA Method 1311, Federal Register/Volume 55, No. 126, 1992); 	<p>Prior to acceptance; and</p> <p>Annually for those sources that generate less than 10 tons annually; semi-annually for those</p>

Waste Stream	Analytical Parameter	Frequency
	<ul style="list-style-type: none"> Total Vanadium (USEPA Method SW-846); and Chloride, percent carbon, percent moisture, pH, phosphorus. 	sources which generate 10 to 25 tons annually; and quarterly for those sources that generate greater than 25 tons annually.
Tannery pre-treatment waste, Leather waste, Short paper fiber, Backwash filtrate from drinking water treatment plants, Dredge materials, Wood waste, and Shredder residue	<ul style="list-style-type: none"> Complete TCLP, as listed in Section 4.4 (USEPA Method 1311, Federal Register/Volume 55, No. 126, 1992); Total aluminum, arsenic, barium, boron, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, and zinc (Method USEPA SW-846); Chloride, percent carbon, percent moisture, pH, phosphorus; Reactivity Characteristics; and Ignitability. 	Prior to initial acceptance; One sample per 250 tons of material disposed
Non-Hazardous Contaminated Soils/Snow/Ice	<ul style="list-style-type: none"> Material impacted by virgin petroleum contamination (no MEDEP certificate): TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) Material impacted by virgin petroleum contamination (with MEDEP certificate): no analytical testing required Material impacted by gasoline underground storage tanks (USTs): TCLP lead Material impacted by aboveground gasoline oil storage tank facilities: TCLP lead and benzene 	One sample per source or one sample per 500 tons, whichever is more frequent
	<ul style="list-style-type: none"> Material impacted by waste oil contamination/USTs: TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver); herbicides/pesticides; Polychlorinated Biphenyls (PCBs); Corrosivity (as pH); Reactivity; and Total Organic Halogens (TOX). Material impacted by aboveground waste oil storage tanks: TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver); herbicides/pesticides; Polychlorinated Biphenyls (PCBs); Corrosivity (as pH); Reactivity; Total Organic Halogens (TOX); and TCLP for volatiles and semi-volatile organic compounds. 	One sample per source or one sample per 250 tons, whichever is more frequent

(1) These provisions do not apply to municipal solid waste incinerator ash. If this waste stream is proposed, modifications to this Waste Management Plan must occur.

2.3.1 Construction and Demolition Debris (CDD)

Samples for physical and chemical characterization shall be obtained by randomly taking a minimum of 20 or more sub-samples sufficient to make up a composite sample of 15 gallons. Mix the composite sample to a homogeneous state using the quartering method as follows:

- (i) Mix the 15 gallon sample with shovels on a smooth, clean surface with an area large enough to handle the initial sample size (about 8 feet by 8 feet), indoors at room temperature;
- (ii) Shape the sample into a conical pile and quarter;
- (iii) Collect the opposing quarters (about 7.5 gallons) , pulverize, blend and submit for chemical analysis for total lead and arsenic;
- (iv) Combine the two remaining quarters and repeat the mixing and quartering;
- (v) Collect the two opposing quarters (about 4 gallons) and air dry the sample for a minimum of 24 hours. Submit for physical analysis;
- (vi) Retain the remaining quarters for additional analysis, if needed.

Physical analysis shall be performed as follows:

- (i) The moisture content of the sample should be approximately at equilibrium with the testing environment to prevent weight changes due to drying during analysis. Spread the sample in the testing environment on a flat surface to approximately 3 inches in thickness. Let sample sit for a minimum of 24 hours to equilibrate;
- (ii) After weighing and recording the weight of the sample, run the entire sample through a 3 inch sieve. Collect materials that are over 3 inches in size and determine the percent by weight of the sample. Run the materials that are less than 3 inches in size through a #4 sieve, which has a square opening size of 0.187 inches. Collect the fine materials that pass through the #4 sieve and determine the percent by weight of the sample. Save the fine materials that did not pass through the #4 sieve for the physical separation step. Report gradation results as a percent by weight of the total sample for: 3 inch plus; and fines (#4 minus).
- (iii) Take the material that did not pass the #4 sieve and separate manually into the following components: Plastics (including carpet, PVC and plastic coated wire); Treated wood, including painted treated wood; Painted wood; Non-combustible materials (exclusive of rocks, brick and concrete); and Combustible materials. Weigh each component and determine the percent by weight of the total sample for each;
- (iv) Determine the non-combustible (ash) weight of the fine materials by burning off the organic component of the fines in a high temperature furnace and weighing the resultant ash. Combine the weight of the ash with the weight of the non- combustible materials collected through visual examination and divide by the total sample weight.
- (v) Complete a report narrative, clearly identifying the sample that was analyzed, describing the analytical procedures used and provide the following data results as the percent of total sample by weight: 3 inch plus; Fines (#4minus); Plastics (including carpet, PVC and plastic coated wire); Treated wood; Painted wood; Non-combustible materials (exclusive of rocks, brick and concrete); Non-combustible content (ash fines and non-combustible materials); and Combustible materials.

2.3.2 Non-Friable Asbestos Containing Materials

No waste characterization analytical testing is required; however, the landfill attendant shall confirm upon delivery that all asbestos containing materials delivered to the landfill are non-friable (i.e. not able to be pulverized under hand pressure).

3.0 SAMPLING PROCEDURES

As stated previously, the Waste Generator will be responsible to ensure representative samples are collected and analyzed by a certified laboratory. Sample analytical results will be provided to the Landfill for review and approval.

4.0 ACCEPTANCE CRITERIA

Only non-hazardous materials, as defined in MEDEP Chapter 850: Identification of Hazardous Wastes, shall be accepted at the Landfill.

4.1 Ignitability

A waste is considered “ignitable” and therefore characterized as a hazardous waste and prohibited from disposal at the Landfill if:

- 1) It has a flash point less than 60° C (140° F);
- 2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard;
- 3) It is an ignitable compressed gas as defined in 49 CFR 173.300; or
- 4) It is an oxidizer as defined in 49 CFR 173.151.

4.2 Corrosivity (pH)

A waste is considered “corrosive” and therefore characterized as a hazardous waste and prohibited from disposal at the Landfill if

- 1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5; or
- 2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55° C (130° F).

4.3 Reactivity

A waste exhibits the characteristic of reactivity and therefore characterized as a hazardous waste and prohibited from disposal at the Landfill if:

- 1) It is normally unstable and readily undergoes violent change without detonating;
- 2) It reacts violently with water;
- 3) It forms potentially explosive mixtures with water;
- 4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;
- 5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;
- 6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;
- 7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or
- 8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

4.4 Toxicity

A waste exhibits the characteristic of toxicity and therefore characterized as a hazardous waste and prohibited from disposal at the Landfill if the analytical results exceed the values in the following table.

Maximum Concentration of Contaminants		
EPA Hazardous Waste No.	Contaminant	TCLP Regulatory Level (mg/L)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D007	Chromium	5.0
D016	2,4-Dichlorophenoxyacetic acid	10.0
D012	Endrin	0.02
D008	Lead	5.0
D013	Lindane	0.4
D009	Mercury	0.2
D014	Methoxychlor	10.0
D010	Selenium	1.0
D011	Silver	5.0
D015	Toxaphene	0.5
D017	2,4,5-TP (Silvex)	1.0

4.5 Additional Acceptance Criteria

4.5.1 Polychlorinated Biphenyls (PCBs)

Any chemical substances or combination of substances that contain *any* concentration of PCBs (as analyzed by USEPA Method 8081 with a minimum method detection limit of 0.01 mg/kg), are prohibited from disposal at the Landfill.

4.5.2 Additional Acceptance Criteria

Analytical Parameter	Acceptance Criteria	
	TCLP Concentrations (mg/L)	Total Concentrations (mg/kg)
TCLP Volatile Organics (VOC)		
Benzene	0.5	10
Chloroform	6	120
2-Butanone (MEK)	200	4,000
Vinyl Chloride	0.2	4
Carbon Tetrachloride	0.5	10
1,2-dichloroethane	0.5	10
Tetrachloroethylene	0.7	14

Chlorobenzene	100	2,000
1,1-dichloroethylene	0.7	14
Trichloroethane	0.5	10
TOX (Sum of all VOCs) ⁽¹⁾	-	1,000 mg/kg
TCLP Semi-Volatile Organics	TCLP Concentrations (mg/L)	Total Concentrations (mg/kg)
Cresol	200	4,000
P-Cresol	200	4,000
Hexachlorobenzene	0.13	2.6
Nitrobenzene	2	40
2,4,5-Trichlorophenol	400	8,000
M-Cresol	200	4,000
1,4-dichlorbenzene	7.5	150
Hexachloro-1,3-dutadiene	0.5	10
Pentachlorophenol	100	2,000
2,4,6-Trichlorophenol	2	40
O-Cresol	200	4,000
2,4-dinitrotoluene	0.13	2.6
Hexachloroethane	3	60
Pyridine	5	100
TCLP Pesticides	TCLP Concentrations (mg/L)	Total Concentrations (mg/kg)
Chlordane	0.03	0.6
Methoxychlor	10	200
Endrin	0.02	1.4
Toxaphene	0.5	10
Heptachlor	0.008	0.16
Heptachlor Epoxide	0.008	0.16
Lindane	0.4	8
TCLP Herbicides	TCLP Concentrations (mg/L)	Total Concentrations (mg/kg)
2,4-Dichlorophenoxyacetic acid	10	200
2,4,5-TP (Silvex)	10	200
Other	TCLP Concentrations (mg/L)	Total Concentrations (mg/kg)
Sulfide Reactivity	25	500
Cyanide Reactivity	-	250

(1) If TOX exceeds 1000 mg/kg, the waste may still be accepted if the following compounds are not detected above 100 mg/kg: Tetrachloroethylene; Trichlorofluoromethane; Trichloroethylene; Methylene Chloride; 1,1,2 – Trichloroethane; Ortho-Dichlorobenzene; Carbon Tetrachloride; Chlorinated Fluorocarbons; 1,1,2 – Trichloroethane; or 1,2,2 – Trifluoroethane.