# Underground Storage Tank Petroleum Product Cleanup Fund

Massachusetts General Laws Chapter 21J

503 Code of Massachusetts Regulations 2.00

Appendix 3-Reimbursement Fee Schedule and Guidelines

Effective Date: March 1, 2023

<u>Proposed revisions as of March 20, 2024</u>

# 503 CODE OF MASSACHUSETTS REGULATIONS 2.00 APPENDIX 3

# UNDERGROUND STORAGE TANK PETROLEUM PRODUCT CLEANUP FUND REIMBURSEMENT FEE SCHEDULE POLICY MASSACHUSETTS GENERAL LAWS CHAPTER 21J TABLE OF CONTENTS

<b>SECTION</b>						
1.0	PURI	POSE AND SCOPE	1			
2.0	APPI	LICATION FOR REIMBURSEMENT	1			
	2.1	RESPONSE ACTION CLAIMS	2			
	2.2	THIRD-PARTY CLAIMS	3			
3.0	STAN	NDARD MATERIALS LIST	4			
4.0	MASSACHUSETTS REIMBURSEMENT FEE SCHEDULE TASK CODE					
	GUII	DANCE	5			
	4.1	TASK CODE 1 – LABOR CATEGORIES	6			
	4.2	TASK CODE 2 – REPORTS	12			
	4.3	TASK CODE 3 – HEALTH AND SAFETY	17			
	4.4	TASK CODE 4 – PRE-FIELD ACTIVITIES	19			
	4.5	TASK CODE 5 – OBTAIN PROPERTY ACCESS	20			
	4.6	TASK CODE 6 - EXCAVATED SOILS MANAGEMENT, HANDLING, REPORTING	G,			
		SHORING, BIOREMEDIATION, AND OXIDANT/SURFACTANT INJECTIONS	•			
	4.7	TASK CODE 7 – PORTABLE GAS CHROMATOGRAPH	25			
	4.8	TASK CODE 9 – DRILLING ACTIVITIES				
	4.9	TASK CODE 10 - WELL DEVELOPMENT	29			
	4.10	TASK CODE 11 – GROUNDWATER GAUGING/BAILING & SAMPLING	30			
	4.11	TASK CODE 12 – AQUIFER PUMP TEST	30			
	4.12	TASK CODE 13 – RISING OR FALLING HEAD (SLUG) TESTS				
	4.13	TASK CODE 14 – SOIL VAPOR EXTRACTION (SVE)/AIR SPARGING (AS)				
		PILOT TESTING	32			
	4.14	TASK CODE 15 – REMEDIATION FEASIBILITY STUDIES	33			
	4.15	TASK CODE 16 – LEASE/PURCHASE ANALYSIS AND BID PREPARATION	34			
	4.16	TASK CODE 17 – REMEDIATION PERMITTING AND REPORTING	35			
	4.17	TASK CODE 18 – TRENCHING AND INSTALLATION OF UNDERGROUND PIPIN				
		EQUIPMENT, AREA/ENCLOSURE FOR SVE, AS, AND/OR GROUNDWATER				
		EXTRACTION SYSTEM	36			
	4.18	TASK CODE 20 – UTILITIES INSTALLATION FOR REMEDIATION SYSTEMS ON				
	4.19	TASK CODE 22 - PURCHASE AND INSTALLATION OF REMEDIATION SYSTEMS				
	4.20	TASK CODE 23 - REMEDIATION SYSTEMS OPERATION AND MAINTENANCE				
	4.21	TASK CODE 24 – ROAD BOX REMOVAL, REPAIR OR REPLACEMENT				
	4.22	TASK CODE 25 – WELL ABANDONMENT.				
	4.23	TASK CODE 26 – MASSDEP REQUIRED MEETINGS AND TRAVEL				
	4.24	TASK CODE 27 – LABORATORY ANALYSES				

# 503 CODE OF MASSACHUSETTS REGULATIONS 2.00 APPENDIX 3

# UNDERGROUND STORAGE TANK PETROLEUM PRODUCT CLEANUP FUND REIMBURSEMENT FEE SCHEDULE POLICY MASSACHUSETTS GENERAL LAWS CHAPTER 21J TABLE OF CONTENTS (continued)

<b>SECT</b>	<u>ION</u>		<b>PAGE</b>	
	4.26	TASK CODE 28 – EQUIPMENT RENTAL		
	4.27	TASK CODE 29 – MISCELLANEOUS MATERIALS		
	4.28	TASK CODE 30 – STATE SALES TAX	48	
	4.29	TASK CODE 31 – FREIGHT	48	
5.0	ACRONYMS			
6.0	LIST OF REFERENCES			
TADI	EG			

**TABLES** 

Massachusetts 21J Reimbursement Fee Schedule

#### 1.0 PURPOSE AND SCOPE

The regulations in 503 CMR 2.00 govern the administration of reimbursement of the Underground Storage Tank Petroleum Cleanup Fund Administrative Review Board created by Chapter 524 of the Massachusetts Acts of 1990, which constitutes Chapter 21J of the Massachusetts General Laws (M.G.L. C. 21J).

The purpose of Appendix 3 to the regulations is to:

- a) Establish maximum, not to exceed reimbursement fees to eligible claimants for allowable costs, expenses and obligations incurred by taking response actions, meeting claims of third parties, or otherwise incurring expenses, as a result of releases of petroleum products from UST systems;
- b) Define the specific response actions for which reimbursements will be allowed; and
- c) Provide an Application for Reimbursement Form to allow eligible claimants to be reimbursed for allowable costs, expenses, and obligations.

All response actions for which reimbursement will be requested, where conducted as a result of releases of petroleum products from UST systems, must be conducted in accordance with applicable Federal, State, and local statutes and regulations, nationally recognized codes and standard industry practices, e.g., ASTM, ASCE, API, AEG, AIPG, etc.

Time and Materials (T & M) are to be reimbursed at the rates provided in the Reimbursement Fee Schedule.

The Reimbursement Fee Schedule (the Fee Schedule) is designed to provide a list of Tasks which may be selected in order to comply with the provisions of the Massachusetts Contingency Plan (MCP) found at 310 CMR 40.0000, and other applicable Massachusetts Department of Protection (MassDEP) regulations and policies. The implementation of the Tasks must also comply with other applicable Federal, State or Local statutes and regulations and recognized national codes. The Tasks are undertaken as a result of releases of petroleum products from underground storage tank (UST) systems. Therefore, complementary Tasks will need to be selected for implementation when conducting MCP related response, assessment, remedial, response action outcome, etc. activities.

#### 2.0 APPLICATION FOR REIMBURSEMENT

All Claimants seeking reimbursement shall fully complete and submit the Application for Reimbursement (Appendix 4) electronically via eUST. The Claimant must provide documentation for all tasks to be reimbursed with each Application for Reimbursement (i.e., "claim"). Documentation that must be included, but is not limited to, is described below in Sections 2.1 and 2.2.

To obtain reimbursement for Response Action Costs and Third-Party Claims, or both, a Person must demonstrate to the Board or DOR that under M.G.L. c. 21J, 503 CMR 2.00 and Appendix 3: a Certificate of Compliance is in force for the Site, the Release is an Eligible Release; the Person is an Eligible Claimant; and, that the costs, expenses and obligations incurred are eligible for Reimbursement.

# 2.1 RESPONSE ACTION CLAIMS

A Response Action Claim is a request for Reimbursement for a specific Facility filed pursuant to 503 CMR 2.10, as noted in Appendix 4. Documentation to be included to support reimbursement is as follows:

- A. Owner Authorization: An Owner Authorization (OA) grants a party not listed as the tank Owner permission to file a claim for reimbursement. OA is required when the claimant does not currently own the UST system on-site. The owner is defined as "any person having legal ownership of the UST system" per 503 CMR 2.02. Per 503 CMR 2.08(3), for any claimant that is not the Owner of the UST system, written authorization must be obtained from the Owner, from a court of competent jurisdiction, or from the Board to file claims with the Board. Owner Authorization can be submitted via eUST. The only parties eligible for reimbursement are the Tank Owner or an Owner Authorized Claimant. OA form is available here: https://www.mass.gov/doc/owner-authorization-claims-form/download
- B. <u>Proof of Payment</u>: Acceptable forms of Proof of Payment include copies of canceled checks (front and back), bank records of payment (e.g., wire transfer, bank statement, etc.), Contractor/Payee Certification on Contractor's/Payee's letterhead, a credit card receipt, or other documentation acceptable to the Board. Other Proof of Payment requirements to consider:
  - 1. Claimant should be the organization/company incurring the costs. If the Claimant differs from the invoiced organization or the organization incurring the costs, it is likely that the claim will require additional documentation (e.g., Verification of Costs form, EFT payment records, cancelled checks, DBA Certificate, etc.). If the Claimant is not the organization/company incurring the costs being submitted for reimbursement, contact the UST Program to discuss the required documentation prior to submitting the claim.
  - 2. Bank payment records must identify the payee and the payor.
  - 3. Verification of Payment (VOP) is a payment affidavit on company or contractor payee letterhead, with invoice number, invoice date, date paid, and signed "under the pains and penalties of perjury."
  - 4. All personal/confidential/sensitive information (e.g., bank account numbers, FEINs, SSNs, etc.) must be redacted prior to uploading to eUST. This includes front and reverse side of cancelled checks. For additional guidance, refer to the IRS Internal Revenue Manual 10.5.1 (https://www.irs.gov/irm/part10/irm 10-005-001)
  - 5. For utility bills only: a copy of the utility bill showing a credit for the previous month(s) service(s) will be accepted in lieu of other acceptable forms of proof of payment. The utility bill must indicate the actual date that the payment was credited.
  - 6. Proof of Payment (as noted above) must be provided for invoices if markup is claimed.
- C. <u>Direct Pay Claims</u>: A Direct Pay Certification Form (all pages required) is needed only for sites that have costs directly submitted for reimbursement by the company incurring the costs (i.e., the consultant). To review the Direct Pay Policy, please visit:

https://www.mass.gov/lists/ust-claims-updates-reports-regulations-and-policies

- D. <u>Consultant / Subcontractor Invoices</u>: (including Timesheets and Expense Reports/ Field Notes/Field Sheets)
  - 1. All invoices must be task-coded identifying charges claimed, must include staff names with applicable 21J labor equivalent categories, and should have a description of work performed in lieu of invoice line items containing this information. Timesheets can also be provided but must be clearly marked with the same information.
  - 2. All relevant backup for invoiced charges must be provided, as applicable to your claim submission. All charges claimed must be accompanied by a documented date of service (DOS).
  - 3. Labor descriptions on the invoice should reflect actual work performed. Charges reallocated by handwritten notes or other annotations without supporting documentation that do not match the invoice description will be denied.
  - 4. Lump sum invoices are not allowed except when accompanied by a detailed breakdown of labor, equipment, and material(s) costs.
  - 5. Handwritten notes or annotations on invoices for charges to be split up between different task codes must be clearly identified and noted for the event/report they are attributed to. If an individual line item on an invoice is to be divided between different events or task codes, documentation supporting the allocation must be provided.
  - 6. Field notes and/or daily field sheets are required for all field work. Field notes are required to indicate equipment used, activities performed, and staff onsite during the field event. Communication with other staff not in the field should be documented. Field notes and other supporting documentation must be legible.

# E. <u>Equipment/Material Vendor Invoices</u>:

- 1. All field equipment charges must be supported by either a rental invoice/lease agreement, a rate sheet, or an equipment use form that identifies the cost for each piece of equipment with the corresponding DOS.
- 2. Handwritten notes or annotations on invoices for charges to be divided between different task codes must clearly identify the event/report they are allocated to. If an individual line item on an invoice is to be divided between different events or task codes, documentation supporting the allocation must be provided.
- F. <u>Correspondence Documentation</u>: Copies of all correspondence to/from MassDEP (including reports) must either be accessible on eDEP or must accompany the invoice as supporting documentation. If viewable on eDEP, provide the Release Tracking Number (RTN) and the eDEP Transaction ID number. If the Disposal Site has more than one RTN, specify which RTN the costs are associated with.

#### 2.2 THIRD-PARTY CLAIMS

A Third-Party Claim is any Claim filed by an Owner or Operator of a UST System for monetary damages based on a Final Judgment against such Owner or Operator, establishing that another person has sustained Bodily Injury, Property Damage, or Damage to Natural Resources proximately caused by the Release.

A Third-Party Claim requires the submittal of a Final Judgment. Per 503 CMR 2.02, a Final Judgment is the entry of an order or other action by a court of competent jurisdiction, including, without limitation, litigation ended by a court-approved settlement by the parties, with all rights of appeal being exhausted or waived or expired, except as arising under Rule 60 of the Massachusetts Rules of Civil Procedure or other similar provisions of Federal laws or the laws of any other state.

Third-Party Claims differ from Response Action Claims and are subject to the following requirements:

- 1. Copy of Final Judgment must be provided to the Board and Application for reimbursement filed within 180 days of the legal entry of the Final Judgment.
- 2. Final Judgment must be against an eligible Claimant arising from an eligible release.
- 3. Charges are subject to Appendix 3 Fee Schedule.
- 4. Charges not covered by Appendix 3 Fee Schedule shall be determined by the Board.
- 5. Certain costs are not eligible for reimbursement such as loss of wages or business income, medical expenses, punitive or civil damages, attorneys' fees, etc. Refer to 503 CMR 2.12 and 503 CMR 2.13 for additional eligibility requirements and the complete list of costs that are not eligible.
- 6. Only one claim per Final Judgment may be filed unless the Final Judgment prescribes payments over time.

Refer to 503 CMR 2.11 for more information regarding costs allowable for reimbursement and 503 CMR 2.12 for more information regarding Third-Party reimbursement application and documentation requirements.

#### Contact:

MA Department of Revenue - UST Program

Phone: (617) 626-2600

Website: <a href="https://www.mass.gov/ust">https://www.mass.gov/ust</a> Email: dorust@dor.state.ma.us

#### 3.0 STANDARD MATERIALS LIST

Supplies may be considered usual and customary when used during activities performed that are not directly incorporated into any work of a temporary or permanent nature. It is understood that several items have multiple end uses and, therefore, in specific situations, the supplies may be classified as materials of construction or consumable supplies, depending on the actual use. Under these circumstances the charges associated with the supplies shall not be eligible.

The following list is considered to be representative of usual and customary supplies:

Abrasives Dies Lantern Bulbs Rollers Airfare **Dippers** Lashing Rubber boots **Badges** Levels Safety goggles Disinfectants Salt tablets & dispenser Bags Drills (<3hp) Line/chalk

Bags-waterElectrode holdersMasks, dustSandpaperBands-elasticExtractor screwsMandrelsSaws (<3hp)</td>Barrels-trashExtension cordsMedical suppliesShields, face/side

Mirrors **Batteries** Fasteners Soap **Belting** Mops Faucets Soapstone Brads/nail Files Needles/acetylene Spray bottles Stencils **Brooms Filters** Brushes Filters-respirator Office supplies Supplies-washroom

Buckets Fire Extinguishers Oils-cutting Tacks
Bulbs Flashlights Packing Tags
Cables Flux-braising Pails Taps bolt

Cables Flux-braising Pails Taps, bolt
Camera Funnels Paper Taxi fare
Cans Glove liners-wool Parking Thimbles, wire/rope

Chain Gloves-cotton-work Paste Tips-cutting welding Chalk Patterns Towels Glue Twine Chamois Goggles Pencils Chisels Graphite Postage Wash powder

Grinding wheels Pulleys Water cooler Clamps Clips Hacksaws **Punches** Wedges Cloth Handles Wheel cutting Rags Helmets Connectors Rain gear Wire

Cotter Pins Hoods Rakes
Crayons Keys Wastes-wipes

Cups Lanterns Rope

#### 4.0 MASSACHUSETTS REIMBURSEMENT FEE SCHEDULE TASK CODE GUIDANCE

The following information is provided to clarify eligible tasks and associated backup requirements as defined in the Reimbursement Fee Schedule and should be carefully reviewed to properly apply to the allowable rates and fees. Where available, references have been made to the MassDEP regulations, standard methods or published MassDEP policies. Future policies will be incorporated into this text as they become available. The Board shall reimburse costs or activities completed in accordance with these references or accepted industry or engineering practices.

As of the effective date of this revision, three competitive bids may be obtained for work and/or materials covered by Task Codes 4.4, 6.1.3, 6.7, 6.11.1, 7.1, 9, 10, 12, 13, 14, 17.1.1.8, 18, 20, 22, 23, 24, 25, 27, and 28 in place of the unit price(s). In addition, <u>Task Codes 6.4, 6.5 may require</u> three quotes (see task codes for additional guidance), while Task Code 22.4, **requires** a minimum of three bid responses be submitted in order to claim reimbursement.

Note: Biddable items are subject to the labor and equipment rates established under Task Code 1 and Task Code 28, respectively.

MARKUPS: Eligible costs on subcontractor or material invoices must be supported with time

and materials backup (date of service, 21J equivalent labor category, labor hours and labor rates, itemized equipment and materials breakdown). Reimbursement rates specified as "At Cost" or "Actual Cost" will be reimbursed at the direct cost to the Claimant as supported by invoices and proof of payment. Claimants are not eligible to apply mark-ups for reimbursement. However, markup of vendor and lower-tier subcontractor invoices by the Claimant's prime contractor/consultant will be reimbursed at 8 percent, only if the prime contractor/consultant provides proof of payment for the lower-tier vendor/subcontractor costs being claimed. The prime consultant/contractor must have paid the lower-tier vendor/subcontract prior to the submission of the Reimbursement Application (i.e., the proof of payment must pre-date the claim Reimbursement Application eUST submit date). Equipment and materials invoiced based on the consultant/contractor's published rate sheet (e.g., materials pulled from a general inventory) are assumed to already include mark-ups and will be reimbursed at the published rates subject to the task maximums. Claimed costs for markup will be included with and applied with other applicable task code costs for the purposes of determining task maximums. A lowertier vendor or subcontractor shall not be an affiliate of the prime consultant/contractor. For the purposes of 503 CMR 2.00, an affiliate is an individual or entity that is related to the prime consultant/contractor within the scope of Internal Revenue Code § 267(b) or §707(b)(1).

# 4.1 TASK CODE 1 – LABOR CATEGORIES (TASK CODES 1.1 THROUGH 1.17)

The labor rates presented in Task Codes 1.1 through 1.17 represent the maximum reimbursable hourly rates for each labor category based on education, experience, and certifications (see below for detailed descriptions of labor categories and qualifications). Experience is defined as experience directly related to the services being performed. For example, a person who worked for an environmental consulting firm for 3 years in an office/clerical position and 1 year as a Field Technician conducting sampling or related field work, would only be considered to have 1 year of related experience.

The labor rates serve as guidelines for determining reasonableness and cost-effectiveness of labor rates being charged as part of Task Codes 2 through 26 of the Fee Schedule, as well as labor rates charged by subcontractors under the Task Codes that are bid. Labor categories claimed for specific tasks in the Fee Schedule should reasonably reflect the technical and experiential requirements for the task at hand. For example, the majority of field tasks such as groundwater sampling are typically conducted by technicians and scientists. The more senior labor categories task codes are typically involved with coordination, data review, and reporting of such field work. Work performed by an LSP or PE involved with conducting a field activity may be reimbursed within the Task maximum applicable to Task Codes 2 through 26 of the Fee Schedule, provided there is no duplication of services provided. The Claimant must provide adequate documentation to support reimbursable charges, including time sheets, field records, etc. for all activities, in addition to the normal reimbursement claim documentation (proof of payment, Notice of Responsibility, etc.).

The labor rates presented in Task Codes 1.1 through 1.17 also apply to tasks that are not specifically defined in the Fee Schedule. For example, Task Codes 1.1 through 1.17 may be appropriately claimed immediately after a Two-Hour Release Condition notification (i.e., emergency response activities) as defined at 310 CMR 40.0311. Claimants are advised to provide

documentation and justification that demonstrates, to the satisfaction of the Board, that activities performed were "emergency" in nature and could not be performed under the existing task codes.

Costs directly related to the response action(s) incurred by a qualified employee of the Owner or Operator will be reimbursed at not more than the hourly rates listed in Task 1 for the labor category applicable to the level of effort provided by the employee. The hourly rate to be reimbursed for the employee of the Owner or Operator shall be calculated as the product of 1.33 times the employee's hourly rate. Detailed time sheets verifying the work completed and employee pay records must accompany all claims for reimbursement for an employee of the Owner or Operator.

Unless otherwise noted, the term "degree" refers to an Associates, Bachelors, Masters, or Doctorate degree in a related field from an accredited college or university.

# Task Code 1.1 - Principal

- Owner, partner, associate, and/or corporate officer of the organization
- Corporate responsibility.
- Ensure all organizational personnel comply with applicable federal, state or local statutes, regulations or policies.

# <u>Task Code 1.2 - Licensed Site Professional/Other Registered Professional</u>

- Directs professional staff.
- Performs final review of project documents.
- Provides expert testimony.
- Evaluates and approves new technological innovations.
- Certifies MassDEP documents and renders professional opinion.

# **Normal Qualifications and Experience:**

- Degree in engineering, geology, hydrogeology or related science and 8 years of related experience in investigation and remediation of contamination in soil and ground water.
- Professional registration by the Massachusetts Board of Registration of Hazardous Waste Cleanup Professionals. Professional registration when applicable (e.g., P.E., C.P.G., C.I.H., etc.).

# Task Code 1.3 - Project Manager

- Responsible for making budgetary, project management and supervisory decisions.
- Plans, conducts and supervises project assignments or discrete tasks within larger projects.
- Estimates and schedules work to meet completion dates.
- Develops scope of work and project or task-level budget; writes and reviews reports.
- Responsible for project management and execution of project assignments, subcontractor agreements, project quality assurance, adherence to contract terms, staff assignment and team composition, cost, schedule and project deliverables.
- Typically there is only one project manager for each scope of work

# **Normal Qualifications and Experience:**

Minimum B.A./B.S. degree with 5 years of related experience

**Technical Experience:** Technical experience in waste site investigations, cleanup activities or other discipline directly related to the requirements of this contract. Minimum of 4 years experience managing environmental projects and personnel.

**Typical Labor Classification under Federal Labor Standards Act (FLSA):** Exempt employee.

# **Examples for Eligible Project Management Charges (technical related):**

- Office coordination/scheduling of field event (i.e., sampling; drilling; soil excavation; system O&M; system repairs; system installation; DEP audits; EFR activities, etc.) Project management time would be claimed towards the corresponding field task code.
- Telephone communication with field personnel during field event (claimed towards corresponding field task code. Documentation of communication in field notes or complete description on invoice required).
- Quality Control/Quality Assurance review of field notes/documentation from an eligible field event (charges claimed against corresponding field event task code up to a maximum of 1 hour per field event up to the task maximum for the field event, and should occur within 30 days of completion of the field event).
- Technical review of required MCP reports (charges claimed against corresponding MCP report Task Code 2.1 through 2.22).

# **Examples for Ineligible Project Management Charges (project administration related):**

- Office related activities associated with billing; invoicing; preparation/copying of supporting documentation for 21J reimbursement claim or responding to RFI/preliminary adjustments;
- Communication with Client; preparation of internal reports; preparation of proposals for additional work with Client; and
- Reviewing prior environmental reports and/or meeting/corresponding with prior environmental consultants in order to get "up to speed" when assuming activities as a "new" environmental consultant /LSP-of-Record:

# Task Code 1.4 - Senior Scientist/Engineer/Geologist

- Responsible for making scientific and supervisory decisions; provide scientific or engineering specialties.
- Plans, conducts and supervises project assignments or discrete tasks within larger projects.
- Estimates and schedules work to meet completion dates.
- Writes and reviews reports.
- Responsible for execution of project assignments, subcontractor agreements, project quality assurance, adherence to contract terms, staff assignment and team composition, cost, schedule and project deliverables.

# **Normal Qualifications and Experience:**

Minimum B.A./B.S. degree with 5 years of related experience

**Technical Experience:** Technical experience in waste site investigations, cleanup activities or other discipline directly related to the requirements of this contract.

**Typical Labor Classification Under Federal Labor Standards Act (FLSA):** Exempt employee.

# Task Code 1.5 - Staff Scientist/Engineer/Geologist/Hydrogeologist II

- Implements projects under direction of senior staff; analyzing and interpreting data; identifying need for modifications to work plans based on available data; supervising other technical personnel during on-site assessment or remediation activities.
- Under the supervision of more senior personnel, carries out assignments associated with project.
- Applies training within professional discipline to assigned projects and translates technical guidance and training received into usable products and reports.
- Collects and evaluates data, conducts field work, and prepares, or provides input for, reports.
- Provides resident site engineering and construction inspection activities at the site of remediation actions.

# **Normal Qualifications and Experience:**

M.S. degree or equivalent with 1 year experience in discipline B.A./B.S. degree with 2 years experience in discipline

**Typical Labor Classification Under Federal Labor Standards Act (FLSA):** Exempt employee.

# Task Code 1.6 - Scientist/Engineer/Geologist/Hydrogeologist I

- Supports staff, senior staff scientists and engineers, and project managers in data and information collection and field assessment and remediation activities; performs work under the close supervision of more senior staff.
- Entry Level for professional classifications; works under supervision of more senior personnel.
- Gathers and correlates basic data and performs routine tasks and other duties as assigned.
- Makes recommendations on work assignments and variables that effects field operations.
- Assists field operations as directed, including manual tasks such as equipment setup and maintenance.

#### **Normal Qualifications and Experience:**

B.A./B.S. degree with 0 to 2 years of related experience Associate's degree with 2 years of related experience

**Typical Labor Classification Under Federal Labor Standards Act (FLSA):** Exempt employee.

# Task Code 1.7 - Permits/Health & Safety Coordinator

- Permit preparation and coordination. Waste and laboratory coordination.
- Prepares site specific Health and Safety Plan.
- Oversees Health and Safety Plan activities on-site when necessary.

# **Normal Qualifications and Experience:**

2 years related experience

B.A./B.S. degree in related discipline may be substituted for experience requirement

**Typical Labor Classification Under Federal Labor Standards Act (FLSA):** Exempt employee, may qualify as non-exempt.

# **Task Code 1.8 - Construction Foreman**

- Responsible for supervision and overall direction of moderate size routine field service operations.
- Has successfully been involved with at least 5 system installations as on-site supervisor and has assisted in cost estimates for time and materials.
- Develops staff assignments.
- Executes work requests.
- Schedules projects.
- Ensures compliance of field service operations within company procedures and safety standards.

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee but may qualify as exempt.

# Task Code 1.9 - Senior Technician/Technician III

- Performs non-routine and complex tasks in addition to routine assignments.
- Assists in the planning of field work and works at the direction of the team or project leader.
- Gathers and correlates basic data and performs routine analyses.
- May also perform experiments or tests that may require nonstandard procedures and complex instrumentation.
- May construct components, subassemblies, or prototype models.
- May troubleshoot malfunctioning equipment and make simple repairs as authorized by team or project leader.
- May supervise lower-level staff

#### **Normal Qualifications and Experience:**

4 years of related experience

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

#### Task Code 1.10 - Technician II

- Performs non-routine and complex tasks in addition to routine assignments.
- Assists in the planning of field work and works at the direction of the team or project leader.
- Gathers and correlates basic data and performs routine analyses.
- May also perform experiments or tests that may require nonstandard procedures and complex instrumentation.
- May construct components, subassemblies, or prototype models.
- May troubleshoot malfunctioning equipment and make simple repairs as authorized by team or project leader.
- May supervise lower-level staff.

# **Normal Qualifications and Experience:**

2 years of related experience

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

# Task Code 1.11 - Technician I

- Performs simple, routine tasks under supervision.
- Performs routine maintenance and may install, setup or operate field equipment of moderate complexity.
- Provides a wide variety of support functions during field operations.

#### **Normal Qualifications and Experience:**

0 to 2 years of related experience

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

# Task Code 1.12 – Draftsperson/CADD

- Generates new drawings.
- Works from provided plans and maps.
- Coordinates scales.
- Interfaces with all levels of technical and professional staff.
- Interpolates groundwater contour maps.

# **Normal Qualifications and Experience:**

2 years of related experience with Computer Assisted Design operations. Requires a Technical Drawing Certificate or AutoCAD related cartography studies, B.A./B.S. degree in GIS, Cartography or related discipline may be substituted for the experience requirement Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee but may qualify as exempt.

# Task Code 1.14 - Administrative Support

- Operates computer for word processing, spreadsheets, and statistical typing, correspondence, report generation, creation of boring logs, hydrographs, etc.
- Word processing.
- Spreadsheets.
- Report generation.

# **Normal Qualifications and Experience:**

None

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

# <u>Task Code 1.15 – Heavy Equipment Operator</u>

• Licensed in the Commonwealth of Massachusetts to operate specific heavy equipment (e.g., backhoe, excavator, loader, boom truck, etc.).

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

# Task Code 1.16 – Truck Driver

• Licensed to operate multi-axle dump truck and/or tractor for equipment mobilization/demobilization.

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

#### Task Code 1.17 - Laborer

• General laborer to support heavy equipment operation only.

Typical Labor Classification Under Federal Labor Standards Act (FLSA): Non-exempt employee.

# 4.2 TASK CODE 2 - REPORTS (TASK CODES 2.1 THROUGH 2.22)

These task codes are for report research and writing, data tabulation, plan preparation, file review fees, and public involvement and are not for labor, materials, or expenses associated with the performance of field activities (e.g., drilling, sampling, operation and maintenance, laboratory analyses, etc.).

Reports included in this section include MCP required reports such as the Phase Reports (one through five and their associated status reports), Remedy Operation Reports, Immediate Response

Action (IRA) and Release Abatement Measure (RAM) Reports (and their associated status and completion reports), Method 1 through 3 Risk Assessments, Permanent and Temporary Solution Statement Reports, Activity and Use Limitations (AULs) and permit extensions and modifications or other reports required by the MCP and/or MassDEP. Charges that should be associated with these reports include data evaluation including usability [i.e., Representativeness Evaluations and Data Usability Assessments (REDUA)], research and preparation of the actual report inclusive of all tables, figures, and plans. Copies of the completed reports should be available in its entirety on the MassDEP's file viewer website. The reports should include:

- Text, tables, graphs, lab analysis, and any additional attachments to the report.
- Electronic receipt verification from the MassDEP.
- If reports are not completed at the time of request, the consultant should indicate the expected completion date.
- DOR may request draft documents at any time to support the level of effort invoiced.

#### Task Code 2.1.1 - File Review Fees

Fee charges incurred during a file, record, or plan review are reimbursed under this task code. A copy of the receipt from the state agency or local municipality shall be provided as backup to support the charges. Labor to perform the file, record, or plan review is not eligible under this task code and shall be claimed under the task code of the applicable report.

#### Task Code 2.2 - Phase II Scope of Work per 310 CMR 40.0834

This task code is to be used for costs associated with the preparation of a Phase II Scope of Work (SOW), either conceptual or final as submitted to MassDEP. This task code is limited to one per Occurrence regardless if more than one type of SOW is submitted.

#### Task Code 2.3 - Phase II Report

Risk Characterizations performed in conjunction with the Phase II Report are not reimbursed under this task code. Risk Characterization charges will be reimbursed under Task Codes 2.7.1, 2.7.2, and 2.7.3.

# Task Codes 2.3.1, 2.4.1, 2.5.4 - Phase II, III, IV Addendums

These task codes are not limited to a report titled Addendum and may be used when:

A second RTN is issued to a facility where a previous release has been determined to be
eligible and response actions for that release have been completed through Phase II, III or
IV of the MCP but are continuing.

A site where a permanent RAO or Solution has been submitted to MassDEP which is reopened due to change in MCP cleanup standards.

These task codes are not to be used to correct deficiencies in a previously submitted Phase II, III or IV report.

#### Task Code 2.5.1 - Phase IV Status Reports

Per the MCP, it is required that this status Report be submitted every six months. Therefore, only two status reports per year shall be reimbursed, unless required on a more frequent basis by

MassDEP or the MCP (e.g., Imminent Hazard). The claimant shall attach a copy of the MassDEP letter requiring the more frequent status reports, as backup for the additional incurred costs, to the submittal with the Application for Reimbursement.

# <u>Task Codes 2.6.1, 2.6.1.1, and 2.6.3 - Phase V, ROS, ROS Opinion, and Temporary Solution Status Reports</u>

Per the MCP, it is required that these status Reports be submitted at a minimum of every six months. Therefore, only two status reports per year shall be reimbursed, unless required on a more frequent basis by MassDEP. The claimant shall attach a copy of the MassDEP letter requiring the more frequent status reports, as backup for the additional incurred costs, to the submittal with the Application for Reimbursement.

An active remedial system is where a remediation system is operating on a regular basis during the reporting period. For remediation involving injections or extractions, if an injection /extraction event occurs during the reporting period, it is considered to be an active remediation system. A system operated solely to perform O&M is not considered to be an active system.

# Task Codes 2.7.1, 2.7.2 and 2.7.3 - Risk Characterization

Risk Characterizations shall be submitted solely in conjunction with either a Phase II Report or a Permanent and Temporary Solution Statement and will be reimbursed as Task Codes 2.7.1, 2.7.2, or 2.7.3. Method 3 Risk Characterizations performed in response to indoor air sampling (in accordance with MassDEP's EPH/VPH Guidance Document) will be reimbursed as Task Code 2.14, Imminent Hazard Evaluation, per sampling event.

#### **Task Code 2.7.4 - Feasibility of Permanent Solutions**

Feasibility of Permanent Solutions (310 CMR 40.0860) and Feasibility of Restoration of Background (310 CMR 40.1020) performed in conjunction with a Phase III Report or a Permanent Solution Statement will be reimbursed under Task Code 2.7.4.

# Task Code 2.7.5 – Micro-scale/Macro scale NAPL Evaluation

Up to two micro/macro scale NAPL evaluations (310 CMR 40.1003(7)) are reimbursable per eligible release.

#### Task Code 2.8 - Permanent and Temporary Solution Statements

Up to two Permanent Solution Permanent Statements (310 CMR 40.1000) may be reimbursed provided that the second Permanent Solution Statement is an upgrade in Classification (e.g., from a Permanent Solution with Conditions to a Permanent Solution without Conditions.

# Task Code 2.10 – Tier I Permit Classification

These task codes shall be utilized solely for sites ranked as Tier I under the MCP and not where there have been changes to the Tier II Permit under the MCP.

# <u>Task Code 2.11 and 2.11.1 – Tier I & Tier II Permit Modification and Tier II Permit Extension</u>

These task codes shall be utilized for sites ranked as either Tier I or Tier II disposal sites under the MCP. Task Code 2.11 shall be used for Permit Modifications for either Tier I or Tier II sites.

Task Code 2.11.1 will be used for preparing Permit Extensions for Tier II sites only. Use Task Code 2.10.1 for permit extensions for Tier I sites.

# Task Codes 2.12.2 and 2.13.2 - RAM and IRA Status Reports

Per the MCP, it is required that RAM and IRA Status Reports be submitted within 120 days of their respective plans and at six-month intervals thereafter until a completion statement is filed. Therefore, only two status reports per year shall be reimbursed, unless required on a more frequent basis by MassDEP. The claimant shall attach a copy of the MassDEP letter requiring the more frequent status reports, as backup for the additional incurred costs, to the submittal with the Application for Reimbursement.

# Task Code 2.14 - Imminent Hazard Evaluation per 310 CMR 40.0426

Costs to prepare an Imminent Hazard Evaluation (IHE) will be allowed upon submittal of the IHE with a MassDEP report submission or after completion of an indoor air sampling event risk evaluation using the Method 3 Short Forms.

#### Task Code 2.14.1 Substantial Hazard Evaluation per 310 CMR 40.0956

Costs to prepare a Substantial Hazard evaluation (SHE) will be allowed upon submittal of a Temporary Solution, ROS, and 5-year LSP Review report.

# **Task Code 2.16 - Activity and Use Limitations**

This task code does not include a survey conducted by a professional land surveyor. Surveying activity performed in response to Activity and Use Limitations (310 CMR 40.1000) will be reimbursed as Task Codes 9.7 and/or 9.8.

# **Task Code 2.19 - Public Involvement**

Documentation to support public involvement activity is required. All documentation to notify public officials and others of the availability of the report shall be claimed under the report task code, unless the letters are required as part of a PIP.

One of the following items is required:

- A copy of the document (e.g., letter) used to provide notification or information;
- A copy of the legal notice with receipt (including RTN #, Job #, etc.). If the copy of the legal notice and receipt is included in a report, it should be specified in the Appendix 4 separately with the report and page number indicated;
- Employee timesheets describing work performed to support duties not associated with a written document; or
- Phone logs or other supporting documentation delineating and/or explaining the duties performed to support employee office time may be supplied in lieu of descriptions of work performed on employee timesheets.

The following table represents a guide as to what is considered a typical level of effort to generate certain public notifications. Additional effort beyond these limits should be accompanied with an explanation of events or conditions requiring additional cost. Note that these are not considered "budgets" or "goals" and that documentation must be submitted to substantiate the cost actually incurred. When the preparation of multiple notices are included, a breakdown of costs per notice

with the claim/invoice is to be provided.

Example Public Notices	Typical Costs
Phase IV Implementation Notice, PWS, IA, or Surficial Soil residential	Costs
sampling Notices, each	\$350
IRA taken to prevent, control, assess, eliminate IH or CEP, each	\$350
IRA Comps on p,c,a,e IH or CEP –, each	\$350
Phased Report Completion Statements and Public Notices, or RAM Notices  – to the 2-series report code	\$350
PS or TS notices – per submittal basis (includes a \$200 kicker for 1013(1)(c) exceptions )	\$350
DPS Notice or DPS Modification Notice, per property	\$350
RNF Distribution Notice, per RTN	\$350
Public safety threat issues – adding Police and Fire	\$350
Non-Property owner work notice of results to property owner (BWSC-123)	
notice, per property	\$160
results, per property	\$160
Affected Individual Notices – per individual basis, each	\$275
BWSC-122 (Phase II, etc.), per property	\$275

# Task Code 2.21 - Prepare Monitoring Well & Boring Logs

This task code is for the labor to complete monitoring well reports and/or boring logs associated with the installation of borings and monitoring wells. Documentation to support the use of this task code must consist of monitoring well reports and/or boring logs or reference the previously submitted report the log is included in. This task code may only be used once per boring. Monitoring well reports and/or boring logs prepared by the driller are included in Task Codes 9.3.1.1 and 9.3.1.3 and are excluded from this task code.

# Task Code 2.22 - Prepare Remedial Monitoring Report (RMR) Form

This task code is for costs associated with preparing the MassDEP RMR Form (310 CMR 40.0027) and can only be used when the RMR is not accompanied by a Status report, e.g. when a monthly RMR is required. In cases where the RMR Form is being submitted in conjunction with another report, the costs to prepare the form should be claimed under the corresponding report task code that the form is being submitted with.

# <u>Task Code 2.23 – Site Cleanup Status Review</u>

This task code is for the labor and other incidental direct costs required to complete the Site Status Review Report as outlined in the Board's policy entitled *Site Cleanup Status Review Policy - Pilot Program* and upon request by the Board, attend a Site Status Review meeting to present the findings of the report to the Board. Reimbursement for costs associated with the task will only be allowed if the Board has requested that 1) the report be prepared and 2) meeting attendance is required.

#### **Task Code 2.23.1** - Items covered under these task codes include:

- Labor costs to prepare and electronically submit the Site Status Review report to the UST Program (report contents and format in accordance with Site Cleanup Status Review -Pilot Program).
- Incidental other direct costs required to prepare the report.

#### **Task Code 2.23.2** - Items covered under these task codes include:

- Labor costs to attend the Site Status Review meeting NTE 6 hours per person (2 people)
   including travel time: the site LSP-of-Record plus one project-assigned Sr. Scientist/Engineer/Project Manager.
- Travel expenses includes mileage, rental vehicle, etc.

# 4.3 TASK CODE 3 – HEALTH AND SAFETY (TASK CODES 3.1 THROUGH 3.7.2)

The following task codes shall be used when developing health and safety plans and updates and when using protective and confined space entry equipment.

#### Task Code 3.1 - Health & Safety

The Health & Safety Plan (H&S Plan) (29 CFR 1910.12 and any other applicable OSHA regulation) shall cover all activities performed at a petroleum contaminated site (e.g., sampling, excavation, and remediation of petroleum contaminated soil and groundwater). Only one initial H&S Plan is allowed per site; subsequent plans are considered updates and are reimbursed as Task Code 3.2 - H&S Plan Update. A site visit necessary for plan completion is to be completed under other sub-tasks.

The Health & Safety Plan shall include the following:

- organizational structure for site activities;
- brief site history;
- tasks to be performed;
- hazard analysis for each task to be completed;
- employee assignments;
- personal protection equipment;
- medical surveillance;
- frequencies and types of air monitoring;
- description of site control methods;
- decontamination methods;
- emergency response plan;
- emergency phone numbers;
- site plan; and
- hospital route.

#### Task Code 3.2 - Health & Safety Plan Update (H&S Plan Update)

A H&S Plan Update should be completed regularly (at a minimum of every two years) to ensure it is current with regard to applicable emergency information or when there has been a change in the scope of work requiring the performance of activities not previously conducted (e.g., drilling or excavation activities). There are no limitations on the number of H&S Plan updates which can

be filed for reimbursement; however, reimbursement for the update requires that the update meet the same guidelines as specified for the H&S plan and that the new activities being covered by this update be clearly delineated. This task code may not be used when there has been a change in ownership of the site or claimant. This task code may be used when there is a new consultant that is required to prepare a H&S Plan.

# Task Code 3.5 - Level C Personal Protective Equipment (OSHA 29 CFR, 1919.120)

Personal protective equipment (PPE) are devices worn by workers to protect them against work-related hazards such as liquid or air contaminants, falling materials, and noise. This task code are used in addition to the task codes used for the activities completed on site. See the following entries for additional information.

Level C PPE is selected when the concentrations(s) and type(s) of airborne substance(s) is known, can be monitored, and the criteria for using air purifying respirators are met. The following constitute Level C Equipment:

- Full-face or half-mask, air purifying respirators (NIOSH approved);
- Hooded chemical-resistant clothing (overalls, two-piece chemical-splash suit, disposable chemical-resistant overalls);
- Coveralls:
- Gloves, outer chemical-resistant;
- Gloves, inner, chemical-resistant;
- Boots, outer, chemical-resistant steel toe and shank;
- Boot-covers, outer, chemical-resistant (disposable);
- Hard hat (under suit);
- Escape Mask; and
- Face shield.

# Task Code 3.6 - Confined Space Entry Equipment (OSHA 29 CFR 1910.146)

A confined space is a space large enough for a person to enter, has limited means of entry and exit, and is not designed for continuous occupancy. Confined spaces have limited natural ventilation, making it easier for gases or vapors to accumulate. A permit-required confined space poses one or more of the following hazards:

- Potentially hazardous atmosphere.
- Potential engulfment of worker.
- An internal configuration, such as a tapered floor, which could cause a worker to become trapped.
- Any other serious safety or health hazard such as high temperatures or unguarded machinery.

Copies of all completed confined space entry permits are required for reimbursement of confined space entry equipment charges.

# Task Codes 3.7.1 and 3.7.2 - Air or Soil Gas Monitoring

Air monitoring of petroleum product-derived air contaminants shall be applied to this task code. Air monitoring may be conducted on site at any time and areas often screened are manway/manhole drains, utility trenches, drainage sumps, and indoor air of station buildings or

kiosks. This task may be also used for a pre-sampling site inspection event in order to identify and remove potential non-eligible sources of contamination at least 48 hours (or more depending on building space air exchange rates) prior to the actual air sampling event. Task Code 3.7.1 is used when greater than 6 hours (including travel time) is applied to air monitoring activity; Task Code 3.7.2 is used when 6.0 hours or less (including travel time) is applied to air monitoring activity. For example, set up and removal of a 24 hr SUMMA canister for indoor air monitoring over two days would use Task Code 3.7.2 twice as the setup and take down occurred on different days.

If air sampling work under Task Code 3.7.2 is being claimed on the same day as other sampling events such as well gauging and sampling, travel costs should be claimed under the primary sampling event.

Items covered under these task codes include:

- Labor to coordinate and conduct air monitoring, field screening, sample collection, and supervision;
- Field preparation and breakdown (including setup and removal of SUMMA canisters if applicable);
- Travel time and vehicle expenses to/from site;
- PID, oxygen/explosion meter;
- Toxic gas monitoring and/or sampling equipment (air pump and calibrator);
- Sample jars/bags, sampling incidentals, color metric sampling equipment; and/or
- Sample preparation, logging, storage, and transportation of samples to laboratory.

# 4.4 TASK CODE 4 – PRE-FIELD ACTIVITIES (TASK CODES 4.1 THROUGH 4.3)

The following task codes shall be used in order to supervise and coordinate drilling activities, remedial system installation/removal activities, and other substantial subsurface assessment and/or remedial response actions [coordination for routine well gauging/sampling, remedial system operation and maintenance (O&M)], EFR, disposal events, etc. shall not be allowed).

# Task Code 4.1 - Pre-Field Activity Coordination and Implementation

Scheduling of field activities with subcontractors, site owners, and/or personnel conducting field work shall be applied to this task code (this does not include labor to obtain offsite access, see Task Code 5.1). This also includes phone calls and administrative time if required to generate work orders, etc. Employee timesheets documenting the office work performed shall be provided to support the charges. Phone logs or other supporting documentation delineating and/or explaining the duties performed to support employee office time may be supplied in lieu of employee timesheets. All services claimed must have a date of service on or prior to the actual event. Preparation time for the actual oversight of the event (e.g., ordering sample kits, gathering supplies, loading trucks, etc.) should be claimed under the actual oversight task code.

# Task Code 4.2 – Pre-Field Activity Site Visit, Dig Safe and Utility Pre-Mark

This task code is for the labor, materials, and equipment associated with a site visit performed before any substantial subsurface assessment or remedial response activity in order to develop/design/inspect a site-specific work plan. This task code also includes activities to obtain

subsurface utility clearance shall be performed prior to any subsurface event and include costs associated with the pre-marking of site. Dig Safe charges that are incurred after the subsurface event are not reimbursable.

Documentation should include:

- Phone logs for Dig Safe call-in.
- Field notes for pre-marking activity.

Two site visits are allowed, up to the task maximum, per field event (a field event is one or more contiguous days of drilling, soil excavation, air monitoring, remedial system installation, etc.). Field notes reflecting the purpose of the site visits are required.

#### Task Code 4.3 – Post-Field Activity Site Visit

This task code is for the labor, materials, and equipment associated with a site visit performed within 30 days after any substantial subsurface assessment or remedial response activity in order to evaluate the assessment or response activities.

# Task Code 4.4 – Utility/ Equipment Survey & Plan Required

This task code is for the labor, materials and equipment (i.e., magnetometer, utility line locator, "Schonstedt" pipe locator etc.) necessary to locate underground utility lines on private property and/or subsurface equipment prior to subsurface assessment/and or remediation activities. One utility/equipment survey is allowed per owner per facility up to the task maximum unless new underground utilities have been installed since the prior utility survey (e.g., substantial station renovations, new tank installation, etc.). This task code is biddable. Utility location information must be included in a report filed with MassDEP. Oversight costs should be coded to Task Code 9.10.

Supporting documentation consists of oversight field notes, contractor report, contractor invoice(s) to support the labor and equipment charges and identification of the report submitted to MassDEP where the utility survey information is contained.

# 4.5 TASK CODE 5 – OBTAIN PROPERTY ACCESS (TASK CODE 5.1)

# <u>Task Code 5.1 – Obtain Off-Site Property Access</u>

Off-site access is required when it is necessary to conduct assessment and/or remedial activities on a property other than the actual site to determine the extent of the release and/or to remediate it. One off-site access agreement is allowed per property and/or scope of work (e.g., installation of off-site monitoring wells, vapor gas points, sub-slab depressurization system, off site indoor air monitoring, etc.). Once an access agreement has been established, communications where coordination is required with the off-site owner to notify them of an associated upcoming event shall be claimed under the task code of the actual event being performed (e.g., scheduling a sample event). Other correspondence and reports sent to off-site property owners will be reimbursed under Task Code 2.19, Public Involvement [310 CMR 40.1400] or their respective report task code.

Items covered under this task code include:

• Labor and materials to prepare and submit an access agreement letter.

• Labor to communicate with off-site property owner.

Either an access agreement letter or phone logs shall be provided to support the charges. Charges are eligible as long as attempt(s) were made to gain access.

4.6 TASK CODE 6 – EXCAVATED SOILS MANAGEMENT, HANDLING, REPORTING, SHORING, BIOREMEDIATION, AND OXIDANT/SURFACTANT INJECTIONS (TASK CODES 6.1 THROUGH 6.13)

The following task codes shall be used when managing, excavating, handling, and remediating contaminated soils.

# <u>Task Codes 6.1.1 and 6.1.2 - Excavated Soil Field Monitoring, Shoring and Soil Load Out Oversight</u>

These task codes may be used when performing field monitoring of soil excavations, shoring and soil load out oversight activities. Task Code 6.1.1 is used when greater than 6 hours of one person's time (including travel time) is applied to these activities; Task Code 6.1.2 is used when 6.0 hours or less (including travel time) is applied to these activities. Evidence in the form of field notes and/or lab data of samples collected must be provided to document the occurrence of excavated soil field monitoring.

Items covered under these task codes include:

- Coordination and labor to conduct excavated soil field monitoring, sample collection, shoring, soil load-out oversight;
- Field preparation and breakdown;
- Travel time and vehicle expenses to/from site;
- Materials and equipment (inclusive of PID, oxygen/explosion meter, etc.); and
- Sample preparation, logging, storage, and transportation of samples to laboratory.

#### Task Code 6.1.3 - Soil Excavation, Placement and/or Shoring

This task code is for the labor (e.g., operator, foreman, laborer) required to perform the excavation of petroleum contaminated soils, excavation shoring, and/or placement of backfill. Backfill material costs should be coded under Task Code 6.6. Equipment should be coded to Section 28 without operator. The equipment, operator and/or laborer costs should be clearly distinguished on the invoice. All consultant charges (subcontractors included) must be supported with backup. Backup for excavation and shoring subcontractor invoices must include equipment rates, equipment hours, labor rates, labor hours, and itemized materials breakdown. Evidence in the form of lab data or field observation notes for soil samples collected from the excavated area must be provided to document excavation to remove soils impacted by petroleum release. Task Code 6.1.3 assumes a crew consisting of an equipment operator, a foreman, a truck driver and a laborer for 8 hours per day. Note that this task code is also biddable.

Items covered under this task should include:

- Labor to conduct contaminated soil excavation, shoring, and/or backfill placement;
- Field preparation, mobilization, and breakdown; and

• Travel time to/from site.

Items not covered under this task include:

- Backfill material (see Task Code 6.6).
- Excavation equipment and vehicles (see Task Code 28).

# <u>Task Code 6.2 – Disposal Management</u>

This task code is for labor costs associated with management and coordination of the loading, transportation and disposal of petroleum contaminated media.

Items covered under this task code include:

- Review of laboratory analytical results for contaminated media disposal;
- Coordination with subcontractors for removal and disposal/recycling of contaminated media; and
- Preparation of documentation [Bill of Lading (BOL), Hazardous Waste Manifest, or Material Shipping Record (MSR)].

Charges shall be reimbursed for work performed prior to the date of the latest BOL, Hazardous Waste Manifest or MSR. If it can be sufficiently established that work performed after the date of the latest BOL, waste manifest or MSR is directly related to the management of the BOL, Hazardous Waste Manifest, or MSR pursuant to the MCP, charges shall be allowed.

For bulk soil disposal the task maximum is applied to every 300 tons of fund-eligible soil disposed offsite.

#### Task Codes 6.4 to 6.5 - Soil Disposal/Recycling

These task codes shall be used for disposal or recycling of petroleum contaminated soils, as that term is defined under 310 CMR 40.0000. This item will be paid "At Cost" (i.e., no bid required) for disposal at licensed facilities located in New England and New York. For all other disposal facilities, a minimum of three (3) competitive quotes for soil disposal with three (3) competitive corresponding transportation must be solicited prior to conducting the work. All quotes must be provided in (or converted to) \$/ton prices. Each disposal bid submitted must include two parts: the disposal or tipping bid and the corresponding transportation cost from the Site to the facility. If the required bids are not submitted, the maximum allowed under this task code will be \$70 per ton, inclusive of transportation, disposal, taxes, surcharges, and fees.

All excavated soils shall be managed in accordance with 310 CMR 40.0000. The maximum weight of soil eligible for reimbursement per site shall be 8,000 tons (1 cubic yard equals approximately 1.5 tons of soil), regardless of disposal/recycling method selected. Supporting documentation in the form of copies of the BOL, Hazardous Waste Manifests, and/or weight slips (any one of which constitutes sufficient backup) must be attached to all invoices submitted for soil disposal/hot recycling, cold recycling, or lined landfill.

Items covered under these task codes include:

- Labor, equipment, and materials to transport soil from site to disposal/recycling facility;
- Disposal/recycling costs; and
- Fuel surcharge.

Items not covered under these task codes include:

- Labor, equipment, and materials to load soil from site onto trucks, see Task Code 6.1.3;
- State hazardous waste transporters fee; and
- Insurance surcharge.

# <u>Task Code 6.6 – Backfill/Restoration Materials</u>

This task code is associated with any type of material (e.g., loam, sand, stone, asphalt, etc.), as long as it does not constitute landscaping work. Loam is eligible for restoration of excavation activities in areas where loamed areas previously existed. Any restoration beyond original condition is not eligible for reimbursement.

Backfill costs shall not be claimed for the volume of tanks removed and not replaced.

Items covered under this task code include:

- Labor, equipment, and materials to transport backfill to site; and
- Backfill material costs.

Items not covered under this task code include:

- Landscaping expense;
- Trees:
- Shrubs; and
- Signs.

# Task Code 6.7 - Bioremediation

This task code is associated with Bioremediation, a process that uses indigenous or cultured microorganisms to return the environment altered by petroleum contaminants to its original condition. Labor, equipment, and materials for gauging and/or sampling of wells not receiving injections are to be reimbursed under Task Code 11, (labor and equipment for travel on the same day as a bioremediation event are to be reimbursed under Task Code 6.7). The purchase and installation of oxygen filter socks shall be reimbursed under Task Codes 6.8.1 to 6.8.4 and Oxygen Release Powder shall be reimbursed under Task Codes 6.9.1. Oxygen cylinders shall be reimbursed under Task Code 6.10. All consultant charges (subcontractors included) must be supported with backup. Backup for bioremediation subcontractor invoices consists of labor hours, labor rates, and itemized equipment and materials breakdown.

Items covered under this task code include:

- Labor to coordinate, conduct, and oversee bioremediation application event;
- Field preparation and breakdown;
- Travel time and vehicle expenses:
- Labor, equipment, and materials to gauge and/or sample wells receiving injections on the day of injection;
- Materials and equipment; and
- Cost of bacteria, nutrients, water, and other materials/supplies necessary for the bioremediation application.

To determine the maximum cubic yards that will be reimbursed for this task code, the nature and extent of petroleum contamination at the site must be characterized in accordance with 310 CMR 40.0835(4)(f). A site plan delineating the horizontal and vertical extent of petroleum impacted soil and/or groundwater as well as soil test boring logs, and soil and/or groundwater data from within the petroleum impacted area shall be provided as supporting documentation. The depth to the petroleum impacted soil and/or groundwater and its associated thickness shall be indicated on the site plan along with the calculations for the total volume of contaminated soil at the site, in cubic yards. The total calculated volume of petroleum impacted soil is a lifetime maximum for the site. The cubic yard calculation should be based on the total treated area, not just a hot spot that may be targeted for limited remediation.

# <u>Task Codes 6.7.1 and 6.7.2 – Bioremediation/Chemical Application Feasibility Bench Scale</u> <u>Evaluation and Report</u>

This task code should be used to conduct a bench scale test to determine the feasibility of using bioremediation or chemical application as a remedial option. A report should be generated with the data accumulated during the test that clearly indicates the feasibility of a bioremediation program as a remedial option. Backup for this task code should include the final report and all supporting documentation.

Items covered under this task code include:

- Labor to coordinate and conduct the bioremediation/chemical oxidation bench scale test;
- Materials and equipment for the test;
- Cost of bacteria, nutrients, water, and other materials/supplies necessary for the bench scale test; and
- Labor to complete the report detailing the test procedures and the results.

# Task Codes 6.8.1 to 6.8.3 - Purchase and Installation of Oxygen Filter Socks

This task code shall be used for the purchase and installation of oxygen filter socks on a per foot basis. Labor for the installation of the socks is to be coded to Task Code 6.8.4.

# **Task Code 6.11 - Chemical Injection**

This task code shall be used when performing chemical injection activities. Oxidants and associated amendments are to be reimbursed under Task Code 6.11.3. Pre-event coordination activities are to be reimbursed under Task Code 4.1. Carbon injections are to be claimed under Task Code 6.7.

Items covered under this task code include:

- Labor to, conduct, and oversee chemical application events;
- Labor to gauge and sample chemical injection wells and wells used to determine extent of injection;
- Field preparation and breakdown;
- Travel time and vehicle expenses; and
- Materials and equipment.

Items not covered under this task code include:

• Labor, equipment and materials to oversee chemical injection events performed by a contractor/subcontractor (including monitoring wells receiving injections).

# Task Code 6.13 - Injection Oversight

This task code is to be used when providing oversight of a subcontracted injection event.

Items covered under this task code include:

- Labor to oversee, field screen and document the injection event;
- Field preparation and breakdown;
- Travel time and vehicle expenses;
- Field screening equipment;
- Labor to monitor wells receiving chemical injections and wells used to determine extent of injection; and
- On site coordination.

# 4.7 TASK CODE 7 – PORTABLE GAS CHROMATOGRAPH (TASK CODES 7.1 THROUGH 7.2)

The following task codes shall be used when performing on-site chemical analysis with a portable gas chromatograph (GC). The portable gas chromatograph is a chemical analysis instrument used to separate chemicals in a complex sample. The analyses are limited to total volatile hydrocarbons or aromatics. All charges must be supported with time and materials backup (dates of service, labor hours, labor rates, itemized equipment, and materials breakdown), field notes and GC calibration records. This task code is biddable.

# Task Code 7.1.1, 7.1.2 and 7.1.3 – Portable Gas Chromatograph

These task codes should be used when utilizing a portable GC on site. Task Code 7.1.1 should be used when 6 hours or less (including travel time) is applied to portable GC activities at the site. Task Code 7.1.2 should be used when more than 6 hours (including travel time) is applied to portable GC activities at the site. Task Code 7.1.3 should be utilized when the portable GC is utilized on a weekly basis.

Items covered under this task code include:

- Labor to coordinate and conduct chemical analysis event;
- Field preparation and breakdown;
- Travel time and vehicle expenses; and
- Equipment such as syringes, sample jars, regulators, carrier gas, etc.

Items not covered under this task code include:

- Soil sample collection (see Task Code 6, 9, 18 or 28).
- Ground water sample collection (see Task Code 11).
- Air sample collection (see Task Code 3).

# Task Code 7.1.4 – Analysis/Sampling Report

This task code should be used to complete the Analysis/Sampling Report for the event that utilized

the portable gas chromatograph. Only one report per event will be reimbursed. An event is considered one or more consecutive days of portable gas chromatograph use.

# Task Code 7.1.5 to 7.2 – Tedlar Bags and Soil Gas Sensors

These task codes should be used for the listed items when they are used in the analyses completed with the portable gas chromatograph.

# [Task Code 8 intentionally removed]

# 4.8 TASK CODE 9 – DRILLING ACTIVITIES (TASK CODES 9.1 THROUGH 9.8)

The following task codes shall be used for the installation of all borings and wells (e.g., ground water monitoring, ground water/LNAPL recovery, soil vapor extraction, air sparge, injection wells, soil gas points, etc.) with related oversight, soil sampling, grouting, surveying, and drafting. Boring permits required by local agencies should be coded to Task Code 17.1.5.

# <u>Task Codes 9.1.1 to 9.1.2 – Equipment Mobilization/Demobilization</u>

These task codes are to be used to mobilize and demobilize drilling equipment and drilling personnel to the site. The task codes can be used once for each day of drilling on the site.

Items not covered under this task code include:

• Travel for oversight personnel (see Task Codes 9.2.1 and 9.2.2).

#### Task Code 9.1.3 – Overtime

This task code is to be used to cover overtime costs associated with the drill rig and drilling personnel when it is more cost effective to work a longer day than complete another day of drilling. This task code is to be used for onsite time over 8 hours in a day. Backup for this task code should include a job sheet indicating the time the driller arrived at the site and the time the driller left the site.

Items not covered under this task code include:

- Mobilization/Demobilization time (see Task Codes 9.1.1 and 9.1.2).
- Overtime for oversight personnel (see Task Codes 9.2.1 and 9.2.2).

# Task Code 9.2 – Drilling Oversight

This task code shall be used when performing drilling oversight activities. Task Code 9.2.1 is used when greater than 6 hours of one person's time (including travel time) is applied to the oversight of the drilling event; Task Code 9.2.2 is used when 6 hours or less (including travel time) is applied to the oversight of the drilling event.

Items covered under this task code include:

- Labor to oversee, field screen and document drilling event;
- Field preparation and breakdown;
- Travel time and vehicle expenses;
- Sample preparation, logging, storage and transportation;
- Field screening equipment; and

• On site coordination.

#### <u>Task Code 9.3 – Drill Rig and Material</u>

These task codes should be used for the drill rig day rate and materials used to install soil borings, ground water monitoring wells, ground water extraction wells, soil vapor extraction wells, air sparge well, injection well, bedrock wells, soil gas sampling points, etc. Air knifing activities to pre-clear boring locations should be coded to the appropriate equipment task code. Material not specifically included in the fee schedule (e.g., stainless steel screen) should be bid.

# Task Code 9.3.1.6 – Half Day Drilling Contingent

This task code should be used if less than four hours of drilling activities occur on site for all drill rigs covered under Task Code 9.3.1.

# Task Code 9.3.3 - Road Box Installation

This task code should be used when a road box is initially installed not in conjunction with drilling activities. Road boxes are considered 18-inches in diameter or less. Replacement of road boxes should be coded to Task Code 24.

# Task Code 9.3.3.1 - Road Box Installation

This task code should be used when a road box is initially installed in conjunction with drilling activities. Road boxes are considered 18-inches in diameter or less. Replacement of road boxes should be coded to Task Code 24.

# Task Code 9.3.4 – Manhole Installation

This task code should be used when a manhole is initially installed not in conjunction with drilling activities. Manholes are considered greater than 18-inches in diameter. Replacement of manholes should be coded to Task Code 24. Installation of manholes during trenching/remediation installations should be coded to Task Code 18.3/18.4.

#### Task Code 9.3.4.1 – Manhole Installation

This task code should be used when a manhole is initially installed in conjunction with drilling activities. Manholes are considered greater than 18-inches in diameter. Replacement of manholes should be coded to Task Code 24. Installation of manholes during trenching/remediation installations should be coded to Task Code 18.3 or 18.4.

#### Task Code 9.4 – Rock Coring

These task codes should be used for the rock coring and associated materials.

# Task Code 9.5 and 9.5.1 – Vibratory/Slide hand-held hammer

These task codes include the cost for all labor, materials and equipment to collect soil, or groundwater samples, or install soil gas points. Travel for this task should be coded under Task Code 9.1.

# Task Code 9.6 – Hand Augering

This task code includes labor and equipment for hand augering for soil sample collection or soil point installation. Use Task Codes 9.3.2.1 - 9.3.2.4 for well materials. Travel for this task should be coded under Task Code 9.1.

# Task Codes 9.7.1.1 and 9.7.1.2 - Unlicensed Surveying

These task codes shall be used when performing unlicensed surveying activity. Task Code 9.7.1.1 is used when 6 hours or less (including travel time) is applied to these activities. Task Code 9.7.1.2 is used when greater than 6.0 hours (including travel time) is applied to these activities. Unlicensed utility location survey must be claimed under Task Code 4.4.

Items covered under this task code include:

- Labor to coordinate and conduct survey event;
- Field preparation and breakdown;
- Mobilization/demobilization, travel time, and vehicle expenses; and
- Survey equipment.

# Task Code 9.7.1.3 - Drafting for Unlicensed Survey

This task code shall be used when performing drafting activities associated with any unlicensed surveying event. This drafting is generally associated with site feature base maps (property lines, buildings, monitoring wells, borings, etc.). Drafting associated with specific report requirements (water table maps, plume maps, etc.) shall be coded to the specific report in Task Code 2.0.

# Task Code 9.7.2.1 and 9.7.2.2 – Professional Survey

These task codes shall be used when performing surveying by a licensed professional surveyor. Task Code 9.7.2.1 is used when 6 hours or less (including travel time) is applied to these activities. Task Code 9.7.2.2 is used when greater than 6 hours (including travel time) is applied to these activities. Oversight of subcontracted licensed professional surveyors should be coded to Task Code 9.10.

Items covered under this task code include:

- Labor to coordinate and conduct survey event;
- Field preparation and breakdown;
- Mobilization/demobilization, travel time, and vehicle expenses; and
- Survey equipment.

# <u>Task Code 9.7.2.3 - Drafting for Professional Survey</u>

These task codes shall be used when performing drafting activities that correspond to the surveying event performed by a licensed Professional Land Surveyor (PLS) document (usually a figure or drawing) stamped by a PLS and/or license of the PLS who performed the survey shall be provided to support the charges claimed.

#### Task Code 9.8 - Professional Utility Survey

This task code shall be used to perform professional utility surveys of above and underground utilities, inverts, reference to the most current industry-accepted datum, and drafting. A PLS stamped drawing shall be provided to support the charges claimed. Oversight of subcontracted

utility surveyor activities should be coded to Task Code 9.10.

Items covered under this task code include:

- Labor to coordinate and conduct survey event;
- Field preparation and breakdown;
- Mobilization/demobilization, travel time, and vehicle expenses; and
- Survey equipment.

# Task Code 9.9 – Ground Penetrating Radar Survey & Report

This task code shall be used to perform a ground penetrating radar (GPR) survey to identify unregistered buried underground storage tanks. A separate GPR survey report shall be provided to support charges claimed. Note: GPR survey activities for identification of subsurface utilities should be coded to Task Code 4.4.

# <u>Task Code 9.10 – Survey Oversight</u>

This task code shall be used for time spent by the consultant (including travel time and vehicle) to meet the licensed Professional Land Surveyor on site on the day of the event to define the parameters of the survey to be performed.

# 4.9 TASK CODE 10 – WELL DEVELOPMENT (TASK CODES 10.1 THROUGH 10.6)

These task codes shall be used when performing initial well development of newly installed wells, clearing of an obstructed well, and redevelopment of existing wells in accordance with MassDEP WSC 310-91 or most recent MassDEP guidance/regulation. This task code cannot be used on a regular basis to remove water containing sediment prior to a sampling event. If well development tasks are used on the same day as a drilling event, the field notes must distinguish the well development/oversight activity from the drilling/oversight activity. The field notes and invoices must document labor hours worked to develop wells and must identify which wells were developed. All costs will be applied to the per hour maximums. The hourly rate includes all personnel, equipment and material associated with the task. All charges must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown).

# <u>Task Codes 10.1.1 and 10.1.2 – Equipment Mobilization/Demobilization</u>

These task codes shall be used for equipment mobilization/demobilization and all travel costs for the development of all wells. Task Code 10.1.1 should be used when traveling 50 or fewer miles to the site. Task Code 10.1.2 should be used when traveling greater than 50 miles to the site.

# Task Codes 10.2 to 10.6 – Well Development

These task codes may be used when performing well development activities for 2-inch through 26-inch wells.

Items covered under this task code include:

- Coordination and labor to perform well development/clearing and oversight;
- Drill rig;
- Well development tools and materials; and

Steam cleaner.

Items not covered under this task code include:

• Disposal of debris/liquids generated during well development (see Task Code 28.18.5).

# 4.10 TASK CODE 11 – GROUNDWATER GAUGING/BAILING AND SAMPLING (TASK CODES 11.1 THROUGH 11.6)

These task codes shall be used when performing groundwater well gauging, bailing, and sampling activities to monitor both on and off-site conditions. Coordination, preparation, materials, and equipment charges shall correspond to actual activity performed (e.g., gauging, bailing, sampling); only travel time and vehicle expenses should be applied to Task Code 11.1.1. Field notes shall include the identity of the wells sampled in addition to all data gathered from the sampling event. Effluent sampling of POET systems from the tap shall be reimbursed as Task Code 23.1. Groundwater sampling utilizing a pump in any capacity should be applied to TC 11.1.8. Task Codes 11.1.3 and 11.1.8 include the equipment and labor required to collect field measurements. Task Code 11.1.7 is only to be used when sampling is not performed.

Items covered under these task codes include:

- Labor to coordinate and conduct groundwater well gauging, product bailing, and sampling event;
- Labor to install/place/inspect/remove passive skimmers (i.e., adsorbent boom/socks etc.) (Note: Cost of passive skimmer to be coded under Task Code 29);
- Field preparation and breakdown;
- Travel time and vehicle expenses;
- Sampling and gauging equipment;
- Sample jars;
- Sample logging;
- Sample storage;
- Transportation of sample to laboratory;
- Instruments; and
- Decontamination materials.

# Task Code 11.2 – Safety Person

This task code should be used when an additional person is required for safety reasons, for example groundwater sampling in a roadway, active parking lot, or other location/situation documented in the site health and safety plan. Travel time for the extra person is assigned to Task Code 11.1.1, one task maximum per event. Separate field notes are required documenting the times and activities performed by the safety person.

# 4.11 TASK CODE 12 – AQUIFER PUMP TEST (TASK CODES 12.1 THROUGH 12.1.1.4)

These tasks codes shall be used when performing an aquifer pump test (DEP WSC 310-91). An aquifer pump test is a controlled procedure in which water is withdrawn from a well at a constant rate for a specified period of time. The water level in the well is measured at certain intervals

before, during and after pumping and can be performed during 8, 12, 24 or 48-hour pump discharge tests. All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment, and materials breakdown). Field notes and associated documentation completed after the test shall also be provided to support charges claimed. The pump test results are usually included in other report(s) submitted to MassDEP. In this case, the claimant should indicate what report the documentation is included in.

#### Items covered under this task code include:

- Coordination and labor to conduct aquifer pump test (gauging of monitoring wells associated with testing is included);
- Field preparation and breakdown;
- Equipment mobilization/demobilization and decontamination;
- Travel and vehicle expenses;
- Equipment set-up and breakdown;
- Site cleanup;
- Materials and equipment; and
- Data evaluation, documentation, and report.

#### In addition, the following task codes shall be used as appropriate:

- Task Code 7.0, Portable Gas Chromatograph.
- Task Code 17.0, Permitting.
- Task Code 23.5, Carbon Purchase/Disposal.
- Task Code 27.0, Lab Analysis.
- Task Code 28.0, Fluids Disposal and Equipment Rental (i.e., trucks, blowers, pumps, treatment devices, frac tank rental).

# 4.12 TASK CODE 13 – RISING / FALLING HEAD (SLUG) TEST/LNAPL BAIL DOWN (TASK CODES 13.1.1 THROUGH 13.1.2)

These task codes shall be used when performing a rising/falling head (slug) test per DEP WSC 310-91 or LNAPL transmissivity testing per ASTM E2856. Task Code 13.1.1 is used when 6 hours or more (including travel time) are applied to the testing activity. Task Code 13.1.2 is used when less than 6.0 hours (including travel time) are applied to the testing activity. The effort, equipment and materials to conduct a product bail-down test, slug test and LNAPL transmissivity test are similar and, therefore, it is also permissible to use this task code when performing a product bail down/recovery test or LNAPL transmissivity test. Field notes and associated documentation completed after the test shall be provided to support charges claimed. The slug test results are usually included in other report(s) submitted to MassDEP. In this case, the claimant should indicate what report the documentation is included in. One event per well is allowed except for LNAPL transmissivity testing, which requires providing a technical justification if additional events are required (e.g., seasonal groundwater fluctuation, post-remedial verification testing).

#### Items covered under this task code include:

 Coordination and labor to conduct rising or falling head (slug) test (gauging of monitoring wells associated with testing is included) or transmissivity test requirements per ASTM E2856;

- Field preparation;
- Equipment mobilization/demobilization and decontamination;
- Travel and vehicle expense;
- Equipment set-up and breakdown;
- Site cleanup;
- Materials and equipment (including data logger, if necessary); and
- Data evaluation, documentation, and report.

In addition, the following task codes shall be used as appropriate:

- Task Code 2.7.5, Micro/Macro scale NAPL evaluation.
- Task Code 23.5, Carbon Purchase/Disposal.
- Task Code 27.0, Lab Analysis.
- Task Code 28.0, Fluids disposal and equipment rental (i.e., trucks, blowers, pumps, treatment devices, frac tank rental).

# 4.13 TASK CODE 14 – SOIL VAPOR EXTRACTION (SVE)/AIR SPARGE (AS) PILOT TESTING (TASK CODES 14.1 THROUGH 14.1.4)

These task codes are used when performing Soil Vapor Extraction/Air Sparge pilot testing (SVE/AS testing). All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours, labor rates, itemized equipment and materials breakdown). The specific pilot test task codes are determined by the technology and presence of air emissions treatment activity. Only one pilot test per technology per site is allowed. If delays occur between the coordination efforts and the actual event, reasons for the delay and a revised schedule for the event shall be provided. Field notes and associated documentation completed after the test shall be provided to support charges claimed. The pilot test results are usually included in other report(s) submitted to MassDEP. In this case, the claimant should indicate what report the documentation is included in. Note that fluids extracted via vacuum shall be reimbursed as Task Code 28.18.4.3.

Items covered under this task code include:

- Coordination and labor to conduct SVE/AS testing (gauging of monitoring wells associated with testing is included);
- Field preparation;
- Equipment mobilization/demobilization and decontamination;
- Travel and vehicle expenses;
- Equipment set-up and breakdown;
- Equipment and materials;
- Site cleanup; and
- Data evaluation, documentation, and report.

In addition, the following task codes shall be used as appropriate:

- Task Code 17.0, Permitting.
- Task Code 23.5, Carbon Purchase/Disposal.

- Task Code 27.0, Lab Analysis.
- Task Code 28.0, Fluids Disposal and Equipment Rental (i.e., trucks, blowers, pumps, treatment devices).

# 4.14 TASK CODE 15 – REMEDIAL FEASIBILITY STUDIES (TASK CODES 15.1.1 AND 15.1.2)

# Task Codes 15.1.1 and 15.1.2 – Net Present Value

Reimbursement shall be made for the preparation of studies including calculation of equipment cost, installation cost, operating and maintenance expenses, utility expenses, salvage value, and determination of the net present values of alternative remediation strategies/equipment investments. The net present value (NPV) method is a method of ranking investment alternatives. The NPV is equal to the present value of future returns, discounted at the cost of capital, plus the present value of the cost of the investment, minus the salvage value of the equipment at the end of the project.

The remediation strategy/equipment investment with the lowest NPV should be selected if this alternative is expected to achieve MassDEP required cleanup standards. For example, two alternative strategies are available for the treatment of off-gas from an air tray stripper. The first alternative provides for the treatment of off-gas via catalytic incineration for a period of four years. The cost of the catalytic incinerator is \$25,000. It will cost \$10,000 to install the catalytic incinerator and \$15,000 per year for operating and maintenance expenses, including electricity.

The second alternative is to treat the off-gas via vapor phase granular activated carbon. It will cost \$5,000 to purchase the equipment and \$5,000 to install it. Annual operating and maintenance expenses, including replacement carbon, are projected to be \$25,000.

Therefore, assuming the equipment will be needed for a period of four (4) years, the NPV of the alternative remediation strategies/equipment investments are calculated as follows:

	CATALYTIC	C INCINERA	TOR	VAPOR PHASE CARBON			
Year	Net Cash Flow	PVIF (10%)	PV of Cash Flow	Net Cash Flow	PVIF (10%)	PV of Cash Flow	
		` /			` ′		
1	\$15,000	0.9091	\$13,637	\$25,000	0.9091	\$22,728	
2	\$15,000	0.8624	\$12,936	\$25,000	0.8624	\$21,560	
3	\$15,000	0.7513	\$11,270	\$25,000	0.7513	\$18,783	
4	\$15,000	0.6830	\$10,245	\$25,000	0.6830	\$17,075	
PV of Outflows			\$48,088			\$80,146	
Plus Equipment & Installation Costs			\$35,000			\$10,000	
Subtotal:			\$83,088			\$90,146	
Less Salvage Value of Equipment at End of Project:							
	\$2,000	0.6830	(\$1,366)	\$0	0.6830	<u>\$0</u>	
Net Present Value:			\$81,722			\$90,146	

Note: PVIF => Present Value Interest Factor

Therefore, the alternative strategy/remediation equipment with the lowest NPV represents the least cost alternative for treating the air stripper off-gas. Thus, catalytic incineration would be selected to treat the air stripper off-gas.

In the example presented above, the cost of capital was assumed to be ten percent (10%). For future analyses, the prime lending rate in effect at the time of the analysis shall be used as the cost of capital.

### 4.15 TASK CODE 16 – LEASE/PURCHASE ANALYSIS AND BID REQUEST PREPARATION (TASK CODES 16.1 AND 16.2)

These task codes shall be used to prepare studies to determine the feasibility of leasing remediation equipment vs. the purchase of remediation equipment and to prepare bid specifications and requests.

### Task Code 16.1 - Lease vs. Purchase Analysis

This task code shall be used to determine the feasibility of leasing remediation equipment vs. the purchase of remediation equipment. The term "lease" and "rental" are interchangeable.

503 CMR 2.11(2)(f)1 states, "The Claimant shall determine whether purchase is more cost-effective than a lease and the Claimant shall, upon request of the Board, furnish supporting documentation to the Board of its determination;". The following guidance is provided to facilitate the purchase vs. lease decision:

- a) Six (6) months of lease payments claimed will be allowed and not count towards the purchase price when remediation equipment is leased. A cost-benefit analysis shall be conducted after the six (6) month lease payments.
- b) Whether it is determined that it is more cost-effective to purchase or lease the remediation equipment, the 21J Fund will reimburse the Claimant not more than the purchase price, exclusive of the first 6 months of lease, sales tax, and freight, of the remediation equipment.
- c) Note that Sales Tax does not enter into the calculations as it is reimbursed at cost under Task Code 30.
- d) Note that freight does not enter into the calculations as it is reimbursed at cost under Task Code 31.
- e) If a lease option is selected, a copy of the quote showing the purchase price of the leased remediation equipment shall be provided to the Board with the cost-benefit analysis. At a minimum, the quote shall be of sufficient detail, with major components itemized, to evaluate the purchase price of the system.
- f) Three (3) bids/quotes for comparable equipment are required for all components which exceed \$5,000.00 per component and \$25,000.00 in the aggregate.

### **Task Code 16.2 - Bid Specification Preparation**

This task code shall be used when preparing the specifications for equipment and/or mechanical and electrical scopes of work and sending the bid specifications to a minimum of three prospective bidders. (Note that Task Code 22.4 requires a minimum of 3 bids <u>received</u> if the bidding option is used, therefore it is strongly recommended that the bid specification is solicited to more than

three vendors. In all cases, all bids received must be submitted as backup.) Backup to support the bid preparation charges claimed should include the actual specifications sent to the bidders and verification that they were sent to at least three bidders. Costs are only reimbursed if charges are submitted as a bid and the lowest bid will be the amount reimbursed.

Items covered under this task code include:

- Preparation of the bid specification;
- Sending identical bid specification to at least three prospective bidders; and
- Communication with the prospective bidders.

### Bid Requests should include:

- Equipment/mechanical/electrical specifications and/or scope of work;
- System design figures, drawings, and/or site maps; and
- Bid Forms with units of measure and estimated quantities for each item.

The subsequent invoice should correlate with each line item listed on the bid specification. Non-biddable items should either be listed on the bid as a separate line item or not be included in the bid.

### 4.16 TASK CODE 17 – REMEDIATION PERMITTING AND REPORTING (TASK CODE 17.1 THROUGH 17.1.6)

These task codes shall be used when performing activities associated with obtaining local, state, and federal permits, dewatering activities, and discharge monitoring report preparation. All permitting related activities (e.g., communication with permit authorities and preparation of applications) are included in the reimbursement rate. Permit fees to federal, state, or local governmental agencies are not reimbursable by the program; however, the efforts to obtain these permits are. Utility permitting should be coded under Task Code 20.

### Task Codes 17.1.1. to 17.1.1.6 - Discharge Permits

These task codes shall be used when performing activities associated with obtaining local, state, and federal discharge permits to install, operate and maintain a remediation system.

### Task Code 17.1.1.7 to 17.1.1.7.3 – Discharge Monitoring Reports

These task codes should be used when preparing Discharge Monitoring Reports required in the discharge permit. To be reimbursed for USEPA Dewatering Remediation General Permit (DRGP) monitoring reports, a copy of the report must be submitted with the claim.

### Task Code 17.1.1.8 - Remediation Dewatering

This task code shall be used when performing activities associated with mobilizing/demobilizing, operating, and monitoring a dewatering system. This task code is also biddable.

Items covered under this task code include:

- All coordination and labor to conduct dewatering activities, including pre-mobilization coordination;
- Coordination of dewatering activities is limited to one half (1/2) hour of office time to

each full (8 hours) of dewatering activity.

- Field preparation;
- Travel and vehicle expenses; and
- Equipment and materials (e.g., PID, oxygen explosion meter, toxic gas monitoring equipment, sample jars, sampling incidentals).

In addition, the following task codes shall be used as appropriate:

- Task Code 23.1.1 and 23.1.2, Equipment mobilization/demobilization and decontamination, Equipment set-up and breakdown;
- Task Code 23.5 carbon purchase/disposal;
- Task Code 27.0, lab analysis; and
- Task Code 28.0, fluids disposal and equipment rental (e.g., pumping wells, pumps, generators, storage tanks, carbon filters, air strippers, etc.).

#### Task Codes 17.1.2-17.1.6 - General Permits

These task codes shall be used when performing activities associated with applying and obtaining local and state required permits (e.g. local building department permits for treatment sheds, fire department permits for storage of compressed gas cylinders, local sidewalk permits, local trenching permits, local and state road opening permits etc.), Note: the permit fees and any "bonding fees" (if required) are ineligible, however, the costs associated with obtaining the permit(s) are eligible and all charges to obtain permits (subcontractors included) must be supported with time and materials backup and a copy of the permit obtained (date of service, labor hours and labor rates). If a permit is not approved or the permit is not otherwise obtained, permit-related costs will not be eligible.

# 4.17 TASK CODE 18 – TRENCHING AND INSTALLATION OF UNDERGROUND PIPING AND EQUIPMENT, AREA/ENCLOSURE FOR SVE, AS AND/OR GROUNDWATER EXTRACTION SYSTEM (TASK CODES 18.1 THROUGH 18.6.12.3)

These task codes shall be used when performing trenching and installation of underground piping and equipment for remediation systems. All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown). Charges may be submitted as a bid, see Task Code 16.2.

#### Task Codes 18.1 and 18.2 - Installation Oversight

These task codes shall be used when performing oversight of trenching and installation of underground piping and equipment area/enclosure for remediation systems. Task Code 18.1 is used when greater than 6 hours (including travel time) is applied to these activities. Task Code 18.2 is used when 6.0 hours or less (including travel time) is applied to these activities.

Items covered under this task code include:

- Labor to conduct oversight of trenching and installation of underground piping and equipment area/enclosure for remediation systems;
- Equipment and materials (e.g., PID, oxygen explosion meter, toxic gas monitoring equipment, sample jars and sampling incidentals);
- Field preparation and breakdown; and

• Travel time and vehicle expense.

### Task Code 18.3 - Mechanical Installation Crew

This task code is for the labor (e.g., operator, foreman, laborer) required to conduct the actual trenching and installation of underground piping and equipment area/enclosure for remediation systems. Backfill material costs should be coded under Task Code 18.4. Equipment should be coded to Task Code 28 without operator. The equipment, operator and/or laborer costs should be clearly distinguished on the invoice. All consultant charges (subcontractors included) must be supported with backup. Backup for subcontractor invoices must include equipment rates, equipment hours, labor rates, labor hours, and itemized materials breakdown. Evidence in the form of lab data for soil samples collected from the excavated area must be provided to document excavation to remove soils impacted by petroleum release.

Items covered under this task code include:

- Labor to conduct the actual trenching and installation of underground piping and equipment area/enclosure for remediation systems;
- Field preparation, mobilization and breakdown;
- Travel time; and
- Site restoration activities.

Items not covered under this task include:

- Materials (see Task Code 18.4); and
- Excavation equipment and vehicles (see Task Code 28).

### <u>Task Code 18.4 - Remediation System Materials</u>

This task code shall be used for costs associated with the purchase of the remediation system materials. All material charges must be supported with an itemized materials breakdown.

The materials include but are not limited to:

- Pipe;
- Fittings and adapters;
- Glue and primer;
- Manholes, vaults;
- Backfill material;
- Asphalt, concrete, and cement; and
- Valves, gauges, etc.

Items not covered under this task include:

- Sheds (see Task Code 18.5):
- Equipment pads (see Task Code 18.5); and
- Fencing (see Task Code 18.5).

### [Task Code 19 intentionally removed]

### 4.18 TASK CODE 20 – INSTALLATION OF UTILITIES FOR REMEDIATION SYSTEMS ONLY (TASK CODES 20.1 THROUGH 20.4)

These task codes are associated with remediation costs incurred by utility companies' installation of their utility services to the site. All utility connections for remediation equipment must be metered separately from other site utility connections to be eligible for reimbursement.

### <u>Task Code 20.1 – Coordination of Utility Services for Remediation Systems</u>

This task code shall be used when coordinating for a utility company to install their utility on site.

Items covered under this task code include:

• Coordination and communication with utility company to install utility.

Items not covered under this task code include:

• Site visit to meet utility company to install utility (see Task Code 4.2).

### <u>Task Code 20.2 – Utility Company Installation Cost</u>

This task code shall be used for the costs charged by the utility to install the service from the street to the utility meter. Federal, state or local governmental fees are not reimbursable.

### **Task Code 20.3 - Electrical Installation Crew**

This task code is only for labor costs (task maximum based on two individuals, number of people on site may vary) and shall be used when an electrical installation crew installs and completes the electrical service and the remedial system component wiring for powering, operating, and controlling the system. Materials inclusive of electrical conduit, wire, panel boxes are to go under Task Code 20.4. Backup for electrical subcontractor labor costs consists of labor hours and labor rates.

Items covered under this task code include:

- Coordination and labor to install the remedial system component wiring to power the system and electrical controls and safety interlocks;
- Field preparation and breakdown; and
- Travel time and vehicle charges.

### **Task Code 20.4 - Remediation System Electrical Materials**

This task code shall be used for costs associated with the purchase of the remediation system electrical materials. All material charges must be supported with an itemized materials breakdown.

The materials include but are not limited to:

- Pipe;
- Fittings and adapters;
- Glue and primer;
- Wires:
- Panels;
- Sockets; and

• Breakers.

### [Task Code 21 intentionally removed]

### 4.19 TASK CODE 22 – PURCHASE AND INSTALLATION OF REMEDIATION SYSTEMS (I.E., GROUNDWATER AND NAPL, SOIL VAPOR EXTRACTION AND AIR SPARGING)

These task codes shall be used when performing the purchase, installation or reinstallation of groundwater, non-aqueous phase liquid pumping, soil vapor extraction and air sparging remediation systems. All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown). Charges may be submitted as a bid, refer to Task Code 16.2.

### <u>Task Code 22.1 – Removal and reinstallation of remediation systems from original site of installation to another site, or refurbishment of equipment</u>

This task code shall be used for relocating a remediation system from one site to another. Costs allowed are a site maximum and include all costs associated with the removal and reinstallation, including labor, equipment, materials, and travel. All associated costs should be claimed under the receiving facilities UST Eligible Release Number. Refurbishment of existing equipment also allowed under this task code.

### Task Code 22.2 – Remove and/or store remediation equipment

This task code shall be used for removing remediation system equipment and temporary storage (e.g., winterization, system shut down). Costs allowed are a site maximum and include all costs associated with the removal and/or storage of remediation system equipment, including labor, equipment, materials, tools, travel time, and vehicle expenses.

#### **Task Code 22.3 – Installation Crew**

This task code shall be used for the labor (task maximum based on two individuals, number of people on site may vary) to install remediation system equipment associated with Task Code 22.4. This task code includes labor, equipment, materials, tools, travel time, and vehicle expenses.

#### **Task Code 22.4 – Remediation System Equipment Purchase**

This task code shall be used for the initial purchase of remediation system equipment/components. For Task Code 22.4, a minimum of three competitive bids must be obtained (not just solicited) for all individual components with a value greater than \$5,000 or if the total system value exceeds \$25,000. Labor to install the system at the site shall be claimed under Task Code 22.3.

The value of a component or system is defined as the purchase price from a published catalog or standard rate sheet and is assumed to include the labor required to manufacture the component or system.

For Claimant's contractors or consultants that choose to assemble the system components and build-out the treatment system, the total system value shall include the labor costs for design, procurement, and assembly. In this case, the labor costs shall not exceed 20 percent of the

purchase price of the component(s). For example, if a consultant chooses to purchase the components for a groundwater extraction/carbon treatment system and the purchase price of all the components and miscellaneous material fittings, wiring, etc. cost \$15,000, the maximum labor costs allowed for design, procurement, and assembly would be \$3,000. Similarly, if the purchase price of the components, miscellaneous materials, and allowed labor costs exceed \$25,000, three bids are required. System costs over \$25,000 will only be allowed if they were competitively bid.

### 4.20 TASK CODE 23 – REMEDIATION SYSTEMS OPERATION & MAINTENANCE (TASK CODES 23.1 THROUGH 23.7)

These task codes shall be used when performing operation and maintenance (O&M) of remediation systems, system repair, carbon regeneration, carbon disposal, and liquid, solid, and mixed media disposal, as well as for the costs incurred for utility charges and carbon purchase. All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown).

### Task Codes 23.1.1 and 23.1.2 - General O&M of Remedial Systems

These task codes shall be used when performing general O&M of remedial systems. Task Code 23.1.1 is used when greater than 6 hours (including travel time) is applied to these activities. Task Code 23.1.2 is used when 6.0 hours or less (including travel time) is applied to these activities. Project management time is not considered in the determination of the half or full day rate, but is included in the rate maximum.

Items covered under this task code include:

- Coordination of general O&M of remedial systems;
- Subcontractor coordination;
- Labor to obtain operational measurements of systems, collect vapor and liquid samples, and routine system component maintenance;
- Labor to remove and replace activated carbon (in bulk or drums) for treatment system components;
- Field preparation;
- Travel and vehicle expenses;
- Sample preparation, logging, storage transportation of samples to laboratory; and
- Equipment and materials (e.g., PID/FID, pitot tube/rotameter, hand pump, sample jars, sampling incidentals, field screening of samples).

In addition, the following task codes shall be used as appropriate:

- Task Code 11, Groundwater Monitoring, Gauging, Sampling.
- Task Code 23.5.1, Carbon Purchase.
- Task Code 23.5.2 Carbon Disposal.

Items not covered under this task code include:

- Carbon Purchase/Disposal (see Task Code 23.5.1).
- Contaminated waste removal and disposal (see Task Code 23.6).

### Task Code 23.1.3 – Extra Person

This task code should be used when an additional person is required to accomplish labor intensive tasks. This task code can only be claimed for the hours actually utilized for the labor-intensive task. Remaining time for the extra person should be rolled into the half day or full day rate claimed by the primary technician. Back-up/field notes should clearly detail the labor-intensive task being completed. Travel time for the extra person should be included under Task Code 23.1.3.

### Task Code 23.1.4 - Non-Incidental O&M Materials

This task code shall be used for the purchase of non-incidental materials used during O&M activities. The materials include but are not limited to:

- Filter elements (e.g., particulate, cartridges, bags);
- Oil:
- Sequestering agents; and
- Chemical additives.

The materials not included in this task code include:

• Carbon Purchase (see Task Code 23.5.1).

### Task Code 23.3 – Remediation System Repair

This task code is associated with repair or replacement of system components (e.g., pumps, blowers, motors, compressors, flow meters, etc.) including miscellaneous fittings, adapters, wiring, freight/shipping, and labor to remove/install the component. Repair of rented or leased equipment is not eligible. Back-up/field notes must clearly detail the necessity of the repair or replacement of the component and also include the manufacturer's recommendation or other supporting documentation supporting component replacement rather than repair (e.g., cost analysis, diagnostic report, phone logs, etc.). Three competitive bids are required for any component that exceeds \$5,000 in value.

Other items covered under this task code include:

- Coordination of repair of the remedial system component;
- Subcontractor coordination and costs;
- Field preparation;
- Travel and vehicle expenses; and
- Testing equipment and tools.

### Task Codes 23.4 to 23.4.2.2 - Air Stripper Maintenance

These task codes are used for the purchase and disposal of packing material for high profile air strippers and for the purchase and disposal of an acid wash for a low-profile air stripper. Labor to conduct these activities should be coded to the 23.1 task codes.

### Task Codes 23.5. – Replacement Carbon/Carbon Vessels (<200 lbs) Purchase

These task codes are used for the purchase of replacement activated, or reactivated carbon in bulk, or the purchase of carbon containing vessels of less than 200 lbs. Initial carbon purchase should be coded to Task Code 22.4. Field notes must be provided to support the use of carbon/carbon vessels claimed.

Labor costs for activated carbon or carbon vessel (<200lbs) replacement should be coded to Task Code 23.1.1 or 23.1.2. If subcontractor labor is used for activated carbon or carbon vessel (<200lbs) replacement, then the subcontractor's invoice should adequately support labor, DOS, equipment, etc.

### Task Codes 23.6 to 23.6.6.1 – Contaminated Waste Removal and Disposal

These task codes are used for the removal and disposal of contaminated waste. This includes labor, equipment, transportation and disposal. Labor to conduct these activities should not be coded to the 23.1 task codes.

### 23.7 Piping and Instrumentation Drawing

The Piping and Instrumentation Drawing (P&ID) can be claimed once for each system used on the site. The P&ID is expected to be submitted with a report, typically an IRA or Phase IV report.

### 4.21 TASK CODE 24 – WELL PAD/ROAD BOX/MANHOLE REMOVAL/REPLACEMENT AND REPAIR (TASK CODES 24.1 THROUGH 24.1.5)

These task codes shall be used when performing repair, removal, and replacement of concrete pads, road boxes or manholes (DEP WSC 310-91). The repair of roadboxes or replacement of well parts (well plugs, well covers with O-rings) must be performed with another field event (e.g., pad replacement, sampling event or O&M event, etc.). All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown). An explanation for the need to repair, remove, or replace pads, road boxes or manholes is required.

## <u>Task Code 24.1 through 24.1.3 - Remove and Replace Concrete Pad and/or Road box/Manhole</u>

Items covered under these task codes include:

- Coordination and labor to conduct repair/removal/replacement of concrete pads/road boxes/manholes;
- Field preparation;
- Equipment mobilization/demobilization;
- Travel and vehicle expenses;
- Equipment set-up and breakdown; and
- Equipment and associated costs (e.g., jackhammer, compressors, concrete, cement).

### Task Code 24.1.6 - Equipment Mobilization/Demobilization for Repair

This task code shall be used to mobilize and demobilize equipment used for the removal and replacement of concrete well pads, road boxes, and manholes.

Items covered under this task code include:

- Equipment mobilization/demobilization;
- Equipment set-up and breakdown; and
- Equipment travel.

### 4.22 TASK CODE 25 – WELL ABANDONMENT (TASK CODES 25.1 THROUGH 25.5)

These task codes shall be used when performing well abandonment activities per DEP WSC 310-91, as amended or superseded. All charges (subcontractors included) must be supported with time and materials backup (date of service, labor hours and labor rates, itemized equipment and materials breakdown).

### <u>Task Code 25.1.1 and 25.1.2 - Equipment Mobilization/Demobilization for Well Abandonment</u>

These task codes shall be used to mobilize and demobilize well abandonment equipment.

Items covered under this task code include:

- Equipment mobilization/demobilization; and
- Equipment set-up and breakdown.

### Task Code 25.2 – Well Abandonment Oversight

This task code shall be used when performing well abandonment oversight activities. Task Code 25.2.1 is used when greater than 6 hours (including travel time) is applied to the oversight of the well abandonment event. Task Code 25.2.2 is used when 6 hours or less (including travel time) is applied to the oversight of the abandonment event.

Items covered under this task code include:

- Labor to oversee and document abandonment event;
- Field preparation and breakdown;
- Travel time and vehicle expenses; and
- On site coordination.

### Task Code 25.3 and 25.4 - Well Abandonment

These task codes shall be used when performing well abandonment by pressure grouting or drill and grout. Supporting documentation should include field notes and total depth of each well abandoned as measured for the abandonment event.

Items covered under this task code include:

- Labor to conduct well abandonment;
- Field preparation;
- Clean up;
- Equipment; and
- Material costs (e.g., concrete, cement).

### Task Code 25.5 – DEP Well Abandonment Report

This task code shall be used for preparing the Well Abandonment Report by the Massachusetts licensed driller as required by the Massachusetts Department of Environmental Protection. A complete copy of the report must be viewable online or submitted as backup.

### 4.23 TASK CODE 26 – MASSDEP REQUIRED MEETINGS AND TRAVEL (TASK CODES 26.1 THROUGH 26.2)

These task codes shall be used when performing activities associated with MassDEP requests or meetings/ site visits. Documentation (e.g., Notice of Audit Findings, field notes, phone logs) to verify that the request/meeting took place is required to support charges claimed. Charges to gather information and respond to the MassDEP requests shall be supported by communications with MassDEP (e.g., letters, phone logs or e-mails) or Audit Follow-up Reports. If an audit results in a Notice of Noncompliance, the Notice shall be provided and approvals will be granted on a case by case basis.

Items covered under these task codes include:

- Labor to communicate, coordinate, and attend MassDEP requested meeting;
- Travel and vehicle expenses;
- Labor to gather and prepare information as requested by the MassDEP; and
- Labor to prepare necessary Audit Follow-up Reports.

### Supporting documentation includes:

• Correspondence (emails, telephone logs, letters, etc.) from MassDEP requesting that the Consultant be present at a Site Meeting.

### Task Code 26.2 Licensed Site Professional (LSP) Site Visit

This task code is used for the LSP-of-Record to perform site visit activities as required per 310 CMR 40.0000. One annual visit is anticipated, more frequent visits require explanation. Task maximum includes any required coordination, performed by the LSP. Supporting documentation (field notes, etc.) is required.

### 4.24 TASK CODE 27 – LABORATORY ANALYSES (TASK CODES 27.1 THROUGH 27.10.3)

These task codes are used for the laboratory analyses of water, soil, and air and include parameters related to the assessment, evaluation, and abatement of petroleum products discharges and releases from an underground storage tank system. All analytical methods must be the most current EPA-approved methods and/or in accordance with the most recent version of MassDEP's Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols (the "CAM"). The laboratory analyses include general chemistries, microbiology (i.e., bioremediation parameters), metals & minerals, gas chromatography, waste characterization, drinking water organics, and lab add-ons (e.g., groundwater sample filtration and sample compositing). The laboratory invoice, chain of custody, and analytical data is required to support the charges claimed. If there is no applicable task code for the analyte, laboratory rate sheets may be provided from three laboratories in lieu of specific bid documents. It is necessary for the claimant to submit the applicable rate sheets with each subsequent submittal.

Standard laboratory turnaround times of 7-10 business days apply to all laboratory analyses and prices. Surcharges for expedited laboratory turnaround are not eligible for reimbursement by the

Board. Includes sample containers, chain of custody forms, drop-off and pick-up of sample containers, sample disposal costs, and all other sample-related surcharges and fees. Sample shipping costs should be coded to the applicable 11.1 task codes.

### Task Code 27.4.27 – DEP EPH

To be reimbursable, costs must be related to eligible Petroleum Products that include gasoline and diesel fuel. Eligible Petroleum Products, however, do not include many other types of petroleum products typically found at dispensing facilities, such as heating oil, lubricating oil, and waste oil. When conducting site characterization or response actions, it is important to note that the 21J program will only reimburse costs that are directly related to the eligible Release, and not necessarily all costs required to meet the requirements of the MCP.

When conducting an investigation or response action at a site with spilled gasoline and/or diesel products, the costs associated with EPH sampling and analyses will be reimbursable in the following cases:

### 1. Eligible Diesel Fuel Release:

a. Costs associated with EPH analyses are reimbursable for samples collected during site characterization, response actions, and for ongoing site monitoring activities conducted in response to an eligible release of diesel fuel.

### 2. Eligible Gasoline Release:

- a. Facility with known current or historical diesel fuel storage: Costs associated with EPH analyses are reimbursable for the first round of site characterization samples collected as follows: i. if the initial EPH analytical results indicate reportable concentrations of diesel-range petroleum hydrocarbons, then future costs associated with EPH analyses will be reimbursable if the source is an eligible Petroleum Product.
- b. Facility with no recorded history of storing diesel fuel or diesel releases: Since historical UST records are not always accurate or complete, the costs associated with EPH analyses are reimbursable for initial sampling. If reportable concentrations of diesel-range petroleum hydrocarbons are detected and the source is not identified, then the costs for future or additional EPH analyses will not be reimbursable until the source of the release is identified and determined to be eligible.
- c. Facility has a MCP Groundwater Category of GW-1: There may be constituents of gasoline that are not target analytes in the VPH analysis, but can be detected using the EPH analytical method (e.g., 2-methylnaphthalene). Some of these analytes may become an important contaminant of concern and risk driver when evaluating human health risks associated with the Release. For facilities where groundwater is classified as GW-1, EPH and/or EPA Method 8270 SIM analyses will be reimbursable.

As noted above, EPH analyses may be required to assess other releases or sources such as historic heating oil or waste oil that are not eligible for reimbursement under M.G.L. c.21J. You are strongly encouraged to review 503 CMR 2.00 to become familiar with the eligibility requirements for reimbursable costs.

### 4.25 TASK CODE 28 – EQUIPMENT RENTAL (CODES 28.1 THROUGH 28.27)

These task codes shall be used when renting construction vehicles, equipment, systems, and components during response activities. Rental rate limits are set for hourly, daily, weekly, and monthly time periods. The type of rental and rental period determine the proper task code. Except for Task Code 28.18.4, the rental rates are for equipment only and do not include labor costs. Refer to Task Code 1.0 for labor rates for equipment operator, laborer and truck driver. Laborer is only allowed when needed to support heavy equipment operation. Remediation systems and/or components may be rented for up to six months before a lease versus purchase analysis must be performed. Refer to Task Code 16.1 for additional guidance.

### <u>Task Code 28.18.4.1 and 28.18.4.2 Vactor Solids Excavator with Operator and Trailer</u> Mounted Air Excavator

These task codes shall be used when performing air-knifing activities for pre-clearing soil boring or vacuum excavation for response activities. These task codes include labor and travel time. Field notes and/or drill logs to support logged soil types or collected samples are required.

### Task Code 28.18.4.3 - Enhanced Fluid Recovery (EFR)

This task code shall be used when performing Enhanced Fluid Recovery (EFR) activities. EFR is defined as total fluids extraction, i.e., extraction of soil vapor gas, groundwater and non-aqueous phase liquid (NAPL), or some combination of the three. EFR consists of applying vacuum, generally greater than 15 inches of mercury, to a wellhead to enhance the flow and recovery of petroleum fluids from a well(s) so that they can be removed and recovered from the subsurface. It is generally appropriate for NAPL recovery from small isolated contaminated areas. Labor, equipment, and materials for gauging and/or sampling of wells not receiving injections or extractions or are to be reimbursed as Task Code 11.1.2 through 11.5, (labor and equipment for travel on the same day as an EFR event are to be reimbursed under Task Code 28.18.4.3). Expenses incurred to perform EFR remediation may be claimed for multiple events in a month. The task maximum is per event.

Items covered under this task code include:

- Coordination and labor to plan, coordinate and conduct all the EFR activities; both subcontractor and consultant (gauging of extraction wells included);
- Travel time and vehicle expenses;
- Labor, equipment, and materials to gauge and/or sample wells receiving injections on the day of injection or being extracted on the day of extraction;
- Equipment (e.g., all trucks, blowers, pumps, treatment devices, etc.); and
- Materials (e.g., PIDs, LEL meters, multi-meters, etc.).

### **Number of EFR Events Allowed**

- 1) If EFR is implemented and is not part of an IRA, RAM, or Phase IV, there is a lifetime site maximum of two events.
- 2) When EFR remediation has been implemented as part of a Phase IV Remedy Implementation Plan, the number of EFR events is unlimited. The Phase III Remedial

Action Plan shall document the appropriateness and cost benefit of EFR in accordance with 310 CMR 40.0850 and 40.0860 when compared to other available technologies. Costs associated with such evaluations shall be reimbursed as Task Code 2.4, Phase III, and Task Code 2.7.4, Feasibility of Permanent Solutions/ Feasibility of Restoration to Background; OR

- 3) When EFR is implemented as part of an IRA or RAM (i.e., prior to or not part of the Phase IV), the number of EFR events is limited to the task maximum of two events per month, for up to a total of six months. After six months of EFR events have been conducted, a cost benefit analysis using data from the completed events shall be prepared and submitted with the reimbursement application to determine if EFR should be continued or if an alternative petroleum remediation technique should be employed. Charges for the cost benefit analysis shall be claimed under Task Code 15; OR
- 4) If EFR is added as a remedial technology after the Phase IV RIP Completion Statement has been submitted or during implementation of the Phase V and/or OM&M Plan, without the benefit of a revised Phase III/IV, the number of EFR events is limited to the task maximum of two events per month, for up to a total of six months. The claimant may then seek pre-approval from the Board to continue EFR events. In this case, a cost benefit analysis supporting the proposed use of EFR to shorten the remediation timeframe using data from the completed events shall be prepared and submitted to the Board for review.

#### SUMMARY OF ALLOWABLE EFR EVENTS

	CONDITION	# of EFR EVENTS ALLOWED
1.	EFR performed as a general response action	2 events lifetime max
	not specified in an IRA, RAM or Phase IV RIP	
2.	EFR is included in Phase IV	Unlimited with a Max. of 2 events
		per month
3.	EFR is included in an IRA or RAM	6 months with a Max. of 2 events
		per month
4.	RIP enhancement per Phase V-OM&M	6 months with a Max. of 2 events
	revision	per month – May seek pre-approval
		from the Board for future events

#### Task Code 28.18.6 and 28.18.7 - Mobile Groundwater Treatment Trailers

These task codes shall be used when renting a mobile groundwater treatment trailer. There are two different types of mobile groundwater treatment trailers. Both consist of an oil/water separator, liquid phase granular activated carbon vessels (up to 50 gallons per minute), transfer pump, heater and electrical controls. The second mobile groundwater treatment trailer (Task Code 28.18.7) has the added feature of a soil vapor extraction module for 100 cubic feet per minute flow rate (with vapor phase granular activated carbon vessels). The specifications of the system components are required to support the charges claimed.

### 4.26 TASK CODE 29 – MISCELLANEOUS MATERIALS (TASK CODES 29.1 THROUGH 29.11)

These task codes should be used for the reimbursement of miscellaneous materials used for the completion of Response Actions when not included under other applicable task codes. All charges (subcontractors included) must be supported with time and materials backup (date of service, itemized equipment and materials breakdown).

#### 4.27 TASK CODE 30 – STATE SALES TAX

### Task Code 30.1- State Sales Tax

This task code may be used when a sales tax listed on any invoice, receipt, or utility bill as a separate line item is claimed. The sales tax shall be reimbursed at actual cost. Sales tax on ineligible equipment and materials charges (other than exceeding a task code maximum) is not reimbursable.

### 4.28 TASK CODE 31 - FREIGHT

### Task Code 31.1 - Freight/Delivery

This task code may be used when a freight/delivery charge listed on any invoice or receipt as a separate line item is claimed. The freight charge shall be reimbursed at actual cost. Note that the freight/delivery charge shall only be claimed if the associated equipment/components/materials are also claimed.

#### 5.0 **ACRONYMS Implies** => Greater than > < Less than 21J Underground Storage Tank Petroleum Product Cleanup Fund, MGL c. 21J Air Petroleum Hydrocarbons APH API American Petroleum Institute AS Air Sparging **ASTM** American Society of Testing Materials AUL Activity and Use Limitation BOARD Underground Storage Tank Petroleum Cleanup Fund Administrative Review Board Board of Health **BOH BTEX** Benzene, Toluene, Toluene, Ethyl Benzene and Xylenes Cubic Feet per Minute **CFM** Chief Municipal Officer **CMO CMR** Code of Massachusetts Regulations CU/YD Cubic Yard **DPS Downgradient Property Status EFR** Enhanced Fluids Recovery i.e., groundwater/NAPL and soil vapor gas **EPA** (U.S.) Environmental Protection Agency Extractable Petroleum Hydrocarbons **EPH** Gas Chromatography Flame Ionization Detector GC/FID Gas Chromatography Mass Spectrophotometry GC/MS Gallons per Minute **GPM**

Groundwater Category for Current or Potential Drinking Water Source

GW-2 Groundwater Category - Source of Volatiles to Indoor Air GW-3 Groundwater Category - Everywhere else Hg Mercury

GW-1

HR Hour IH Imminent Hazard

ISCO In Situ Chemical Oxidation

IWPA Interim Wellhead Protection Area

LB Pound

LEL Lower Explosive Limit

LF Linear Feet

LNAPL Light Non-Aqueous Phase Liquid

LS Lump Sum

LSP Licensed Site Professional

MassDEP Massachusetts Department of Environmental Protection

MCP Massachusetts Contingency Plan MGL Massachusetts General Law MTBE Methyl Tertiary Butyl Ether NAPL Non-Aqueous Phase Liquid

NFPA National Fire Protection Association

NON Notice of Noncompliance

NOR Notice of Responsibility

NTE Not to Exceed

O&M Operation and Maintenance

OSHA (U.S.) Office of Occupational and Health Adminstration

P&ID Piping and Instrumentation Diagram
PE Registered Professional Engineer

PID Photoionization Detector PIP Public Involvement Plan PRP Potentially Responsible Party RAM Release Abatement Measure

RCRA Resource Conservation and Recovery Act

REDUA Representativeness Evaluations and Data Usability Assessment

RFI Request for Information

SF Square Feet

SHE Substantial Hazard Evaluation

SVE Soil Vapor Extraction T&M Time and Material

TPH Total Petroleum Hydrocarbon

UOM Unit of Measure

UST Underground Storage Tank
VES Vapor Extraction System
VOC Volatile Organic Compound
VPH Volatile Petroleum Hydrocarbons

#### 6.0 REFERENCES

Provided below is a list of references which provide statutes, regulations, policies, national codes, guidelines, industry standards, and recognized references which shall be followed when applicable at the time, while conducting response, assessment, remediation, and response action outcome activities for which reimbursement of such activities will be sought under the Underground Storage Tank Petroleum Product Cleanup Fund, 503 CMR 2.00. This list of references is provided as a minimum and is not intended to be all inclusive. All regulations or policies referenced are to be superseded by the most recent applicable version available.

- 1. The Massachusetts Oil and Hazardous Materials Release Prevention and Response Act, M.G.L. 21E
- 2. M.G.L. c. 21A, & 16 and 19-19J, M.G.L. c. 30A, & 2 and 3
- 3. Board of Registration of Hazardous Waste Site Professionals, 309 CMR 1.00 8.00
- 4. Board of Registration of Professional Engineers and Land Surveyors, 250 CMR 1.00 6.00
- 5. Massachusetts Environmental Policy Act, 301 CMR 11.00; and areas of critical concern, 301 CMR 12.00
- 6. Commonwealth of Massachusetts Department of Public Works, Application for Permit to Access State Highway
- 7. Department of Environmental Protection Regulations & Policies:

- 8. The Massachusetts Contingency Plan, 310 CMR 40.000 and 40.0000
- 9. The Massachusetts Hazardous Waste Regulations, 310 CMR 30.000
- 10. Massachusetts Drinking Water Quality Standards, 310 CMR 22.00
- 11. Wetlands Protection Act Regulations, 310 CMR 10.00
- 12. The Massachusetts Underground Storage Tank Regulations 310 CMR 80.00
- 13. MA Discharge Regulations, 314 CMR 7.00
- 14. 21E Related Revisions to 310 CMR 4.00, Timely Action Schedule and Fee Revisions, MassDEP, July 30, 1993
- 15. Massachusetts Air Quality Standards, 310 CMR 6.00
- 16. Massachusetts Surface Water Quality Standards, 314 CMR 4.00
- 17. Bureau of Waste Prevention (BWP) BRP WP 42, Groundwater Reclamation Projects Permit
- 18. Policy for Discharges to Groundwater in Support of Remedial Actions Conducted in Accordance with M.G.L. c. 21E, MassDEP #Policy-91-001
- 19. Interim Guidance Manual for Petroleum Contaminated Media, July 1992
- 20. Construction/Excavation Related to Underground Storage Tanks at Motor Vehicle Fueling Facilities, MassDEP
- 21. Policy #WSC-132-90
- 22. Management Procedures for Excavated Soils Contaminated with Virgin Petroleum Oils, MassDEP Policy
- 23. #WSC-89-001
- 24. DRAFT Addendum to Management Procedures for Excavated Soils Contaminated with Virgin Petroleum
- 25. Oils, MassDEP Policy #WSC-89-0019. Policy for the Investigation, Assessment, and Remediation of Petroleum
- 26. Releases, MassDEP Publication #WSC-401-91
- 27. Fact Sheet for Underground Storage Tanks Storing Waste Oil, 310 CMR 30.325(1)(h) and 527 CMR 9.29
- 28. Guidance for Disposal Site Risk Characterization In Support of the Massachusetts Contingency Plan,
- 29. DEP, July 28, 1995, Interim Final Policy #WSC/ORS-95-11.
- 30. Guide to the Regulation of Toxic Chemicals in Massachusetts Waters, MassDEP, December 1990
- 31. Public Involvement Plan Interim Guidance For Waiver Sites, MassDEP, January 1991, Interim Policy #
- 32. WSC-800-90
- 33. Minimum Standards for Analytical Data for Remedial Response Actions Under M.G.L.c.21E, MassDEP, January
- 34. 19, 1989, Policy #WSC-300-89
- 35. Making No Further Action Decisions at Waiver Sites, MassDEP Policy # WSC-120-90
- 36. Suggested Outline, Content and Format for Phase II Human Health Risk Assessment Scope of Work, MassDEP Policy # WSC-140-91
- 37. Risk Assessment Short Form Residential Scenario, MassDEP Policy # WSC/ORS-142-92

- 38. Minimum Standards for Analytical Data for Remedial Response Actions Under M.G.L. c. 21E, MassDEP Policy # WSC-300-89
- 39. Background Documentation for the Development of the MCP Numerical Standards, MassDEP, April 1994
- 40. MASSACHUSETTS Solid Waste Management Regulations, 310 CMR 19.000
- 41. Previously Non-participating and Newly Identified PRPs Who Wish to Assume Responsibility for Response Actions, MassDEP Policy # WSC-601-90
- 42. MCP Questions and Answers, Volume 1, Number 1, MassDEP, November 5, 1993
- 43. MCP Questions and Answers, Volume 1, Number 2, MassDEP, December 1993/January 1994
- 44. MCP Questions and Answers, Volume 1, Number 3, MassDEP, February/March 1994
- 45. MCP Questions and Answers, Volume 1, Number 4, MassDEP, April/May 1994
- 46. MCP Questions and Answers, Special Edition No. 1, May 1994
- 47. MCP Questions and Answers, Volume 1, Number 5, MassDEP June/July 1994
- 48. MCP Questions and Answers, Special Edition No. 2, June 1994
- 49. MCP Questions and Answers, Special Edition No. 3, September 1994
- 50. MCP Questions and Answers, Special Edition No. 4, February 1995
- 51. MCP Questions and Answers, Volume 2, Number 1, MassDEP July 1995
- 52. MCP Questions and Answers, Volume 3, Number 1, June 1996
- 53. MCP Questions and Answers, Volume 3, Number 2, December 1996
- 54. MCP Questions and Answers, Master Q&A, March 25, 1999
- 55. MCP Ouestions and Answers, Volume 7, Number 1, January 2001
- 56. Underground Storage Tank Closure Assessment Manual, MassDEP Policy #WSC-402-96, April 9, 1996.
- 57. Standard Reference for Monitoring wells, MassDEP Publication #WSC-310-91
- 58. Water Supply Protection Overlays, MA MassDEP
- 59. DRAFT Remedial Action Design Document RADD-0: Project Description/Cover Sheet
- 60. DRAFT Remedial Action Design Document RADD-1: Packed-Tower Air Stripper
- 61. DRAFT Remedial Action Design Document RADD-2: Aqueous Phase Granular Activated Carbon Adsorption
- 62. Off-Gas Treatment of Point Source Remedial Air Emissions Pursuant to MGL c.21E, MassDEP Policy #WSC-94-150
- 63. Certification and Operation of Environmental Analysis Laboratories, 310 CMR 42.00
- 64. Preservation Techniques for Volatile Organic Compound(VOC) Soil Sample Analyses, MassDEP Policy WSC #99-415
- 65. Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), January 1998 and subsequent revisions.
- 66. Characterizing Risks posed by Petroleum Contaminated Sites: Implementation of the MassDEP VPY/EPH
- 67. Approach, Final Draft, June 2001, and subsequent final policy and revisions.
- 68. Feasibility of Approaching Background, Pre-Final Draft, June 20, 1997, and subsequent Final policy and revisions.
- 69. Guidance on Implementing Activity and Use Limitations, Draft dated January 22, 1998, and subsequent final policy and revisions.

- 70. Interim Remediation Waste Management Policy for Petroleum Contaminated Soils, MassDEP Policy #WSC-94- 400.
- 71. Guidance from Differentiating Disposal Sites from Spills, MassDEP Policy #WSC-89-002.
- 72. Short Term Measures Policy, MassDEP Policy #WSC-130-90
- 73. Interim Measures Policy, MassDEP Policy #WSC-131-90
- 74. Previously Non-participating and Newly Identified Parties Potentially Responsible #WSC-601-90.
- 75. Guidance on Implementing Activity and Use Limitations, Draft dated January 22, 1998 and subsequent final policy and revisions.
- 76. Construction of Buildings in Contaminated Areas, January 2000, MassDEP Policy #WSCO-00-425
- 77. Draft Indoor Air sampling and Evaluation Guide, February 1, 2001.
- 78. Federal Statutes, Regulations, Policies & Publications:
- 79. Short Term methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organism, US EPA, EPA-600/4-89-001
- 80. "US EPA Region 1 Biomonitoring Protocol", US EPA Region 1, Boston, MA Letter dated July 1, 1990
- 81. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, latest edition,
- 82. US EPA, EPA-600/4-90/027
- 83. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 40 CFR 300-399
- 84. Resource Conservation and Recovery Act, 40 CFR 190-299
- 85. Toxic Substances Control Act, 40 CFR 700-END
- 86. Clean Water Act. 40 CFR 100-149 and 40 CFR 400-699
- 87. Superfund Amendments and Reauthorization Act, 40 CFR 300-399
- 88. Clean Air Act, 40 CFR 1-89
- 89. Test Methods for Evaluating Solid Waste, EPA Publication SW-846, Latest Edition
- 90. National Pollutant Discharge Elimination System, 40 CFR Part 110
- 91. Spill Prevention Control & Countermeasure Plans, 40 CFR Part 112
- 92. USGS Bedrock Geologic Map of Massachusetts, Department of the Interior, U.S. Geological Survey
- 93. Society in cooperation with the Commonwealth of Massachusetts, E-an Zen, Editor, 1983
- 94. USGS Topographic May, Appropriate Quandrangle(s)
- 95. National Climatic Data Center, Local Climatological Data, Annual Summary and Comparative Data, Asheville, NC, 1992
- 96. "Element Concentrations in Soil and Other Surficial Materials of the Conterminous United States", U.S.
- 97. Geological Survey Professional Paper 1270, U.S. Government Printing Office, Washington, D.C., 1984
- 98. Time Lag and Soil Permeability in Groundwater Observations, Hvorslev, M.J., U.S. Army Corps of Engineers, Waterways Experimental Station Bulletin 36, Vicksburg, MS
- 99. Superfund Public Health Evaluation Manual, USEPA, EPA 540/1-86/060, 1986

- 100. Drinking Water and Health, NRC, Volume 9, National Academy Press, 1989
- 101. US EPA Region 1 Biomonitoring Protocol Letter dated July 1, 1990. US EPA Region 1 Offices, Boston, Massachusetts, US EPA, 1990.
- 102. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organics, US EPA. 1991, Fourth Edition. EPA-600/4-90/027
- 103. OSHA Safety and Health Standards, 29 CFR 1926/1919, Latest Edition
- 104. Standard Methods for Examination of Water and Wastewater, APHA. 1989, 17th Edition. Washington D.C.
- 105. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms, EPA-600/4-89/001
- 106. How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, EPA 510-B-95-007 National Recognized Codes & Standards:
- 107. Flammable and Combustible Liquids Code, ANSI/NFPA, Latest Edition
- 108. Automotive and Marine Services Station Code, ANSI/NFPA Code 30A, Latest Edition
- 109. Flammable and Combustible Liquids Code Handbook, NFPA, Latest Edition
- 110. National Electrical Code, NFPA 70, Latest Edition
- 111. Handling Underground Releases of Flammable and Combustible Liquids, NFPA 329, Latest Edition
- 112. Recommended Practices for Installation of Underground Liquid Storage Systems, Petroleum Equipment Institute, Publication No. PEI/RP100-87
- 113. Specifications for Concrete Aggregates, ASTM Standard C33-85, Latest Edition
- 114. American Petroleum Institute Publications:
- 115. Installation of Underground Storage Systems, API Recommended Practice 1615, Latest Edition
- 116. Removal and disposal of Used Underground Storage Tanks, API Recommended Practice 1632, Latest Edition
- 117. Cathodic Protection of Underground Petroleum Storage Tank and Piping Systems, API Publication 2015, Latest Edition
- 118. Cleaning Petroleum Storage Tanks, API Publication 2015, Latest Edition
- 119. Management of Underground Petroleum Product Storage Systems at Marketing and Distribution Facilities, API Recommended Practice 1635, Latest Edition
- 120. Underground Spill Cleanup Manual, API Bulletin 1628, Latest Edition
- 121. A Guide to the Assessment and Remediation of Underground Petroleum Releases, API Publication 1628, Latest Edition
- 122. Feasibility Studies on the Use of Hydrogen Peroxide to Enhance Microbial Degradation of Gasoline, API Publication 4389, May 1985 109. Beneficial Stimulation of Bacterial Activity in Groundwater Containing Petroleum Products, API Publication 4427, March 1975
- 123. Enhancing the Microbial Degradation of Underground Gasoline by Increasing Available Oxygen, API Publication 4428, February 1982
- 124. Field Application of Subsurface Biodegradation of Gasoline in Sand Formation, API Publication 4430, August 1978
- 125. Field Study of Enhances Subsurface Biodegradation of Hydrocarbons Using Hydrogen Peroxide as an Oxygen Source, API Publication 4448, 1987

- 126. Solubility of BTEX from Gasoline/Oxygenate Mixtures, API Publication 4531, August 1991
- 127. Treatment Technology for Removal of Dissolved Gasoline Components from Groundwater, API Publication 4369, October 1983
- 128. Subsurface Venting of Hydrocarbons from an Underground Aquifer, API Publication 4410, September 1985
- 129. Cost Model for Selected Technologies for Removal of Gasoline Components in Groundwater, API Publication 4422, February 1986
- 130. Examination of Venting for Removal of Gasoline Vapors from Contaminated Soil, API Publication 4429, March 1980
- 131. Forced Venting to Remove Gasoline for a Large-Scale Model Aquifer, API Publication 4431, January 1984
- 132. Treatment System for the Reduction of Aromatic Hydrocarbons and Ethers Concentrations in
- 133. Groundwater, API Publication 4471, June 1988
- 134. Phase Separated Hydrocarbon Contaminant Modeling for Corrective Action, API Publication 4474, October 1988
- 135. Rehabilitation of Groundwater: Removal of Petroleum Contamination through Soil Application, API Publication 4475, February 1989
- 136. Cost-Effective, Alternative Treatment Technologies for Reducing the Concentration of Ethers and Alcohols in Groundwater, API Publication 4479, May 1991
- 137. Technological Limits of Groundwater Remediation: A Statistical Evaluation Method, API Publication 4510, June 1991
- 138. A Compilation of Field-Collected Cost and Treatment Effectiveness for the Removal of Dissolved Gasoline Components from Groundwater, API Publication 4525, November 1990
- 139. User's Manual for Regress: Statistical Evaluation of Asymptotic Limits of Groundwater Remediation, API Publication 4543, April 1992
- 140. Pump and Treat: The Petroleum Industry Perspective, API Publication 4561, December 1992
- 141. Detection of Hydrocarbons in Groundwater by Analysis of Shallow Soil/Gas Vapor, API Publication 4394, May 1985
- 142. Field Evaluation of Well Flushing Procedures, API Publication 4405, June 1985
- 143. Proceedings: Sampling and Analytical Methods for Determining Petroleum Hydrocarbons in Groundwater and Soil, API Publication DR 214, 1984
- 144. An Evaluation of Soil Gas and Geophysical Techniques for Detection of Hydrocarbons, API Publication 4509, August 1991
- 145. Sampling and Analysis of Gasoline Range Organics in Soil, API Publication 4516, October 1991 General References:
- 146. Handbook of Hydrology, Maidment, David, R., McGraw-Hill, Inc., Latest Edition
- 147. Construction Site Dewatering, Powers, J. Patrick, John Wiley & Sons, Inc., Second Edition, 1992
- 148. Groundwater and Wells, Driscoll, F.G., John Filtration systems, 1986
- 149. Hydrocarbon Contaminated Soils and Groundwater, Volumes I, II and III, Kostecki, Paul T., and Calabrese, Edward, J., 1992, 1992 and 1990, respectively, Lewis Publishers

- 150. Principles and Practices for Petroleum Contaminated Soil, Calabrese, Edward, J., and Kostecki, Paul T., 1993, Lewis Publishers
- 151. Assessment and Remediation of Petroleum-Contaminated Sites, Cole, Mattney, G., November 1993, Lewis Publishers
- 152. Practical Techniques for Groundwater and Soil Remediation, Nyer, Evan K., Geraghty & Miller Science & Engineering Series, 1992, Lewis Publishers
- 153. Fate and Prediction of Environmental Chemicals in Soil, Plants, and Aquatic Systems, Mansour, Mohammed, June 1993, Lewis Publishers
- 154. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Volumes I and II, Lewis Publishers, Howard, Phillip, 1990
- 155. Handbook of Toxic and Hazardous Chemicals, Sittig, M., Noyes Publications, 1981
- 156. Health Aspects of the Disposal of Waste Chemicals, Grisham, J.W., Pergammon Press, 1986
- 157. Hawley's Condensed Chemical Dictionary, Lewis, R.J., Van Nostrand Reinhold Company, 1993
- 158. Dangerous Properties of Industrial Materials, Sax, I.J., Lewis, R.J., Van Nostrand Reinhold Company, 1989
- 159. Handbook on Environmental Data on Organic Chemicals, Verschuren, K., Van Nostrand Reinhold Company, 1983
- 160. The Soil Chemistry for Hazardous Materials, Dragun, J., Hazardous Material Research Institute, 1988
- 161. Contaminant Hydrogeology, Fetter, C.W., Macmillan Publishing Company, 1992
- 162. Handbook of Environmental Degradation Rates, Howard, P.H., Borthling, R.S., Jarvis, W.F., Maylan, W.M., Michalenko, E.M., Lewis Publishers, 1991
- 163. Standard Methods for Examination of Water and Wastewater, Latest Edition, American Public Health Association, Washington, DC