

**Collection and Presentation of Data in Support of Reimbursement: Petroleum-  
Contaminated Soil**  
(revised October 27, 2022)

M.G.L. c. 21J, 503 CMR 2.00, and the Appendix 3-Reimbursement Fee Schedule provide the rules, regulations, and policies for determining the eligibility of reimbursable costs for Response Actions for eligible Releases. The purpose of this policy is to provide an acceptable framework for collecting and submitting documentation that demonstrates that soil excavated and disposed of as part of a Response Action is eligible for reimbursement. It is important to note that the terms used herein (e.g. Response Action, Eligible Release, Release, etc.) are defined in 503 CMR 2.02 and should not be construed to necessarily have the same meaning as defined in the Massachusetts Contingency Plan (MCP). Also, all activities required under the MCP are not necessarily eligible for reimbursement under 21J.

Further, the terms “contaminated” and “impacted” should not be used interchangeably. The interpretation of the 21J Board/UST Program is that “contaminated” is used to describe materials that require a MCP-defined response action, whereas “impacted” may not. For example, soils containing petroleum-related contaminants that are below S-1 standards could be considered “impacted”, but may not be considered “contaminated”, and MCP-required response actions may not be required.

The 21J/UST Program Staff has the difficult task of reviewing reports prepared for MCP purposes to determine excavation goals, excavation results and whether actions were “cost-effective”, “reasonable” and “necessary”. A photoionization detector (PID) threshold of 100 ppmv and/or MCP S-1 Soil Standard exceedances continues to be the default thresholds for soil to be defined as “contaminated” and which can be reimbursed.

Guidance is provided below on collection of data in support of requests for reimbursement for the disposal of Petroleum Product-contaminated soil. Two data collection scenarios are discussed: 1) pre-classification of soil conditions prior to conducting soil excavation activities; and 2) characterization of soil conditions at the time of excavation through the use of a PID and MassDEP headspace screening protocols. Claimants may propose to use field screening PID values less than the 100 ppmv threshold if the corresponding laboratory analytical data above MCP S-1 Soil Standards correlates to a lower PID value. This proposed PID value and analytical data correlation should be clearly documented in the associated report. The change in PID threshold value does not change the Reportable Conditions under the MCP.

Adequate documentation supporting that the guidance below was followed is anticipated to increase the likelihood of claim approval without the need for filing Reconsiderations or Conferences. However, claimants are not required to follow the suggested guidance and may submit alternative data in support of reimbursement requests. The burden of proof to demonstrate the eligibility of submitted soil-related reimbursement requests remains the responsibility of the claimant.

**General Considerations:**

- Eligible work must be conducted after a Release Tracking Number (RTN) has been issued.
  
- MCP documents describing the planned contaminated soil excavation (e.g. Immediate Response Action Plan, Release Abatement Measure Plan, Phase IV Remedy Implementation Plan) should discuss in detail:

- the objective of the contaminated soil excavation;
  - field and/or laboratory methods proposed for soil characterization; and
  - field screening thresholds to be used and rationale
- If the work is performed prior to the preparation of a written plan (i.e. under a verbal IRA Approval), these criteria/bullets must still be discussed in detail in the written IRA Plan.
  - All claims for contaminated soil reimbursement should include maps/figures and tables documenting:
    - extent of excavation(s);
    - soil sample locations;
    - boring locations (if applicable); and
    - tabulated PID and/or laboratory data including sample/map ID and sample collection depth
  - Contaminated soil that is the subject of the claim must be consistent with the eligible RTN from a Conceptual Site Model perspective, specifically as it relates to fate and transport of the petroleum that is the subject of the RTN. For example, if the contaminated soil is associated with a specific UST failure characterized by contamination in the tank grave and laterally below 10 feet, excavation of soil encountered from 0-10 feet outside of the UST grave would not typically be eligible (would require separate notification/eligibility) unless the claimant provides adequate field screening or laboratory analytical data above the “contamination” threshold. In contrast, if the eligible RTN at a location is for release(s) from historic UST systems where the specific location and release event are unknown, then excavation of soil at different depths and locations would be reimbursable if consistent with the conditions associated with (or linked to) the subject RTN.
  - Claimants may use field screening methods (i.e. PID/headspace screening), laboratory analysis or a combination of the two to characterize soils. In cases where some samples are field screened while others are submitted for laboratory analysis, the soil is considered contaminated if one of the two methods meets the threshold for characterization of soil as contaminated. In cases where soil is pre-characterized and the same soil boring sample is submitted for both field screening and laboratory analysis, the soil is considered contaminated if one of the two methods meets the threshold for characterization of soil as contaminated.
  - Absent a new release condition, excavation and disposal at closed sites (Permanent Solution, Class A/B Response Action Outcome) must be conducted as a Response Action to be eligible for reimbursement.

**Scenario 1: Pre-Classification of Soil Conditions:**

- Boring logs are required
- Vertical delineation of impacts:
  - It is recommended that soil samples be collected continuously (every two to five feet

depending on drilling methods and soil conditions) to allow determination of contaminated depths

- A plan where samples are collected at greater intervals is allowed, but absent other lines of evidence, will only result in reimbursement of contamination between sample locations exceeding thresholds (i.e. the depth range between two contaminated samples) plus half the distance to the next non-contaminated sample. Example: samples are collected at 5', 10' and 15' below grade. The 5' and 10' samples exceed contaminated soil thresholds but the 15' sample does not. Absent other data (see below), the soil from 5' to 10' below grade would be eligible for reimbursement along with 2.5 to 5' and 10' to 12.5'.
  - Soil data collected from borings at non-continuous depths may be supplemented during the excavation process by field-collected data. Example: Samples are collected at 5', 10' and 15' below grade in a pre-characterization soil boring. The 5' and 10' samples exceed contaminated soil thresholds but the 15' sample does not. During subsequent excavation, PID field screening data shows the contaminated zone is actually 3' to 12' below grade. The soil defined as contaminated from the combined boring and field screening data (i.e. 3' to 12' below grade) is eligible for reimbursement along with soil half the distance to the next soil sample below contaminated levels.
  - In cases where field screening data is used to further define contaminated soil as described in the above bullet, the requirements for field screening of soil (below Scenario 2) must be followed.
- Horizontal delineation of impacts:
    - Borings should provide adequate spatial coverage of the anticipated excavation area.
    - A minimum of one boring is required in each direction of intended excavation.
    - Boring spacing should be no more than a maximum of 20' horizontally moving out from the center of the intended excavation area. Reasonable modification of this distance is allowed due to the existence of utility locations and other site obstacles.
    - Similar to the discussion above regarding vertical delineation of impacts, boring data may be supplemented with field screening data collected during the excavation to characterize soils between a sampling point above the contaminated threshold and a sampling point below the threshold. Field screening samples in this scenario must be collected no greater than 20' in a horizontal direction for the contaminated soil between points to be eligible for reimbursement plus half the distance to the next soil sample below contaminated levels. Example: Boring A, installed 15' east of a UST system thought to be the source of the release, contains contaminated soil. Boring B, installed an additional 20' beyond Boring A, does not contain contaminated soil. Absent installation of additional borings and/or collection, the soil from the UST system to boring A and extending half the distance from A and B is eligible for reimbursement. During excavation, however, PID screening samples are collected between Boring A and Boring B and are found to be contaminated. The soil between Boring A and the new contaminated sample locations are eligible for reimbursement, extending to the midpoint between the new contaminated and non-contaminated locations.
    - In cases where field screening data is used to further define contaminated soil as described in the above bullet, the requirements for field screening of soil (below

Scenario 2) must be followed.

**Scenario 2 - Field Screening of Soil:**

- PID data to be collected and screened following MassDEP/MCP protocols.
- In a vertical direction, samples to be collected no greater than every 5’.
- In a horizontal direction, it is recommended that samples shall be collected using a grid system with a center spacing of no greater than 10’.
- Reimbursement eligibility will be on a percentage basis of contaminated to non-contaminated (i.e. impacted) PID screening results. Example: A 10’ spacing grid is used to characterize the next 5’ of soil to be excavated vertically from a UST release excavation. 8 of the 10 samples exceed the threshold for soil contamination; 80% of the soil excavated from that 5’ lift is reimbursable. In a situation where the sidewall or base sample exceeds the contaminated soil level eligible for reimbursement and additional excavation is not possible due to site constraints, consideration will be given to account for contaminated soil that is assumed to extend to or beyond the edge of the excavation.
- In a situation where a sidewall or base sample exceeds the contaminated soil level eligible for reimbursement and further excavation results in a post-excavation sidewall or base sample below the eligibility level, the soil in between the two samples is eligible for reimbursement if the distance is 10 feet or less. The data and report need to support the situation and reasonableness of the distance between the samples.

**Stockpiling and Off-site Transport:**

If soils are adequately characterized following the above guidance, then:

- Contaminated and impacted soil may be stockpiled together if intended to be managed together (i.e. claimant plans to ship all soils to the same facility); however, only those soils designated as contaminated are eligible for reimbursement.
- Field screening data at the time of excavation is not required if pre-characterization data was sufficient to define the excavation area and volume of contaminated soils.
- The method used for segregation of the soil may be identified in the Release Abatement Measure (RAM) Plan, IRA Plan or Phase IV Report and any modifications may be documented in subsequent status and/or completion reports.