

dep home &gt; cleanup of spills &amp; sites

MassDEP Quick Links:

**About MassDEP****Public Participation & News****Air & Climate****Water, Wastewater & Wetlands****Waste & Recycling****Toxics & Hazards****Cleanup of Sites & Spills**

- :: priorities & results
- :: sites & locations
- :: help for homeowners & businesses
- :: brownfields program
- :: licensed site professionals
- :: laws & rules
- :: permits, reporting & forms
- :: grants & financial assistance
- :: compliance assistance
- :: enforcement

**Service Center**

Calendar



My Community



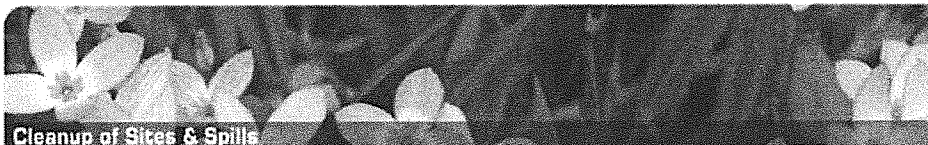
Online Services



Regional Offices



Report Pollution

**Cleanup of Sites & Spills****Audits Fact Sheet****Authority, Mandate, and Funding for Audits**

The Massachusetts Department of Environmental Protection (MassDEP) is required to audit response actions at disposal sites by M.G.L. Chapter 21E Â§ 3A(o). This law mandates that MassDEP audit a minimum of 20 percent of all the sites that are required to pay annual compliance assurance fees. Regulations that govern the audit process are contained in the Massachusetts Contingency Plan (MCP) (310 CMR 40.1100). M.G.L. c. 21E and the MCP also give MassDEP the authority to inspect sites, collect environmental samples, and require that pertinent site information be submitted.

**What is the Goal of an Audit?**

Audits ensure compliance with M.G.L. c. 21E and the MCP by verifying that response actions have been conducted according to applicable MCP requirements. The audit focuses on determining whether human health, safety, public welfare, and the environment have been adequately protected by response actions conducted at the site. Overall, the MassDEP audit program has been designed to ensure:

- **Compliance** with M.G.L. c. 21E, the MCP, and other applicable requirements.
- **Consistency** of audits within and across MassDEP regions.
- **Credibility** to maintain public confidence that response actions that have little or no direct MassDEP oversight are being performed in a proper and timely manner.
- **Commitment** to achieving the 20 percent audit target in M.G.L. c. 21E.

**How does MassDEP Conduct an Audit?**

MassDEP conducts three different types of audits, which are referred to as a **Level 1 Audit**, **Level 2 Audit**, and **Level 3 Audit**, described below. Each audit type provides varying degrees of review. In general, MassDEP auditing activities include:

- Auditing sites, specific response actions, Responsible Parties (RPs), Potentially Responsible Parties (PRPs), or Other Persons (OPs).
- Selecting sites for audit at random, or on a targeted basis.
- Bringing sites back into the system whenever invalid Response Action Statements are identified.
- Taking enforcement actions for violations at any time in the process.

**What is a Level 1 Audit?**

**Level 1 (L1) Audits** provide a screening review of documentation submitted to MassDEP (and located in MassDEP files) using standardized technical screening forms. The technical screening helps MassDEP identify potential time-critical conditions, Immediate Response Action (IRA) conditions, or Imminent Hazards (IH) that may require immediate attention. L1 Audits also:

- Identify sites or response actions for a targeted L2 or L3 audit and/or further MassDEP involvement.
- Usually do not require specific follow-up.
- Typically focus on the specific response action submittal, although supplemental information may or may not be reviewed.

- When completed, are placed in MassDEP site files.

L1 audit technical screening forms are response-action specific. The standard forms, in checklist format, are available at [www.mass.gov/dep/cleanup/compliance/screen.htm](http://www.mass.gov/dep/cleanup/compliance/screen.htm)

#### What is a Level 2 Audit?

**Level 2 (L2) Audits** evaluate specific on-going assessment and remedial response actions at active or conditionally closed sites, e.g., Remedy Operation Status (ROS) or an Activity & Use Limitation (AUL). L2 Audits include:

- A focused examination of pertinent documents in MassDEP site files.
- An inspection of the site, collection of samples, or other actions as required.
- Reasonable notice before the inspection, which is generally oral, but may consist of a written **Notice of Audit** (NOA) in some cases. The NOA may include a request for information or a request to meet with MassDEP.
- A written **Notice of Audit Finding** (NOAF), issued at the conclusion of the L2 Audit.

#### What is a Level 3 Audit?

**Level 3 (L3) Audits** include a comprehensive evaluation of site response actions to ensure compliance with the MCP. L3 Audits include:

- An examination of documents in MassDEP site files.
- A written NOA that may also include: (1) a request for information, (2) a request to meet with MassDEP, (3) a site inspection, (4) collection of samples, or (5) other actions as required.
- A NOAF at the conclusion of the L3 Audit.

#### When May a Site be Audited?

MassDEP selects sites for audit both randomly (Random Audit) and by criteria-specific methods (Targeted Audit) within the following timeframes:

- From the point of the initial release notification to 2 years after a Class A or B Response Action Outcome (RAO) Statement has been filed, MassDEP may select a site for a Random Audit.
- From the point of the initial release notification to 5 years after a Class A or Class B RAO has been filed, MassDEP may select a site for a Targeted Audit.
- MassDEP may, at any time, initiate/conduct a Random or Targeted Audit of any site subject to an AUL.
- After 5 years MassDEP shall not initiate a Targeted Audit unless it has reason to believe that a significant risk may be present at the site and/or that it is noncompliant.

#### What are My Responsibilities in an Audit?

Whether you are a RP, PRP, or OP you have two principal obligations during an audit:

- You must respond to any "Requests For Information" (RFI) from MassDEP pursuant to M.G.L. Chapter 21E §§ 2, 4, and 8 and the MCP [(310 CMR 40.0165(1-5) and 40.1120 (1)(b & c)].
- You must allow entry to the site by MassDEP staff, agents, and contractors so they can sample or inspect any records, conditions, equipment, practices, or property pursuant to M.G.L. Chapter 21E §§ 8 and the MCP (310 CMR 40.0166). MassDEP, however, must arrange such entry at reasonable times and give you reasonable notice (at least 24 hour prior notice).

#### Am I Required to Engage the Expertise of Others?

You are responsible for responding to the audit and complying with any requests made by MassDEP. However, you may engage or may be required to engage the expertise of a Licensed Site Professional (LSP) when responding to the audit. If the audit requests additional follow-up information and/or directs you to submit a **Post-Audit Completion Statement** (P-ACS) to



accompany the information requested, an LSP must be hired. Additional information on the LSP profession and hiring LSPs can be found at the Board of Registration of Hazardous Waste Site Cleanup Professional's web site at <http://www.mass.gov/lsp/lsphome.htm>.

#### How long will the Audit take?

Depending on the type of audit, it may take a single day or up to several months or more to complete. The length of time will depend on audit findings and any necessary actions. For example:

- An audit could end quickly if a file review raises no questions and/or reveals no deficiencies or violations.
- An audit could take several weeks to months to complete if information is unavailable, and/or deficiencies or violations are discovered.

#### What May Happen if Violations or Deficiencies are Found?

If the audit uncovers violations or deficiencies, at the conclusion of the audit MassDEP will issue a NOAF, which may include a **Notice of Noncompliance (NON)** that may:

- Require you to correct those violations within a specified **Deadline**.
- Require you to correct those deficiencies within a specified **Interim Deadline**.
- Require you to submit an **Audit Follow-up Plan**, which will require MassDEP approval before it is implemented.
- **Invalidate** the submittal and require additional response actions to be conducted to return the site to compliance.

Once these activities are completed, a P-ACS must be submitted to MassDEP together with the required documentation. Bureau of Waste Site Cleanup (BWSC) Transmittal Form 111 must also be submitted for both the Audit Follow-up Plan and the Post-Audit Completion Statement, and can be found at <http://www.mass.gov/dep/cleanup/approvals/trforms.htm>. The audit is considered closed after the P-ACS, with the signatures of the RP, PRP, or OP and the LSP-of-Record, is submitted. These response actions may also be selected for a random or targeted audit.

#### Will MassDEP Take any Other Actions if Violations are Discovered?

MassDEP may also initiate **enforcement** actions for violations found at any time during or after an audit. Enforcement actions may include issuance of a: NON, Notice of Intent to Assess a Civil Penalty, Notice of Enforcement Conference, Notice of Responsibility, Notice of Response Action, MassDEP Order, and/or referrals to the Attorney General's Office or Licensed Site Professionals Board. MassDEP is not required to issue a Notice of Audit Finding if doing so might jeopardize enforcement actions at a site. Additional information on MassDEP's enforcement procedures, policies, and cases can be found at <http://www.mass.gov/dep/cleanup/enforcem.htm>.

#### Who Should I Talk to if I Have Questions About an Audit Finding?

You may call or write the auditor or the contact person listed in the NOAF. If you disagree with the findings of the NOAF, you may submit the matter to the BWSC Deputy Regional Director for investigation/resolution, and ultimately to BWSC's ombudspersons. BWSC's Ombuds Program contact can be found at <http://www.mass.gov/dep/about/organization/bwsctel.htm>



Contacts • Feedback • Related Sites • Site Policies • Help  
Mass.Gov • Energy & Environmental Affairs • Department of Environmental Protection

[dep home](#) > [cleanup of spills & sites](#) > [compliance assistance](#)

MassDEP Quick Links:



## Cleanup of Sites & Spills

### About MassDEP

### Public Participation & News

### Air & Climate

### Water, Wastewater & Wetlands

### Waste & Recycling

### Toxics & Hazards

### Cleanup of Sites & Spills

- :: [priorities & results](#)
- :: [sites & locations](#)
- :: [help for homeowners & businesses](#)
- :: [brownfields program](#)
- :: [licensed site professionals](#)
- :: [laws & rules](#)
- :: [permits, reporting & forms](#)
- :: [grants & financial assistance](#)
- :: **[compliance assistance](#)**
- :: [enforcement](#)

### Service Center


[Calendar](#)

[My Community](#)

[Online Services](#)

[Regional Offices](#)

[Report Pollution](#)

## Audit Update for April, May, and June 2007

This column focuses on noteworthy audits conducted by MassDEP's Bureau of Waste Site Cleanup between April and June 2007 as well as providing general audit information.

### April, May and June 2007 Level 1 Audits

MassDEP completed Level 1 (L1) file review audits (using Technical Screening Audit Forms) on 603 response actions at sites between April and June 2007. Although MassDEP does not issue Notice of Audit Findings at the outcome of L1 Audits, available information is used to prioritize MassDEP's focus for Level 2 and Level 3 Audits.

### April, May and June 2007 Level 2 Audits

MassDEP completed Level 2 (L2) audits and issued Notices of Audit Findings (NOAFs) at 89 sites between April and June 2007. Twenty-four Notices of Noncompliance (NONs) were issued, together with MassDEP's findings. L2 audits of interest between April and June 2007 include:

1. MassDEP completed a L2 audit of a site where Monitored Natural Attenuation (MNA) is being conducted as the remedy through Remedy Operation Status (ROS). MassDEP issued a Notice of Audit Finding (NOAF)/Notice of Noncompliance (NON), which concluded that response actions were not performed in compliance with the requirements of the MCP. Through its audit, MassDEP noted that the ROS submittal does not meet the Performance Standards for ROS. Specifically, it did not demonstrate that any Substantial Hazard has been eliminated, or that the proposed MNA has been adequately designed in accordance with 310 CMR 40.0870 to achieve a permanent solution. MassDEP noted that a Substantial Hazard Evaluation was not provided in the ROS Submittal, and the risk characterization conducted during Phase II did not demonstrate that no current exposure pathways exist. The Method 1 risk characterization included in the Phase II was based on a general screening approach and concluded that since concentrations of volatile petroleum hydrocarbons (VPH) exceeded GW-3 Standards, a significant risk existed. The Phase II report states that GW-2 does not apply to the site, as all sample points are more than 30 feet from structures. While monitoring wells may have been slightly more than 30 feet from nearby residential structures, no further delineation of the GW-2 exceedence was conducted. Therefore, the potential for indoor air to be affected by the release or the ability to assert a condition of No Substantial Hazard was not adequately addressed by the risk characterization. MassDEP also noted that in the absence of a full characterization of extent of the release and the potential risk posed by the release, it is not appropriate to conclude that the proposed MNA remedy will be adequate to achieve a permanent solution. The ROS Opinion concludes that the plume is stable or shrinking based on samples collected from wells located downgradient. Over two sampling rounds, concentrations of some contaminants increased both downgradient and crossgradient of the release and toward the adjacent residences. These data do not demonstrate that the plume is stable or shrinking, and may indicate that the plume is expanding. MassDEP required submittal of a revised ROS, prepared in accordance with 310 CMR 40.0893, including a Substantial Hazard Evaluation prepared in accordance with 310 CMR 40.0956, that addresses the violations identified and complies with the requirements of the MCP; or retraction of the existing ROS Opinion.

**Follow-up:** In response to the audit, additional downgradient assessment of the site was conducted. The additional assessment indicated that the extent of groundwater contamination included the downgradient residential structures at levels exceeding GW-2. Soil gas samples collected within 30 feet of the structures indicated a possible Imminent Hazard condition and release notification to MassDEP (RTN 2-0016807). Total Air Petroleum Hydrocarbons (APH) in

soil gas were measured at more than 600,000 ug/m3. Additional Immediate Response Actions (IRAs) are ongoing. (Marlborough, RTN 2-0000774, NON-CE-07-3A043, May 3, 2007)

2. MassDEP completed a L2 audit of a remedial action at a site that currently consists of MNA. MassDEP issued a NOAF/NON, which concluded that response actions were not performed in compliance with the requirements of the MCP. Through its audit, MassDEP noted that multi-phase extraction (MPE) was the remedy originally selected for the site and was implemented in 2000 under ROS. In 2005, ROS was terminated when it was determined that MPE was no longer effective at reducing contamination at the site. MNA was subsequently selected as the alternative remedial action. However, MassDEP noted that groundwater data from some of the monitoring wells did not show an obvious downward trend in concentrations. In addition, MNA had not previously been evaluated in the 1998 Phase III report to determine if it was a feasible remedy to implement. While "bioremediation" had been discussed briefly in the Phase III, that remedy relied on the introduction of oxygen to the subsurface, which is not part of MNA. Furthermore, MassDEP noted that the Operation, Maintenance and Monitoring (OMM) Plan was not modified to accommodate the switch to MNA-only activities in 2004. The collection of dissolved oxygen (DO) and oxidation-reduction potential (ORP) data during well-sampling as the only MNA indicators is inadequate, and at a minimum, additional data should be evaluated to show contaminant destruction is occurring. Within a specified time period, MassDEP required submittal of a Phase III Addendum in support of the selected remedy and an updated OMM Plan. (Greenfield, RTN 1-10009, NON-WE-07-3A060, May 24, 2007)

#### April, May and June 2007 Level 3 Audits

MassDEP completed Level 3 (L3) audits and issued NOAFs at 30 sites between April and June 2007. Twenty-one NONs were issued with MassDEP's findings. L3 audits of interest between April and June 2007 include:

1. In October 2006, MassDEP received a 72-hour release notification for a release of petroleum hydrocarbons at a former gas station site currently used for used car sales and garage/lot. The site is located in an area of mixed commercial and residential use. The on-site building is serviced by municipal water and a septic system, which appeared to be a brick and concrete block cesspool. Floor drains from the garage bays discharge to the cesspool. A residence located 300 feet southwest of the site is serviced by a private water supply well. The identification of the private well proximate to the site prompted notification. Immediate Response Action (IRA) assessment activities were conducted. A Class B-1 Response Action Outcome (RAO) Statement with a Method 1 risk characterization was submitted to MassDEP in October 2006. MassDEP issued an NOAF/NON concluding that the Class B-1 RAO was not in compliance with the MCP, and does not support a conclusion of No Significant Risk (NSR). The Method 1 risk characterization stated that the groundwater is classified as GW-2 and GW-3 and that the GW-1 category does not apply since the groundwater flow at the site is to the southeast and not to the southwest where the private well is located. No information was provided in the RAO report regarding the construction specifications of the private water supply well or its pumping rate. The RAO also stated that no uncontrolled sources of contamination were identified at the site. MassDEP noted that although justification was presented for not applying the Method 1 GW-1 category, it did not include information on the depth and construction of the private well in conjunction with the a demonstration that there is no hydro geologic connection between the groundwater and the private water supply well, based on an investigation and an evaluation of site-specific conditions in accordance with the MCP at 310 CMR 40.0932(5)(d). Therefore, this justification was not adequate. Furthermore, the extent of contamination downgradient of the site and uncontrolled discharges and/or source areas (the cesspool) was not addressed. MassDEP noted that the floor drain within the garage bay discharges to the cesspool that serves as the sanitary disposal system for the building. This is not a permitted discharge and, as such, the floor drain should be closed in accordance with the Underground Injection Control (UIC) regulations (310 CMR 27.00). Within a specified timeframe, MassDEP required submittal of a revised RAO or retraction of the RAO with continued response actions. (Abington, RTN 4-20119, NON-SE-07-3A-024, May 17, 2007).

2. In September 1993, MassDEP received a 120-day release notification for a release of petroleum hydrocarbons to groundwater at a municipal property. The source of release was identified as the former underground storage tanks for fuel oil, diesel, and gasoline. Response actions included comprehensive assessment with a recommendation for remedial actions, which were selected to be limited groundwater extraction and addition of Oxygen Releasing Compounds (ORCs). Remedial activities began in 2005 and ORC was switched to regenerated oxygen in 2006. A Class A-2 RAO with a Method 1 and 2 Risk Characterization was submitted to MassDEP in October 2006. MassDEP issued an NOAF/NON concluding that the Class B-1 RAO was not in compliance



with the MCP, and does not support a conclusion of No Significant Risk (NSR). MassDEP noted that the exposure point concentration (EPC) calculated for lead (531 parts per million or ppm) was compared to the MassDEP's background lead concentration for soil containing coal/wood ash associated with fill material (600 ppm). As indicated in the technical update, *all* laboratory analytical data points for OHM must be below the applicable background values for the OHM to be considered present at background concentrations. Three of the lead concentrations presented in the soil analytical summary table exceeded the lead background value for soil containing coal ash or wood ash associated with fill material; one of the values exceeded the Upper Concentration Limit (UCL). Only three of the twenty-two soil boring logs (MW-9, B-2 and B96-4MW) indicated the potential presence of ash. Analytical results from nine soil samples were used to determine EPCs for the volatile petroleum hydrocarbons (VPH); results from fourteen soil samples were used to determine the EPC for lead. The samples were collected between 4 and 6 feet below grade. The EPCs were compared to the MassDEP's S-1 soil standards. For the determination of the lead EPC, only nine of the samples (64%) had lead concentrations equal to or less than the S-1 standard. The arithmetic average of the lead concentrations (531 ppm) is greater than the MassDEP's S-1 soil standard and one of the data points is more than ten times the MassDEP's S-1, S-2 and S-3 standards. Insufficient justification was provided concerning the sample mean with regard to data distribution, etc. Also, the calculated soil EPC for the C5 - C8 aliphatic was 109 ppm, which exceeds the S-1 standard of 100 ppm. By a specified date, MassDEP required submittal of a revised RAO, including a revised risk characterization, or a Tier II Permit Extension and RAO retraction to continue with response actions. (Wakefield, RTN 3-10561, NON-NE-07-3A035A, June 4, 2007).

#### April, May and June 2007 Helpful Hint

**Q:** What is the most appropriate way to evaluate risks to public welfare as they pertain to the Upper Concentration Limit (UCL) comparison of the data. The MCP can be read as recommending a comparison of the EPC to the UCLs or comparing the data on a point-by-point basis to the UCLs. How does DEP recommend comparing data to the UCLs?

**A:** UCLs are compared to the AVERAGE contaminant concentration (excluding hot spots), and NOT to individual data points. Per 40.0926(3), EPCs are calculated as the average concentration (excluding hot spots) of contaminants contacted by a receptor at the Exposure Point, for comparison to Method 1 or 2 standards and/or use in a Method 3 risk assessment. When determining compliance with UCLs, identical methods are used to establish this "average" concentration [e.g., the most commonly used technique is listed at 40.0926(3)(b)(2)]. However, this average concentration is not referred to as an "Exposure Point Concentration" because UCLs address future risks to public welfare and the environment, and are independent of "exposure" to biological receptors (human/eco).

#### April, May and June 2007 Observations and Notes

- Of the 24 L2 Audit NOAF/NONs issued between April and June 2007, MassDEP cited 70 violations of the MCP. The most common violation cited was 40.0891(3), failure to follow the Operation, Monitoring and Maintenance (OMM) plan; or modifications of the OMM plan without notice.
- Of the 21 L3 Audit NOAF/NONs issued between April and June 2007, MassDEP cited 79 violations of the MCP. The most common violation cited was 40.0904(2)(a), failure to define the horizontal and vertical extent and concentrations of oil and/or hazardous materials in all evaluated media.
- A historical compilation of all Audit Helpful Hints as well as past issues of "The Agency Speaks - Audit Update" column, the Audit Fact Sheet and copies of the Level 1 Audit Technical Screening Forms can be found on MassDEP's Audit Program website at: <http://www.mass.gov/dep/cleanup/compliance/audits.htm>.

Finally, some additions to the Audit Update column were made in hopes that the regulated community would find them useful. Please forward any thoughts, comments or suggestions to [Thomas.Potter@state.ma.us](mailto:Thomas.Potter@state.ma.us).