The City of WORCESTER

Administration & Finance – Purchasing Division
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June 14, 2023

To All Bidders:

Subject: **Bid No. CR-8041-W4, Sampling Services (Sewer Ops) / DPWP**

ADDENDUM NO. 1

To Whom It May Concern:

With reference to our bid request relative to the above subject, please refer to the changes/modifications/clarifications to the original proposal request.

- PLEASE FIND ATTACHED ENVIRONMENTAL REGULATIONS RELATIVE TO THIS BID INVITATION

Bidders are requested to acknowledge and/or include this addendum with submission. All other terms, conditions and specifications remain unchanged.

Very truly yours,

Christopher J. Gagliastro
Purchasing Director

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the federal Clean Water Act, as amended, 33 U.S.C. §§1251 et seq., and the Massachusetts Clean Waters Act, as amended, Massachusetts General Laws ch. 21, §§26-53, the

City of Worcester
Department of Public Works

is authorized to discharge from:

Quinsigamond Avenue Combined Sewer Overflow
Storage and Treatment Facility (QCSOSTF)

to receiving waters named:

Mill Brook storm drain to the Blackstone River (HUC 01090003)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective sixty (60) days after the date of signature.

This permit and the authorization to discharge expire at midnight, five years from the effective date.

This permit supercedes the permit issued on November 8, 1990.

This permit consists of 9 pages and **Attachments A and B** in Part I and 35 pages in Part II including General Conditions and Definitions.

Signed this 2nd day of June, 2005

Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

Part I. Effluent Limitations

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number **001,** partially treated CSO discharges to the Mill Brook storm drain to the Blackstone River. Dry weather discharges are not authorized by this permit. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS			MONITORING REQUIREMENTS	
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE[1]
FLOW	********	********	350 MGD	CONTINUOUS	RECORDER[2]
TSS[3]	**********	Report mg/l	Report mg/l	1/DISCHARGE[4]	COMPOSITE[4]
BOD[3]	**********	Report mg/l	Report mg/l	1/DISCHARGE[4]	COMPOSITE[4]
pH RANGE[5]	6.5 - 8.3 s.u. - See Permit Page 4, Part I.A.1.b.			1/DISCHARGE	GRAB
TOTAL CHLORINE RESIDUAL[5,6,7]	Report ug/l	********	72 ug/l	1/HOUR	GRAB
FECAL COLIFORM[5,6]	200 cfu per 100ml	********	400 cfu per 100 ml	1/HOUR	GRAB
PHOSPHORUS, TOTAL	Report mg/l	********	Report mg/l	2/YEAR	COMPOSITE[4]
PHOSPHORUS, ORTHO	Report mg/l	********	Report mg/l	2/YEAR	COMPOSITE[4]
TOTAL KJELDAHL NITROGEN	Report mg/l	********	Report mg/l	2/YEAR	COMPOSITE[4]
NITRATE & NITRITE NITROGEN	Report mg/l	********	Report mg/l	2/YEAR	COMPOSITE[4]
RAINFALL/PRECIPITATION	Report National Weather Service Data for the City of Worcester			1/DISCHARGE	TOTAL
WHOLE EFFLUENT TOXICITY SEE FOOTNOTES 8, 9 and 10	Acute - Monitor Only			4/YEAR	COMPOSITE[4,8]

ootnotes:

1. All required effluent samples, shall be collected at the outlet of the detention tank and prior to discharge through the effluent gates. Any change in sampling location must be reviewed and approved in writing by EPA and MADEP. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.

2. For flow, report the total volume of each discharge and the duration of each discharge to the closest fifteen (15) minutes. Consistent with and upon completion of the portions of the compliance schedule set forth in Part I.E. of the permit, **the average number of treated overflows from this facility will be limited to 4 per year or less beginning in 2007 and to 2 per year or less beginning in 2010.** If the permittee is unable to fully implement any of the LTCP measures as a result of actions by the Upper Blackstone Water Pollution Abatement District (UBWPAD), the permittee shall contact EPA within thirty (30) days of this determination in order to determine alternative control measures necessary to achieve similar water quality benefits. Alternative control measures, including an appropriate schedule, will be incorporated in a modified permit or an administrative order.

3. Sampling required for influent and effluent.

4. For these composite samples, sampling must be conducted at least hourly for the duration of each discharge. The first influent sample should be collected immediately upon the opening of the influent gates and the first effluent sample should be collected immediately upon the opening of the effluent gates.

5. Required for State Certification.

6. Fecal coliform and total residual chlorine monitoring will be conducted year round. This is also a State certification requirement. Fecal coliform discharges shall not exceed a monthly geometric mean of 200 colony forming units (cfu) per 100 ml, nor shall they exceed 400 cfu per 100 ml as a daily maximum. This monitoring shall be conducted concurrently with the TRC sampling described below. For both parameters, grab samples shall be analyzed individually. The first grab sample for both parameters shall be collected immediately upon the opening of the effluent gates and then hourly for as long as there is a discharge. The individual sampling results shall be submitted with each discharge monitoring report (DMR).

7. The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G, or USEPA Manual of Methods of Analysis of Water and Wastes, Method 330.5. One of these methods must be used to determine total residual chlorine. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

8. The permittee shall conduct acute toxicity tests four times per year. The permittee shall test the daphnid, Ceriodaphnia dubia. Toxicity test samples shall be collected during the months of January, April, July and October. If there are no flows during the sampling month, the permittee may collect the samples during the next month that there is discharge flow. The test results shall be submitted no later than the last day of each calendar quarter. The results are due March 31st, June 30th, September 30th and December 31st, respectively, provided that sampling occurred during that quarter. The tests must be performed in accordance with test procedures and protocols specified in Attachment A of this permit, with the exception that composite samples of less than 24 hours may be used, since discharge durations vary.

art I.A.1. (Continued)

9. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms.

10. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A, Section IV., DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required **in Attachment A**, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

a. The discharge shall not cause a violation of State or Federal water quality standards of the receiving waters.

b. The pH of the effluent shall not be less than 6.5 nor greater than 8.3 at any time, unless these values are exceeded as a result of an approved treatment process.

c. The discharge shall not cause objectionable discoloration of the receiving waters.

d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

e. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Screening, detention and chlorination shall be provided for CSO discharges resulting from all storms.

f. The results of sampling for any parameter above its required frequency must also be reported.

g. Dry weather discharges are not authorized.

2. During wet weather, the permittee is authorized to discharge combined storm water and wastewater from the combined sewer outfall listed in the permit, subject to the following effluent limitations.

a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgement (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control include the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.B. NMCs and Part I.C. Minimum Implementation Levels, of this permit. Implementation of these controls is required by the effective date of the permit. See Attachment B for NMC documentation and implementation guidance.

i. Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows.

ii. Maximum use of the collection system for storage.

iii. Review and modification of the pretreatment program to assure CSO impacts are minimized.

iv. Maximization of flow to the POTW for treatment.

v. Prohibition of dry weather overflows from CSOs.

vi. Control of solid and floatable materials in CSO.

vii. Pollution prevention programs that focus on contaminant reduction activities.

viii. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

ix. Monitoring to effectively characterize CSO and the efficacy of CSO controls.

. Nine Minimum Controls, Minimum Implementation Levels

The permittee is implementing the nine minimum controls (NMC) in accordance with the documentation submitted on May 25, 2001. EPA approved this submittal on 10/26/01. The permittee must evaluate, in its annual report (see Part D. below) any modifications to the approved program which enhance its effectiveness and can be reasonably implemented during the upcoming year. The proposed level of control must always meet or exceed the Minimum Implementation Levels described in Part I.C.

. Minimum Implementation Levels

1. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that it is in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging. (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of the inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three years.

   Annually, no later than **April 30th**, the permittee shall submit a certification to the State and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained. This certification should be submitted with the Annual Report described in Section D.

2. Discharges to the combined system of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable materials are prohibited during wet weather when CSO discharges may be active. (NMC# 3,6, and 7).

3. Dry weather overflows (DWOs) are prohibited (NMC# 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and the State within 24 hours in accordance with the reporting requirements for plant bypass (See Part I.F. Unauthorized Discharges and Part II.D.1.e. of this permit).

4. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC# 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts, i.e. gaging, measurements, to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

   - Estimated duration (hours) of discharge;
   - Estimated or measured volume (gallons) of discharge; and
   - National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation data at minimum of one-hour intervals is available to the permittee. Cumulative precipitation per discharge event shall be provided;
   - A description of whether the discharge activation and volume are in accordance with the LTCP.

   The permittee shall maintain all records of discharges for at least eight (8) years after the expiration date of this permit.

5. The permittee shall maintain identification signs for all combined sewer outfall structures (NMC# 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public from the land and water. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

WARNING:*
CITY OF WORCESTER
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

* For existing signs which otherwise meet the requirements of this section, the word "Warning" need not be added.

Where easements over property not owned by the permittee must be obtained to meet this requirement, the permittee will use its best efforts to identify the appropriate landowners and to obtain the necessary easements.

The permittee, to the extent feasible, will add a universal symbol to their warning signs reflecting a CSO discharge, or will place additional signs in languages other than English based on notification from the EPA and the State or on the permittee's own good faith determinations that the primary language of a substantial percentage of the residents in the vicinity of a given outfall structure is not English.

D. Annual Report

By April 30th of each year, the permittee shall submit a report which includes the following information;

1. Activation frequency and discharge volume for each CSO during the previous calendar year.

2. Precipitation during the previous year for each day, including total rainfall, peak intensity, and average intensity.

3. Status of the implementation of the Phase II CSO Long Term Control Plan's Recommended Plan (RP) as set forth in Part I.E.

4. For each CSO listed in the permit, provide the following information in the Annual Report for years 3 and 5:

   a. A comparison between the precipitation for the previous year and the precipitation in the typical year under future planned conditions used in the LTCP. The comparison shall include the number of events and size of events (including recurrence interval).

   b. A comparison, for each CSO, between the activation volume and frequency for the previous year and the volume and frequency expected during a typical year under future planned conditions.

   c. An evaluation of whether the CSO activation volume and frequency for the previous year is in accordance with the projections in the LTCP, given the precipitation which occurred during the year and the CSO abatement activities which have been implemented. Where CSO discharges are determined to be greater than the activation frequency or volume in the LTCP, the permittee shall include a discussion of remaining CSO abatement activities and an assessment of the impact of those projects on attaining the level of CSO control identified in the LTCP.

5. A summary of modifications to the approved NMC program which have been evaluated and a description of those which will be implemented during the upcoming year. In the first annual report submitted in accordance with this permit, the permittee shall submit a public notification plan to describe the measures actively being taken to meet NMC #9, and an evaluation of further measures to enhance the public notification program, including use of web postings with CSO information. (see NMC #9 in Part I A.1.a.viii)

C. Compliance Schedule

The following compliance schedule includes compliance dates which relate to the improvements that the permittee will be undertaking consistent with its recommended plan (RP). These improvements are detailed in the report entitled,

Phase II CSO Long Term Control Plan Report" that was submitted to EPA in February of 2004. All elements of each improvement, as described in the RP (Section 4) of this report, shall be completed.

1. The City shall complete the weir modifications at the four (4) proposed locations within thirty (30) days after the effective date of the permit.

2. The City shall complete the Green Hill Pond Diversion project by **September 30, 2005**.

3. The City shall complete the design associated with the Kelly Square Rehabilitation project by **November 30, 2005**.

4. The City shall complete the Kelly Square Rehabilitation project by **June 30, 2006**. The possible existence of live service connections in the proximity of the portion of the Old Mill Brook to be utilized for in-line storage may require extensive new sanitary sewer construction. If this were to occur, the timeline for completion of the Kelly Square Project could potentially be delayed and EPA and MADEP will consider the negotiation of a later completion date at such time.

5. The City shall complete the design associated with the Installation of Submersible Pumps at the QCSOSTF by **June 1, 2008**.

6. The City shall complete the Installation of Submersible Pumps at the QCSOSTF by **June 1, 2010**.

F. Unauthorized Discharges

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit from those outfalls listed in the permit. Discharges of wastewater from any other point sources are prohibited. The permittee must provide twenty four hour reporting of unauthorized discharges (see section D.1.e. of Part II of the permit) for all dry weather overflows from the combined system.

G. Notice of Elimination

The permittee shall give notice of elimination or change in status of any outfall listed in the permit as soon as possible in writing to the Director of the Office of Ecosystem Protection at EPA and to the Director of the Division of Watershed Management at the MA DEP.

H. Certification and Signature of Reports

All reports required by the permit and other information requested by the Director shall be signed and certified in accordance with section D.2. of Part II of this permit.

I. Report Submission

1. Signed and dated originals of all notifications and reports required herein, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, MA 02114

2. Signed copies of all notifications and reports shall be submitted to the State at:

Massachusetts Department of Environmental Protection
Central Regional Office
Bureau of Waste Prevention
627 Main Street
Worcester, MA 01608

Massachusetts Department of Environmental Protection
1 Winter Street
Boston, MA 02108
Attn: Mr. Kevin Brander

and

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, MA 01608

I. Retention of Records

The permittee shall retain all records of all monitoring information, copies of all reports required by this permit and records of all other data required by or used to demonstrate compliance with this permit, until at least three years after coverage under this permit terminates. This period may be modified by alternative provisions of this permit or extended by request of the Director at any time.

K. State Permit Conditions

1. This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts DEP pursuant to M.G.L. Chap. 21, §43.

2. Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of Federal law, this Permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.

ATTACHMENT A

FRESHWATER ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

Methods should follow those recommended by EPA in:

Weber, C.I. et al. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH. August 1993, EPA/600/4-90/027F. Any exceptions are stated herein.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. A thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) should also be run.

All samples held overnight shall be refrigerated at 4°C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point upstream of the discharge free from toxicity or other sources of contamination. Avoid collecting near areas of obvious road or agricultural runoff, storm sewers or other point source discharges. An additional control (0% effluent) of a standard laboratory water of known quality shall also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency-New England
JFK Federal Building (CAA)
Boston, MA 02203

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND RECOMMENDED EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (°C)	20 ± 1° C or 25 ± 1°C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 25 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	Feed YCT and Selenastrum while holding organisms prior to initiating test as per manual.
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic soft water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^R or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution factor	≥ 0.5

15.	Number of dilutions[3]	5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA/600/4-90/027F.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.
3. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (°C):	20 ± 1 ° C or 25 ± 1°C
3.	Light quality:	Ambient laboratory illumination
4.	Photoperiod:	16 hr light, 8 hr dark
5.	Size of test vessels:	250 mL minimum
6.	Volume of test solution:	Minimum 200 mL/replicate
7.	Age of fish:	1-14 days old and age within 24 hrs of the others
8.	No. of fish per chamber	10 (not to exceed loading limits)
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration:	40
11.	Feeding regime:	Light feeding using concentrated brine shrimp nauplii while holding prior to initiating the test as per manual
12.	Aeration:	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)

13. dilution water:[2]	Receiving water, other surface water, synthetic soft water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^R or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14. Dilution factor	$\geq$ 0.5
15. Number of dilutions[3]	5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16. Effect measured	Mortality-no movement on gentle prodding
17. Test acceptability	90% or greater survival of test organisms in control solution
18. Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19. Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-600/4-90/027F.
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.
3. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals. It is also recommended that total alkalinity and total hardness be measured in the control and highest effluent concentration at the beginning of the test. The following chemical analyses shall be performed for each sampling event.

Parameter	Effluent	Diluent	Minimum Quantification Level (mg/L)
Hardness[*1]	x	x	0.5
Alkalinity	x	x	2.0
pH	x	x	---
Specific Conductance	x	x	---
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Residual Chlorine (TRC)[*2]	x	x	0.05
Dissolved Oxygen	x	x	1.0
Total Metals			
Cd	x		0.001
Cr	x		0.005
Pb	x	x	0.005
Cu	x	x	0.0025
Zn	x	x	0.0025
Ni	x	x	0.004
Al	x	x	0.02
Mg, Ca	x	x	0.05

Superscripts:

[*1] Method 2340 B (hardness by calculation) from APHA (1992) Standard Methods for the Examination of Water and Wastewater. 18th Edition.

[*2] Total Residual Chlorine

Either of the following methods the 18th Edition of the APHA Standard Methods for the Examination of Water and Wastewater must be used for these analyses.
-Method 4500-CL E Low Level Amperometric Titration Method (the preferred method); or
-Method 4500-CL G DPD Colorimetric Method or use USEPA Manual of Methods Analysis of Water and Wastes, Method 330.5

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 77 of EPA 600/4-90/027F for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 94 of EPA 600/4-90/027F.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description;
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody; and
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

ARGEO PAUL CELLUCCI
Governor

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

REUSE AND DISPOSAL OF CONTAMINATED SOIL

AT MASSACHUSETTS LANDFILLS

DEPARTMENT OF ENVIRONMENTAL PROTECTION

POLICY # COMM-97-001

(SUPERSEDES POLICY # BWP-94-037)

This Policy provides guidance to the regulated community about the Department of Environmental Protection's requirements, standards, and approvals for testing, tracking, transport, and reuse or disposal of contaminated soil at Massachusetts permitted landfills. This Policy supersedes Department Policy BWP-94-037.

[15 Aug 97]

Date

[Signature on Original]

Edward Kunce
Deputy Commissioner

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1.0 Policy Statement and Scope

This Policy provides information to the regulated community about the Massachusetts Department of Environmental Protection's (the Department) requirements, standards, management practices and approvals for the testing, tracking, transport, and reuse or disposal of Contaminated Soil at Massachusetts landfills. This Policy is effective immediately and supersedes the Department Policy # BWP-94-037. The Department is updating Policy # BWP-94-037 with this Policy in order to:

- update the standards for management of Contaminated Soil by Massachusetts landfills;
- maintain consistency with Policy # COMM-94-007, Interim Policy for Sampling, Analysis, Handling and Tracking Requirements for Dredged Sediment Reused or Disposed at Massachusetts Permitted Landfills, February 15, 1995;
- reflect changes to Table 1 Contaminant Levels for Soil Reuse at Landfills, and to include contaminant levels for the reuse of Contaminated Soil at unlined landfills;
- maintain consistency with revisions in 310 CMR 30.000, Massachusetts Hazardous Waste Regulations, November 18, 1994;
- describe the procedures and requirements lined landfills must meet to reuse or dispose of Treated TCLP Soil (including Treated TCLP-Lead Soil);
- prohibit the reuse or disposal of Treated TCLP Soil at unlined landfills; and
- maintain consistency with EPA's 1995 Household Hazardous Waste Exemption for Residential Lead Soil.

Landfills which intend to reuse or dispose of Contaminated Soil must have a prior approval from the Department under 310 CMR 19.000 unless: the soil **does not exceed** the contaminant levels of Table 1; meets the other acceptance criteria of this Policy; and the landfill complies with the management, technical and procedural requirements of this Policy.

This Policy is not meant to be, and shall not be relied upon to be, a complete list of all the regulatory requirements for managing Contaminated Soil. Parties managing Contaminated Soil shall consult 310 CMR 40.0000 (the Massachusetts Contingency Plan), 310 CMR 30.000 (the Massachusetts Hazardous Waste Regulations), and 310 CMR 19.000 (the Massachusetts Solid Waste Management Regulations) for other applicable requirements.

The information contained in this Policy is intended solely for guidance. This Policy does not create any substantive or procedural rights, enforceable by any party in any administrative proceeding with the Commonwealth.

Additional copies of this Policy, and other policies and forms referenced throughout this Policy can be obtained by calling the Department's InfoLine at (617) 338-2255 or 1-800-462-0444 (Outside of Area Code 617) and on the World Wide Web at http://www.state.ma.us/dep. The 21E Bill of Lading and Material Shipment Record forms and instructions can also be obtained through the Regional Service Centers located in each Department Regional Office.

2.0 Applicability

This Policy provides information to the regulated community on the reuse and disposal of Contaminated Soil at Massachusetts landfills. This Policy applies to Contaminated Soil generated from 21E disposal sites; Contaminated Soil which exhibits concentrations of oil and/or hazardous material below the applicable notification thresholds specified in 310 CMR 40.0300 and 310 CMR 40.1600; Contaminated Soil generated at out-of-state locations; Treated TCLP Soil (including Treated TCLP-Lead Soil); Residential Lead Soil; and soil contaminated with used or unused waste oil (see 310 CMR 30.252(2)).

This Policy does not apply to soil that is either a listed or characteristic hazardous waste, except Treated TCLP Soil as described in **Section 8.0, *Reuse and Disposal of Treated TCLP Soil***, nor does it apply to the management of wastes such as industrial waste, sludge, street sweepings[1], catch basin sediments or Municipal Solid Waste (MSW).

3.0 Terminology

This section contains definitions of the important terms and acronyms used in this Policy.

Contaminated Soil means soil that contains oil and/or hazardous materials as a result of a release to the environment. This includes anthropogenic contaminants, regardless of whether the contaminant levels exceed the applicable Reportable Concentration (RC) under section 310 CMR 40.1600 of the MCP. This definition of Contaminated Soil is broader than that in 310 CMR 40.0006 since it includes soil contaminated at less than the RCs.

Department means the Massachusetts Department of Environmental Protection.

Hazardous Waste Treatment, Storage, or Disposal Facilities (TSDFs) as used in this Policy means facilities which treat, store, or dispose of hazardous waste as an ongoing operation. These are distinguishable from facilities which generate hazardous waste and may engage in discrete storage or treatment activities; (e.g., tank and containers treatment or storage on-site by generators for less than ninety days). It does not include treatment that occurs at 21E sites under the MCP or licensed hazardous waste treatment facilities that only treat only waste generated on-site as part of the facilities' manufacturing operations.

Treatment, storage, or disposal facilities, unlike generators, are required by federal and/or state law to be permitted or licensed either as an Interim Status Facility or as a Permitted Hazardous Waste Facility.

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[1] Guidance on the management of street sweepings is provide in DEP Policy BWP-94-092, ***Reuse and Disposal of Street Sweepings, Department of Environmental Protection Bureau of Waste Prevention, Final Policy # BWP-94-092***, April 15, 1997.

Interim Status Facilities, defined and regulated by Title 40 Code of Federal Regulations Part 265 (or Authorized State Hazardous Waste Regulations), and Permitted Hazardous Waste Facilities, defined and regulated by Title 40 Code of Federal Regulations Part 264 and Part 270 (or Authorized State Hazardous Waste Regulations), are required to comply with a series of ongoing requirements for waste analysis, facility inspection, record keeping, employee training, siting, environmental monitoring, closure/post-closure planning, and financial assurance, that do not apply to generators.

Household means, for purposes of 310 CMR 30.000 and the household hazardous waste exemption, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas (310 CMR 30.104(6)).

Land Disposal Restrictions (LDRs) each means the federal hazardous waste land disposal restrictions found at Title 40, Chapter I, Part 268 of the Code of Federal Regulations.

Licensed Site Professional (LSP) each means a hazardous waste site cleanup professional, as defined in M.G.L. 21A, § 19, holding a valid license issued by the Board of Registration of Hazardous Waste Site Cleanup Professionals pursuant to M.G.L. c. 21A §§ 19 through 19J.

Lined Landfill is a landfill that has a liner system complying with 310 CMR 19.110, and a leachate collection system complying with 310 CMR 19.110(9).

Massachusetts Contingency Plan (MCP) each mean 310 CMR 40.0000.

Qualified Environmental Professional (QEP) each means an individual who: is knowledgeable about the procedures and methods for characterizing wastes and contaminated media; is familiar with the receiving state, Massachusetts, and federal regulations applicable to the management of such materials; performs or oversees the management of Contaminated Soil as an integral part of his or her professional duties; and is professionally licensed or certified in a discipline related to environmental assessment (i.e., engineering, geology, soil science, LSP, or environmental science) by a state or recognized professional organization.

RCRA means the Federal Hazardous Waste statute: 42 U.S.C. Sections 6901 et. seq and federal regulations issued there under.

Residential Lead Soil means lead Contaminated Soil, originating from household locations, defined at 310 CMR 30.104(6) of the Massachusetts Hazardous Waste Regulations and which is being managed as a solid waste under EPA's application of the household hazardous waste exemption[2].

Soil means any unconsolidated mineral and organic matter overlying bedrock that has been subjected to and influenced by geologic and other environmental factors, excluding sediment as defined in 310 CMR 40.006.

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[2] United States Environmental Protection Agency - Region I, Letter to Mr. Philip O'Brien, Ph.D., New Hampshire Department of Environmental Services, ***Applicability of the Household Hazardous Waste Exclusion to Lead Contaminated Residential Soil***, April 21, 1995.

Toxicity Characteristic (TC) Waste means a waste that is a hazardous waste if the extract from a representative sample of the waste contains any of the materials listed in 310 CMR 30.125B at a concentration equal to or greater than the respective value given in that table. The extract is obtained using the Toxicity Characteristic test described in 310 CMR 30.155B. Where the waste contains less than 0.5% filterable solids, the waste itself, after filtering, is considered to be the extract for purposes of 310 CMR 30.125B.

Toxicity Characteristic Leaching Procedure (TCLP) means the Toxicity Characteristic test for determining whether a waste is a hazardous waste because of a Toxicity Characteristic defined in 310 CMR 30.125B.

Treated TCLP Soil includes both Treated TCLP Non-Lead and Treated TCLP-Lead Soil.

Treated TCLP Non-Lead Soil means Contaminated Soil that: originally failed the TCLP under 310 CMR 30.155B for a TC contaminant other than lead D008 (e.g. Hazardous Waste Codes: D004 Arsenic, D005 Barium, D006 Cadmium, D007 Chromium, D009 Mercury, D010 Selenium, and D011 Silver and the TC Organic Constituents D012-D043); and that has been treated in compliance with Title 40, Code of Federal Regulations Part 268 to the LDRs (e.g., passes the TCLP); and under the LDRs no longer requires management as a TC characteristic hazardous waste (e.g., may be managed as a solid waste).

Treated TCLP-Lead Soil means Contaminated Soil that: originally failed the Toxicity Characteristic Leaching Procedure (TCLP) under 310 CMR 30.155B for lead; has been treated in compliance with Title 40, Code of Federal Regulations Part 268 to the LDRs (e.g., passes the TCLP); and no longer requires management as a D008 TC characteristic hazardous waste (310 CMR 30.125B).

4.0 Contaminant Levels, and Approval Procedures for the Reuse and Disposal of Contaminated Soil at Massachusetts Landfills

4.1 Contaminant Levels for Reuse

Table 1 lists the allowable contaminant levels for reuse of soil at Massachusetts landfills. The Department has determined that Contaminated Soil which **does not exceed** the contaminant levels in **Table 1** may be reused as daily cover, intermediate cover and pre-capping contour material at Massachusetts landfills provided it is managed consistent with all the provisions of this Policy, the facility's permit and 310 CMR 19.000.

With respect to the contaminant levels and reuses identified in section 4.1, compliance with this Policy may constitute compliance with the requirements to obtain a Department approval for the handling of special waste at 310 CMR 19.061 and the requirements at 310 CMR 19.130(15) regarding cover material, for the categories of Contaminated Soil identified in this Policy.
A list of Massachusetts lined and unlined landfills may be obtained from the DEP InfoLine at (617) 338-2255. This list may be updated by the Department from time to time. These landfills shall be contacted by the generator, LSP or Qualified Environmental Professional to determine whether the operator has an interest in receiving Contaminated Soil for landfill reuse. It is the responsibility of the generator, and the LSP or QEP to determine whether a specific landfill may accept Contaminated Soil as described in this Policy.

4.2 Reuse of Contaminated Soil at Lined Landfills

Contaminated Soil that **does not exceed** the contaminant levels listed in **Table 1** for lined landfills and that is managed as described in this Policy may be reused at lined landfills as daily cover, intermediate cover and pre-capping contour material (e.g., grading and shaping material) without obtaining a prior Department approval. A Landfill - Minor Modification, BWP SW 22 permit or other approval under 310 CMR 19.000 by the Department shall be obtained prior to the reuse at a lined landfill of any Contaminated Soil which:

- **exceeds** the contaminant levels in **Table 1**, or;
- may not be managed consistent with the guidelines in **Section 7.0, *Landfill Operation Practices***, or;
- contains oil and/or hazardous materials for which no threshold is provided in **Table 1**.

4.3 Reuse of Contaminated Soil at Unlined Landfills

Unlined landfills may accept Contaminated Soil for reuse as: daily cover, intermediate cover, and pre-capping contour material without prior approval by the Department, provided such use is not in conflict with any consent order, consent degree, court judgment, or Department-approved closure plan or conceptual grading plan, and provided that: the Contaminated Soil **does not exceed** the contaminant levels for unlined landfills in **Table 1**; the soil is managed in accordance with the provisions of this Policy; the landfill has either a Department approved closure plan, or an approved permit or Administrative Consent Order with a Department approved closure schedule and has a Department approved conceptual grading plan. The closure plan and/or conceptual grading plan shall also have:

- an erosion control/sedimentation plan;
- an excavate (e.g., Contaminated Soil) placement plan; and
- for landfills that reuse the soil as daily cover, a Department approved limitation on the amount of Contaminated Soil which may be stockpiled for daily cover.

A Landfill - Minor Modification, BWP SW 22 permit or other approval by the Department shall be obtained prior to the reuse at an unlined landfill of any Contaminated Soil which:

- **exceeds** the contaminant levels in **Table 1**, or;
- may not be managed consistent with the guidelines of **Section 7.0, *Landfill Operation Practices***, or;
- contains oil and/or hazardous materials for which no threshold is provided in **Table 1**.

4.4 Disposal of Contaminated Soil at Lined or Unlined Landfills

A Special Waste Determination (BWP SW 14 or BWP SW 31) or Other Department approval pursuant to 310 CMR 19.000 shall be obtained prior to the disposal of Contaminated Soil at a **lined or unlined landfill**. An **unlined landfill** must also have either a Department approved closure plan or have entered into an agreed upon closure schedule with the Department (e.g., Administrative Consent Order, permit).

Contaminated Soil which does not require notification under the MCP shall not be disposed of at landfills if a cost effective alternative exists that involves the reuse, recycling, destruction, and/or detoxification of such Contaminated Soil. Applicants seeking to dispose of Contaminated Soil at a Massachusetts landfill shall demonstrate the infeasibility of alternatives to such disposal. Feasibility determinations performed under 310 CMR 40.0032(5) and M.G.L. c. 21E will be considered sufficient for this purpose.

5.0 Testing and Characterization

5.1 General

This Section describes the type and level of information, data, and documentation the generator shall provide to the landfill operator when proposing the management of Contaminated Soil at a Massachusetts landfill. This information is consistent with that required under EPA's RCRA "due diligence" policy, for determining when environmental media (e.g., Contaminated Soil) is a hazardous waste (Federal Register, 53 FR 51444).

310 CMR 40.0000, 310 CMR 30.000 and Department Policies #WSC-94-400, #WSC-310-91, and #WSC-91-401[3] contain additional information applicable to the characterization of Contaminated Soil. Other federal requirements under the Toxic Substance Control Act (TSCA) or RCRA may also apply to the characterization of Contaminated Soil.

The landfill operator and the generator shall obtain sufficient information to demonstrate that the soil may be accepted by the landfill. It is the landfill operator's responsibility to obtain sufficient information to determine and document: the type and quantity of contaminated soil it receives and that it meets the Policy's acceptance criteria. This does not relieve the generator of the responsibility to appropriately and adequately characterize its waste and to send it only to facilities that may legally accept it.

[3] MDEP, BWSC Policy #WSC-91-401, ***Policy for the Investigation, Assessment, and Remediation of Petroleum Releases: Interim Site Investigation Protocol Document***, April 9, 1991.

CONTAMINANT	Reuse Levels (mg/kg)[a]	
	Lined Landfills	Unlined Landfill
Total Arsenic	40	40
Total Cadmium	80	30
Total Chromium	1,000	1,000
Total Lead	2,000	1,000
Total Mercury	10	10
Total Petroleum Hydrocarbons (TPH)	5,000	2,500
Total PCBs[b]	< 2	< 2
Total SVOCs[c]	100	100
Total VOCs[d]	10	4
Conductivity[e] (umhos/cm)	8,000 umhos/cm	4,000 umhos/cm
Listed or Characteristic Hazardous Waste (TCLP)[f]	NONE	NONE

TABLE 1 NOTES:

a **The reuse levels are expressed as total levels in mg/kg and apply to reuse of soil as daily cover, intermediate cover, and pre-capping contour material at lined landfills and unlined landfills as described in this Policy.**

b **Total concentrations of polychlorinated biphenyls EPA Method 8080.**

c **Total concentrations of compounds listed in EPA Method 8270.**

d **Total concentration of compounds listed in EPA Method 8260.**

e **For soil which may be expected to contain elevated NaCl.**

f **TCLP testing shall be performed for metals or organic compounds when the total concentrations in the soil are above the theoretical levels at which the TCLP criteria may be exceeded. For guidance parties shall consult United States Environmental Protection Agency, Memorandum #36, "Notes on RCRA Methods and QA Activities", pp. 19-21, Gail Hanson, January 12, 1993.**

[Please note that the methods specified in footnotes d, e, and f indicate the universe of chemicals to be added up in calculating the total concentrations for these classes of contaminants. Section 5.0 of this Policy provides guidance for determining which specific chemicals must be considered chemicals of concern (e.g., contaminants) within the soil. This Policy does not specify the analytical test methods to be used to quantify the specific contaminants. Readers can consult 310 CMR 40.0017 Environmental Sample Collection and Analysis, 310 CMR 30.110 Criteria, Procedures for Determining Which Wastes are to be Regulated as Hazardous Waste or Non-Hazardous Waste and 310 CMR 30.151 Representative Sampling Methods for additional information which may be applicable to the selection of appropriate sampling and analytical methods.]

5.2 Testing

Contaminated Soil shall be sampled at sufficient and adequately distributed locations so that the concentrations of the contaminants of concern in the soil are adequately characterized. The factors listed below shall be considered when developing and implementing such a sampling plan. Evaluation of release, source, and site specific conditions assist in developing the basis for the selection of field screening techniques, sampling methodologies, sampling frequencies, and the contaminants of concern (e.g., analytical parameters) used to characterize Contaminated Soil. These include, but are not necessarily limited to the following:

- the type(s) and likely constituents of the petroleum oil (e.g., unused waste oil, used waste oil, or mixtures) or hazardous material known or suspected to be the source of the contaminants;
- the presence or likelihood of any other oil and/or hazardous materials (e.g., chlorinated solvents, metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs) , halogenated volatile organic compounds (VOCs));
- current and former site uses, past incidents involving the spill or release of oil and/or hazardous material, and past and present management practices of oil and/or hazardous materials at the site;
- the potential for the soil to contain listed hazardous waste or to be a characteristic hazardous waste;
- visual/olfactory observations, field screening, analytical data, and/or in-situ pre-characterization data;
- soil matrix type - naturally occurring soil or fill/soil mixtures (e.g., homogeneous or heterogeneous soil conditions);
- the identification and segregation of discrete "hot spots";
- soil volume; and
- the presence of anthropogenic contaminants (e.g., arsenic, lead).

5.3 Treated TCLP Soil

Generators of Treated TCLP Soil shall also comply with the characterization, waste analysis, notification, reporting and licensing requirements of the applicable federal and state Hazardous Waste Regulations. These requirements may include, but are not limited to, the provisions of Title 40 Code of Federal Regulations Parts: 262.11, 264, 265, and 268.

5.4 Residential Lead Soil

Residential Lead Soil shall be characterized as described in this Policy to determine whether it meets **all** the acceptance criteria, contaminant levels and guidelines of this Policy. The characterization shall include ascertaining whether the Contaminated Soil: exceeds the contaminant levels in **Table 1**; contains other oil and/or hazardous materials or listed hazardous waste; or if it is a characteristic hazardous waste other than lead (i.e., D001-D007, or D009-D043 Hazardous Waste).

Residential Lead Soil intended for reuse or disposal at a lined landfill need not be tested to determine if it is D008 TC Waste (e.g., lead). Residential Lead Soil intended for reuse at an unlined landfill that does not contain total lead **in excess** of 1000 mg/kg also does not require TCLP testing to determine if it is a D008 TC Waste (e.g., lead). However, the Department may require TCLP testing for Residential Lead Soil intended for reuse at an unlined fill if the total lead level exceeds 1000 mg/kg.

5.5 Documentation

When accepting Contaminated Soil a landfill operator shall obtain sufficient information and documentation to determine whether the Contaminated Soil has been adequately characterized, meets the Policy's acceptance criteria, and may be reused by the landfill, as provided in this Policy. The documentation shall include, but not necessarily be limited to, the following types of information:

- quantity of Contaminated Soil;
- a description of the source and type of the release and the contaminants;
- a description of current and former site usage;
- chemical characterization of the soil including any laboratory analytical data used to support the determination;
- any field screening analytical data used to support the determination;
- a physical description of the soil including the soil classification method used;
- a statement from the generator as to whether any other releases or spills have occurred in the vicinity of the site which may have affected the site, including the types of oil and hazardous material spilled/released;
- a statement that the generator has used due diligence, as described in the Department's Policy HW93-01 in characterizing the soil and as to whether or not the soil contains a listed hazardous waste and/or is itself a characteristic hazardous waste; and
- in addition, for TCLP-Treated Soil, from the treater, a description of the treatment process and a copy of the waste analysis plan complying with Title 40 Code of Federal Regulations Part 264, 265, or 268, as applicable.

Section 6.0 Transportation, Shipping Documentation, Record Keeping and Reporting

6.1 General

The transportation of Contaminated Soil to Massachusetts landfills shall be conducted in accordance with the 21E Bill of Lading (21E BOL) provisions of 310 CMR 40.0030 (**Section 6.2, *21E Bill of Lading***), if applicable, or, if not applicable, the Material Shipping Record (MSR) (**Section 6.3, *Material Shipping Record***) procedures described in this Policy. Contaminated Soil generated at out-of-state locations and transported to Massachusetts landfills shall use a Material Shipping Record.

Soil may be transported by common carrier, provided that this method of transport is protective of the public health, safety, welfare and the environment. All soil shall be covered by a tarpaulin or other means during transport to prevent the soil from escaping the truck during transport (310 CMR 40.0036(5) Management Requirements for Storing Remediation Waste and M.G.L. c.85 Sec.36 Construction and loading of vehicles to prevent dropping of load on way).

Nothing in this Section is intended to prohibit the voluntary use of the 21E Bill of Lading process to document the transport of soil with contamination below the applicable 120 day notification threshold, specified in 310 CMR 40.0300 and 310 CMR 40.1600.

6.2 21E Bill of Lading

Contaminated Soil generated and transported within Massachusetts shall comply with the MCP, as applicable. The MCP requires that Contaminated Soil containing oil and/or hazardous material at concentrations equal to or greater than a release notification threshold established by 310 CMR 40.0300 and 310 CMR 40.1600 shall be transported in compliance with the 21E Bill of Lading requirements of 310 CMR 40.0034 and 40.0035 of the MCP.

6.3 Material Shipping Record

Contaminated Soil, containing oil and/or hazardous material at concentrations less than an applicable release notification threshold established by 310 CMR 40.0300 and 310 CMR 40.1600, need not be transported in accordance with the 21E BOL provisions. Contaminated Soil generated from out-of-state locations also is not subject to the 21E BOL requirements of the MCP. Therefore, for these classes of Contaminated Soil, a Material Shipping Record (MSR) shall be submitted to the landfill by the generator with the certification of a Qualified Environmental Professional (QEP). **Attachment III, *Material Shipping Record and Instructions***, includes a description of the qualifications of the QEP and a copy of the MSR form.

Treated TCLP-Lead Soil that has been treated at and is generated from a licensed Commercial Hazardous Waste Treatment, Storage or Disposal Facility (TSDF, see Section 3), shall be shipped from the TSDF to the landfill using a Material Shipping Record. The QEP for purposes of the MSR may be the individual at the TSDF responsible for implementing the TSDF's waste analysis plan.

6.4 Facility Record Keeping

All record keeping shall be in compliance with 310 CMR 19.009 of the Solid Waste Management Regulations. Copies of the 21E BOLs, MSRs and all supporting documentation submitted by the generator to the landfill shall be kept by the landfill operator for review by Department staff. All 21E BOLs, MSRs and supporting documentation shall be kept by the landfill permittee at the facility, unless an alternate location has been approved by the Department, for at least three (3) years. This period shall be automatically extended for the duration of any enforcement action. This period may also be extended by the Department.

6.5 Reporting

Landfills that use Contaminated Soil as daily or intermediate cover, or pre-capping contour material or for disposal shall send 21E BOL and MSR summary reports as part of the landfill's regular annual operational reports to the appropriate Department Regional Office (See Attachment I for the Department Regional Office addresses). The summary reports shall include the source of the Contaminated Soil, volumes, dates received, use and reference the 21E BOL or BWP MSR Tracking Numbers.

7.0 Landfill Operation Practices

The reuse of Contaminated Soil, containing contaminants at concentrations which **do not exceed** the contaminant levels in **Table 1**, as daily cover, intermediate cover or pre-capping contour material at landfills, is based in part on the results of a risk assessment by the Department's Office of Research and Standards. This risk assessment was predicated on adherence to the landfill operating procedures listed below. Therefore, these procedures shall be followed when managing Contaminated Soil at a Massachusetts landfill.

1. When it is used for daily cover the standards in daily cover in 310 CMR 19.130(15) shall be met, including the requirement that the cover material be substantially odor free.

2. Contaminated Soil applied as daily cover shall not exceed 25% of the total volume of solid waste disposed in any single day.

3. When Contaminated Soil is proposed for use as intermediate cover, the standards in 310 CMR 19.130(15)(c) shall be met including the requirement that the material meet the following Unified Soil Classification System categories: G.C.; S.C.; C.H.; C.L.; or O.H.

4. Unlined landfills that accept Contaminated Soil for use as daily cover, intermediate cover and pre-capping contour material shall have in place Department approved erosion control and excavate placement plans. In addition, unlined landfills that accept Contaminated Soil for use as daily cover shall have a Department approval specifying the quantity of Contaminated Soil to be stockpiled for use as daily cover.

5. Daily cover or other reuse materials which contain Contaminated Soil shall be applied within 90 days of receipt at the facility.

6. Preventative maintenance shall be employed to ensure that the Contaminated Soil, whether stockpiled or applied to the landfill, does not erode into the area between the operating footprint of the landfill and the property boundary.

7. Fugitive dust levels shall be kept to a minimum through the use of Best Management Practices such as chemical addition or other Department-approved method. Contaminated Soil shall be prohibited from use on haul roads or other areas used for vehicle or truck traffic.

8. Stockpiling of Contaminated Soil intended for use at lined landfills shall be limited to portions of the landfill which are lined. Stockpiling of Contaminated Soil at unlined landfills shall be restricted to areas above the existing landfill footprint.

9. Storage of Contaminated Soil shall not take place on areas of the landfill which have received final cover.

10. Contaminated Soil shall not be applied or placed in contact with the landfill liner.

11. Contaminated Soil shall have no free draining liquids. Visual inspection based on the source of excavate shall be sufficient to determine whether there are free draining liquids in most

cases. When there is a question whether this standard is met, EPA Method 9095 shall be used to determine the presence of free liquids in a representative sample of the Contaminated Soil.

12. The Contaminated Soil shall be free of solid waste (e.g., construction and demolition debris or other putrescible matter). See 310 CMR 16.05(3)(i) for conditionally exempted rubble processing (crushing) operations.

8.0 Reuse and Disposal of Treated TCLP Soil at Massachusetts Landfills

8.1 General

This Section provides guidance on the reuse and disposal of Treated TCLP Soil (see Section 3) by Massachusetts landfills. The guidance provided by this Policy does not waive, relieve, or limit the responsibility of the generator, treatment facility and landfill owner/operator to comply with all applicable laws and regulations, including but not limited to 310 CMR 16.000, 310 CMR 19.000, 310 CMR 30.000, 310 CMR 40.0000 and Title 40 Code of Federal Regulations Parts 260 through 271 (Federal Hazardous Waste Regulations). This includes, but is not limited to, the certification, treatment, characterization, notification, and other requirements of 40 CFR Part 268 Land Disposal Restrictions (LDRs or Land Ban Restrictions).

The landfill operator and the TSDF shall obtain sufficient information to demonstrate that the Contaminated Soil may be accepted by the landfill. It is the landfill operator's responsibility to obtain sufficient information from the TSDF to determine and document: the type and quantity of Contaminated Soil it receives, that it meets the Policy's acceptance criteria, and the landfill has complied with 310 CMR 19.130(5). This does not relieve the TSDF of its responsibility to appropriately and adequately characterize its waste and to send it only to facilities that may legally accept it.

8.2 Reuse and Disposal of Treated TCLP-Lead Soil at Lined Landfills

Treated TCLP-Lead Soil (see Section 3.0) may be reused or disposed at Massachusetts lined landfills provided that it is managed consistent with the acceptance criteria, contaminant levels, and the operational and procedural guidelines of this Policy and 310 CMR 19.000. The ***Treated TCLP-Lead Soil*** also shall comply with the characterization (testing,etc.), procedural and treatment requirements of 310 CMR 30.000 and the provisions of the RCRA Hazardous Waste Regulations, Title 40 Code of Federal Regulations Parts 260 through 271. This includes, but is not limited to the requirements of Title 40 Code of Federal Regulations Parts: 262.11, and 268. Title 40 Code of Federal Regulations Part 268 Subpart D - Treatment Standards specifies the applicable Land Disposal treatment standards.

8.3 Reuse and Disposal of Treated TCLP-Lead Soil at Unlined Landfills

The reuse and disposal of Treated TCLP-Lead Soil is prohibited at unlined landfills.

8.4 Treated TCLP-Lead Soil Generated at Commercial Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs)

TCLP-Lead Soil that has been treated by a TSDF operating as either a Part 265 Interim Status Facility or as a Part 264/Part 270 Permitted Hazardous Waste Facility, may be reused or disposed at Massachusetts landfills provided that it is managed consistent with the acceptance criteria, operational, and procedural guidelines of this Policy. The TSDF shall provide the landfill operator receiving the treated Contaminated Soil with sufficient documentation, including the original source and site of the spill or release of the Contaminated soil, to demonstrate that the reuse or disposal of the treated Contaminated Soil at the Massachusetts landfill is in accordance with this Policy.

The landfill operator shall utilize the guidance provided in **Section 5.0, *Testing and Characterization*** in evaluating the adequacy of the information submitted to it by a TSDF. Documentation by the TSDF that the Contaminated Soil no longer fails the TCLP test for lead is not sufficient for demonstrating the Contaminated Soil may be managed under this Policy. The documentation submitted by the TSDF shall be consistent with that described in **Section 5.5, *Documentation***.

The landfill operator in evaluating the adequacy of the post treatment analytical testing by the TSDF, may consider the degree to which the TSDF's waste analysis plan sufficiently documents that the Contaminated Soil meets the acceptance criteria of this Policy. The level of post-treatment analytical testing necessary beyond that required in a TSDF's waste analysis plan shall be a function of the degree to which the TSDF's waste analysis plan reflects and provides the information described in **Section 5.0**.

Treated TCLP-Lead Soil that has been treated at and is generated from a TSDF (see Section 3) shall be shipped from the TSDF to a Massachusetts lined landfill using a Material Shipping Record. The QEP for purposes of the MSR may be the individual at the TSDF responsible for implementation of the TSDF's waste analysis plan.

8.5 Management of Treated TCLP Non-Lead Soil at Massachusetts Landfills

Treated TCLP Non-Lead Soil, as defined in Section 3, is Contaminated Soil that failed the TCLP for a TC constituent other than lead and that has subsequently been treated to remove the characteristic (e.g., pass TCLP) and meets the **LDRs**, and as a result under RCRA may be managed as a solid waste. Treated TCLP Non-Lead Soil may be accepted by Massachusetts lined landfills for reuse or disposal only if the Department has issued the landfill a Special Waste Determination (BWP SW 14 or BWP SW 31 permit), Beneficial Use Determination (BWP SW 13 or BWP SW 30 permit), Landfill Minor Modification (BWP SW 22 permit) or Other Approval under 310 CMR 19.000, regardless of whether or not the contaminant levels **do not exceed** those in Table 1. Treated TCLP Non-Lead Soil is **prohibited** from reuse or disposal in unlined Massachusetts landfills.

9.0 Reuse and Disposal of Residential Lead Soil at Massachusetts Landfills

Section 9.1 General

Residential Lead Soil, as defined in Section 3, is lead-Contaminated Soil originating from a location which qualifies as a household under Section 310 CMR 30.104(6), of the Massachusetts Hazardous Waste Regulations, and for which the generator has also determined, using due diligence as discussed in **Department Policy HW93-01**, that there is no affirmative evidence that the lead contamination results from an industrial source (e.g., lead paint). Such Contaminated Soil may be managed, under EPA's application of the household hazardous waste exemption (see Section 3), as a solid waste.

Section 9.2 Reuse of Residential Lead Soil at Lined Landfills

Residential Lead Soil may be accepted for reuse by Massachusetts **lined landfills** in accordance with the procedures described in **Section 4.2, *Reuse of Contaminated Soil at Lined Landfills*** providing it is managed in accordance with and meets **all** the other requirements of this Policy. As described in **Section 5.4, *Residential Lead Soil***, Residential Lead Soil intended for reuse at a lined landfill **need not** be tested using the TCLP to determine if it is a D008 (lead) TC Waste.

Section 9.3 Reuse of Residential Lead Soil at Unlined Landfills

Residential Lead Soil may be accepted for reuse by Massachusetts **unlined landfills** in accordance with the procedures described in **Section 4.3, *Reuse of Contaminated Soil at Unlined Landfills*** providing it is managed in accordance with and meets **all** the other requirements of this Policy. As described in **Section 5.4, *Residential Lead Soil***, Residential Lead Soil intended for reuse at a unlined landfill **need not** be tested using the TCLP to determine if it is a D008 (lead) TC Waste if the total lead level **does not exceed** 1000 mg/kg. The Department may require TCLP testing for Residential Lead Soil containing lead at total levels **exceeding** 1000 mg/kg when reviewing requests for the reuse of such soil at unlined landfills.

9.4 Disposal of Residential Lead Soil at Lined and Unlined Landfills

A Special Waste Determination (BWP SW 14 or BWP SW 31) or Other Department approval shall be obtained prior to the disposal of Residential Lead Soil at a lined or unlined landfill. An unlined landfill shall also have either a Department approved closure plan or have entered into an agreed upon closure schedule with the Department (e.g., Administrative Consent Order).

ATTACHMENT I: ADDRESSES OF DEPARTMENT REGIONAL OFFICES

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Attn: Paul Anderson

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Department of Environmental Protection
Southeast Regional Office
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Attn: Dave Ellis

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Department of Environmental Protection
Western Regional Office
436 Dwight Street, Suite 402
Springfield, MA 01103

Attn: Mark Schleeweis

Telephone: (413) 784-1100

ATTACHMENT II: BIBLIOGRAPHY OF RELATED DOCUMENTS

1. Massachusetts Department of Environmental Protection, Policy BWP-94-092, ***Reuse and Disposal of Street Sweepings Department of Environmental Protection Bureau of Waste Prevention, Final Policy # BWP-94-092***, April 15, 1997.

2. Massachusetts Department of Environmental Protection, 310 CMR 30.000, ***Hazardous Waste Regulations***, August 23, 1996.

3. Massachusetts Department of Environmental Protection, 310 CMR 40.0000, ***Massachusetts Contingency Plan***, April 5, 1996.

4. Massachusetts Department of Environmental Protection, 310 CMR 4.00, ***Timely Action Schedule and Fee Provisions***, November 3, 1995.

5. United States Environmental Protection Agency - Region I, Letter to Mr. Philip O'Brien, Ph.D., New Hampshire Department of Environmental Services, ***Applicability of the Household Hazardous Waste Exclusion to Lead Contaminated Residential Soil***, April 21, 1995.

6. Massachusetts Department of Environmental Protection, Policy # WSC-94-400, ***Interim Remediation Waste Management Policy for Petroleum Contaminated Soils***, April 21, 1994.

7. Massachusetts Department of Environmental Protection, ***Interim Policy HW 93-01, Regarding the Regulatory Status of Soil Contaminated with Waste Oil of Unknown Origin***, Memorandum from Thomas Powers, Deputy Commissioner, January 11, 1993.

8. Massachusetts Department of Environmental Protection, 310 CMR 16.000, ***Site Assignment Regulations for Solid Waste Facilities***, July 3, 1992.

9. Massachusetts Department of Environmental Protection, 310 CMR 19.000, ***Solid Waste Management Facility Regulations***, July 3, 1992.

10. Massachusetts Department of Environmental Protection, Policy # WSC-91-401, ***Policy for the Investigation, Assessment, and Remediation of Petroleum Releases: Interim Site Investigation Protocol Document***, April 9, 1991.

11. Massachusetts Department of Environmental Protection, Policy # WSC-310-91, ***Standard References for Monitoring Wells***, April 1991.