



Maryland Department Of The Environment Voluntary Cleanup Program

Attachment Ten Interim Removal Measures (IRM)

IRMs are limited actions that may be performed if MDE determines there is a release or substantial threat of release of controlled hazardous substances (CHS) or oil into the environment that should be removed (COMAR 26.14.02.05A) in order to adequately protect public health and the environment. An IRM is only appropriate at a property that has been accepted into the VCP, or at a property for which a VCP application has been received. An IRM must be approved by MDE as addressing a threat to public health and the environment, and the IRM must be performed under MDE oversight and completed within six months following receipt of the request to perform the IRM. IRM actions must also be consistent with, or not interfere with, any proposed RAP for a property.

MDE considers the following factors when evaluating IRM requests:

- Actual or potential exposure of CHS or oil to nearby human population or the environment; and
- The presence of CHS or oil in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.

IRM activities may include, but not limited to, any of the following:

- Removal of contaminated soil to reduce the spread of CHS and;
- Temporary drainage controls to prevent precipitation or runoff from entering contaminant source areas and spreading CHS or oil;
- Temporary stabilization of berms, dikes, or other impoundments to maintain integrity of structures;
- Provisions for alternate water supply to reduce risk to public health;
- Removal of drums, barrels, tanks, or other bulk storage containers containing CHS or oil that may pose a threat of release;
- Installation of fences, warning signs, or other temporary access control measures; and
- Other measures judged by MDE to be technically sound and necessary to protect public health and the environment.

The following must be submitted to MDE for review prior to approval of the request to perform an IRM:

- A written request to perform an IRM;
- A health and safety plan; and
- A work plan that clearly defines the scope of the removal to be performed.

IRM WRITTEN REQUEST

Authorization to perform an IRM must be requested by the VCP applicant or participant. A statement of certification, as found in Section XIV of the VCP Application (Attachment 1), must accompany the written request, the IRM work plan, and the health and safety plan.

IRM HEALTH AND SAFETY PLAN

A detailed health and safety plan must be available to MDE prior to approval of an IRM work plan. The health and safety plan must comply with local, State and federal laws and regulations regarding the protection of site workers, the public health and the environment. At a minimum, the plan should reference key regulations that may apply to project activities, such as applicable sections of OSHA regulations safety criteria, 29 CFR 1910 (General Industry – Hazardous Waste Site Operations, Excavations, Personal Protective Equipment, Respiratory Protection) and 29 CFR 1926 (Construction).

The health and safety plan must include, but not limited to, the following:

- Discussion and rationale for PPE and monitoring devices to be used during the IRM activities;
- Description of site controls used to restrict access (i.e. security guards, warning fences) during performance of the IRM;
- Outline of dust abatement/suppression methods that may be implemented during and after excavation activities; and
- Discussion of worker certification requirements for site activities, including handling and transport of hazardous and non-hazardous materials. All on-site workers must comply with OSHA guidelines for managing hazardous and non-hazardous materials. The remedial contractor must also possess the necessary certification for the transport of any controlled hazardous substances.

Although MDE does not approve health and safety plans, this written plan must be established to address health and safety issues for both on-site and potential off-site receptors prior to approval of an IRM request. Pertinent laws and regulations applicable to the scope of work for the project should be referenced.

IRM WORK PLAN

A work plan describing proposed IRM activities must be submitted to MDE for approval. Outlined below is a template for preparing a proposed IRM work plan for removal of contaminated soils. Work plans for IRM activities other than soil removal may have other requirements in addition to those listed below.

A. Overview and Objectives: Provide a brief property description and an overview of site conditions.

- Provide a synopsis of previous site investigations pertinent to removal activities.
- Identify on a site map each area of contaminated soil proposed for removal activities.
- Tabulate the concentration and depth of contaminants detected in each contaminated area.
- Estimate the volume of excavated soil for disposal.
- Briefly discuss current land use and future redevelopment plans for the property and include schematic drawings.

B. Cleanup Level or Removal Standards: Specify the cleanup level or removal standards that will be used for each media of concern from the list below (see Section 4). MDE will evaluate the selected option and determine if it is appropriate and protective of human health and the environment.

- Uniform numeric risk based standards (MDE Soil & Groundwater Cleanup Standard–August 15, 2001, Update No. 1);
- Measurable standards based on a site specific risk assessment;
- Background levels;
- Federal or State soil standards or water quality standards (i.e. ambient water quality criteria);
- Standards based on federal or State MCLs; and
- Any other federal or State standards.

C. Soil Excavation: Describe the aerial and vertical extent of each area of contaminated soil proposed for removal. Describe the type of heavy equipment that will be utilized to remove each hot spot area (i.e. backhoe, tractor). Observations from each excavation should be recorded in an excavation log, including dimensions, detailed lithology, field screening results if applicable, photographs, and visual and olfactory observations.

D. Field Screening: If field-testing methods will be used to screen excavated soil, the work plan must identify both the equipment to be utilized and the contaminants of concern. In addition, the plan must discuss instrument calibration requirements. Calibration logs must be maintained and kept on file for reference.

E. Post-Excavation/Confirmatory Sampling: The work plan must detail the post-excavation sampling plan and sampling procedures for verifying the successful removal of each area of contaminated soil. A minimum of five (5) post-confirmatory/excavation soil samples (i.e. grab samples) must be collected from each excavated area, one sample from each sidewall and one sample from the base of the excavation. Further excavation must be conducted in areas where post-excavation samples exceed the approved cleanup levels. This iterative approach should continue until post-excavation sampling results confirm that the cleanup level has been achieved.

F. Soil Management & Disposal: Describe handling procedures for contaminated material pending the results of post excavation analyses, backfilling activities, and plans for the disposal of the contaminated material.

Stockpiled Soil: Soil from each excavation shall be stockpiled separately and secured within the property boundary on six (6) millimeter plastic, completely covered with six (6) millimeter plastic, and anchored to prevent the elements (i.e. weather conditions) and trespassers from disturbing the excavated soils. Proper sediment control measures shall also be implemented. Stockpiled soil shall remain on-site until waste characterization has been completed.

Staging Areas: Identify the temporary staging area for each soil stockpile on a site map.

Waste Characterization: Describe waste characterization procedures for each stockpile. Prior to reuse or disposal, stockpiles must be characterized by collecting an appropriate number of composite or grab samples, depending on the volume of soil in each stockpile. Each composite soil sample will be composed of three individual grab samples, homogenized according to acceptable field quality

assurance and quality control procedures, and sent to a fixed laboratory for analysis. TCLP analysis must be performed on each sample collected from a contaminated area. The receiving soil disposal facility may require additional laboratory analyses.

The number of samples and the analytical methods required for waste characterization must be specified in the IRM work plan. Based on the results of waste characterization, identify an appropriate hazardous or non-hazardous disposal facility for the transport and disposal of excavated soil. Prior to off-site disposal of contaminated soils, the applicant shall submit the required analytical parameters and the number and type of soil samples required for disposal to the Department for review the proposed disposal facility. The disposal criteria of the proposed receiving facility must be submitted to the Department on the facility's letterhead.

Disposal of Excavated Material: All excavated material must be disposed in accordance with applicable local, State and federal laws and regulations.

G. Backfill Material: The work plan must document the source of all proposed fill material to be used in the excavated areas on the property. Soil sampling and analytical testing of proposed fill materials may be required to confirm that the fill material meets the applicable IRM cleanup levels.

H. Decontamination Procedures: Because the primary objective of the decontamination process is to prevent cross-contamination, the work plan must describe the protocol for decontaminating heavy machinery, reusable sampling materials, field equipment and PPE. The plan shall also include a discussion of the disposable procedures for all sampling materials, field equipment and PPE.

I. Reporting Requirements: Upon completion of the IRM, the applicant must provide a final detailed report of all IRM activities. All analytical reports and documentation generated as a result of the performance of the approved IRM must be submitted to MDE for review. This includes manifests for contaminated material (solid, non-hazardous or hazardous) disposed off-site and analytical laboratory reports.

J. Permits, Notifications, and Contingencies: The participant shall comply with all local, State, and federal laws and regulations by obtaining all necessary approvals and permits to conduct the activities pursuant to an approved IRM.

- MDE must be notified immediately of any previously undiscovered contamination, changes to the IRM schedule, previously undiscovered storage tanks and other oil-related issues, and citations from regulatory entities related to health and safety practices.
- The work plan must outline procedures for amending the IRM in the event of unexpected conditions such as the discovery of free product or buried tanks.

K. Schedule: The work plan must outline a detailed schedule of all the work necessary to implement and complete the approved IRM. Field activities shall be promptly implemented following MDE approval of the IRM work plan. The schedule must specify the dates and time frames for implementing and completing each phase of the IRM work plan and MDE shall be notified of any changes to the implementation schedule. Below is an example of an IRM schedule:

Task	Date
IRM Excavation activities (Contaminated Areas 1 & 2)	Month/Day/Year
Post-confirmatory sampling data	Month/Day/Year
Backfilling activities	Month/Day/Year
Waste characterization sampling data received	Month/Day/Year
Transportation of stockpiled soil off-site for disposal	Month/Day/Year
Submittal of IRM Completion Report	Month/Day/Year