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CONSTRUCTION OF BUILDINGS IN CONTAMINATED AREAS
January 2000

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The purpose of this document is to clarify existing regulatory requirements applicable to building construction in areas that have been contaminated by a release of oil and/or hazardous material ("contaminated areas"). This clarification concerns and is limited to the jurisdiction and application of 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP), as most recently updated on October 29, 1999.

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Date

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I. PURPOSE

The purpose of this document is to clarify existing regulatory requirements applicable to building construction in areas that have been contaminated by a release of oil and/or hazardous material ("contaminated areas"). This clarification concerns and is limited to the jurisdiction and application of 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP), as most recently updated on October 29, 1999.

The publication of this guidance document constitutes a "short term" element in the agency's evaluation and consideration of construction-related activities in contaminated areas. More comprehensive regulatory solutions to issues identified regarding these activities are currently under evaluation.

II. APPLICABILITY

The provisions of this guidance document apply to disposal sites subject to the notification and response action requirements of the MCP. This guidance document is not applicable at disposal sites where closure has been achieved in accordance with the provisions of 40.0600 and/or 40.1000, unless, in accordance with the provisions of 40.0317(17), changes in site activities, uses, and/or exposures would trigger a notification obligation pursuant to 40.0300.

Construction activities at sites with a valid A-3, A-4, B-2, or B-3 Response Action Outcome (RAO) are subject to the post-closure response action requirements specified in 40.1080 and 40.0020. Construction activities at sites with a valid Class C RAO are subject to the post-closure response-action requirements specified in 40.0580 through 40.0582. Construction activities that occur at sites with a valid A-1, A-2, or B-1 RAO are subject only to the Remediation Waste Management and "anti-degradation" provisions of 40.0030.

III. REGULATORY JURISDICTION AND STRUCTURE

The MCP provides a regulatory umbrella over all actions conducted in contaminated areas, including construction activities. The degree of regulation and the implications for a particular construction project will vary depending on the types and quantities of oils and hazardous materials present at the site. The most relevant provisions of the MCP in this regard are summarized below:

- MGL c. 21E and the MCP regulate *Disposal Sites,* which are broadly defined as locations where oil or hazardous material "have come to be located."

- A sub-universe of Disposal Sites encompasses locations where releases of oil and/or hazardous material trigger a notification obligation to DEP under the provisions of 310

CMR 40.0300. These sites must comply with all of the performance standards and submittal procedures specified in the MCP.

- Some Disposal Sites do not trigger a notification obligation under 310 CMR 40.0300, including sites where contaminant concentrations in soil and/or groundwater are less than Reportable Concentrations, and sites where reporting is specifically exempted under the provisions of 310 CMR 40.0317. The most common reporting exemptions are related to the presence of coal ash or wood ash [40.317(9)], and certain findings and activities at a disposal site after it has reached closure [40.0317(17)]. In such cases, unless otherwise notified by DEP, parties are not required to report or re-report site conditions, or to adhere to the procedural requirements of the MCP to conduct response actions*. It is important to understand, however, that in most cases these locations are still classified as Disposal Sites, subject to certain MCP requirements and performance standards*. Specifically, under the provisions of 310 CMR 40.0370, appropriate steps must be taken at these sites to eliminate or mitigate risks, if necessary, though these actions do not usually require notification to or approval by the Department. There are also "anti-degradation" provisions contained in 40.0032(3), which prohibit the transport and disposal/reuse of contaminated soils at locations with significantly lower concentrations of oil and hazardous material.

- The MCP defines a *Remedial Action* as "any *Containment* or *Removal*." Both of these latter terms are further defined to broadly cover actions taken at Disposal Sites, including "the cleanup or removal of released oil or hazardous material from the environment…. the disposal of removed oil or hazardous material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to health, safety, public welfare or the environment."

- The MCP provides five regulatory vehicles to undertake Remedial Actions at those Disposal Sites requiring notification to the Department, and for which closure has not been achieved: Limited Removal Actions (LRAs), Immediate Response Actions (IRAs), Release Abatement Measures (RAMs), Utility-related Abatement Measures (URAMs), and Comprehensive Response Actions (i.e., Phase IV, Phase V, Remedy Operation Status, or Temporary Solutions).

- Soil and groundwater containing concentrations of oil and/or hazardous materials equal to or greater than applicable Reportable Concentrations are classified by the MCP as *Remediation Waste*.

Based upon the above, it is DEP's position that construction activities at a Disposal Site meet the regulatory definition of a Remedial Action, to the extent that such activities involve the removal, disposal, or relocation (including re-grading) of released oil or hazardous material, and because such activities must be conducted in a manner to prevent, minimize, or mitigate damage to health, safety, public welfare, or the environment. **Accordingly, construction activities in contaminated areas must be conducted under one of the five remedial action alternatives specified in the MCP, if:**

1. **site conditions trigger or have triggered a notification obligation under the provisions of 40.0300;**

2. **the site has not yet been closed in accordance with the requirements of 40.0600 or 40.1000; and**

3. **construction activities involve the disturbance or handling of Remediation Waste.**

Please note: A disposal site that relies upon an Activity and Use Limitation (AUL) to achieve and maintain a valid Class A or B RAO Statement is conditioned on adherence to the specific terms of the AUL. In instances where the existing AUL identifies the contemplated construction activities as "Permitted Activities and Uses," such activities may be conducted in a manner consistent with the AUL and without use of one of the 5 regulatory vehicles necessary for sites that have yet to achieve closure. If, however, the AUL does not specify the contemplated construction activities as permitted uses (i.e., the AUL does not provide for construction or it provides for construction activities of a different type or scope than those that are contemplated), then an LSP Opinion, at a minimum, is necessary prior to conducting such construction activities.

For additional guidance on what requirements apply to construction activities outside of the terms of an existing AUL, see Section 6 of DEP's Interim Final Policy #WSC 99-300, "Guidance on Implementing Activities and Use Limitations," May, 1999.

IV. RELEASE ABATEMENT MEASURES (RAMs)

The regulatory vehicle most commonly used at construction sites to conduct remediation and/or to manage Remediation Wastes is a RAM. Construction project proponents have indicated that the most problematic element in undertaking a RAM for this purpose is the 21-day DEP review/presumptive approval process required under the provisions of 310 CMR 40.0443(2). This waiting period can be an issue not only for the submittal of the initial RAM Plan, but also for the submittal of modified Plans for “significant” changes in the scope of proposed actions, as necessitated by the discovery of increased volumes of contaminated media, and/or the discovery of a new suite of site contaminants. Clarification and guidance on these and other RAM related issues are provided below.

(1) Scheduling Issues

For sites at which the presence of contamination has been identified prior to the start of the subject construction activities, two options may exist for parties seeking to minimize scheduling disruptions related to the 21-day review/presumptive approval timeframe:

- Tier Classification may be conducted prior to the start of construction. Under the provisions of 310 CMR 40.0443(3), approval is not required to conduct RAMs at sites that have been Tier Classified (except Tier IA sites and sites with an ongoing Immediate Response Action). At these sites, construction/remedial actions may be undertaken immediately after the submission of a RAM plan and/or modified RAM plan.

- Parties submitting RAM plans may also wish to consider the option of proposing a range of Remediation Waste volumes to be generated and managed at the Disposal Site. In such cases, the most likely volume should be presented as the estimated volume (as specified on Transmittal form BWSC-106), together with a “not to exceed” value (which should be indicated on the “Describe” line on BWSC-106). For example, a plan may estimate the need to generate and manage 1000 cubic yards of Contaminated Soil, but

provide contingencies for the generation of up to 5000 cubic yards. These contingencies could include, as appropriate, any or all of the following:

- ➔ A certification of financial ability, as specified in 310 CMR 40.0442(4), if a proposed or contingency option involves the generation and off-site management or on-site treatment of greater than 1500 cubic yards of Contaminated Soil; and/or

- ➔ Considerations on the feasibility of soil recycling or reuse, if a proposed or contingency option involves the disposal of Remediation Waste.

(2) Significant Modifications of RAM Plans

Although scheduling problems can be eliminated or minimized by use of the above listed options, an issue still remains over the definition of "significant modification" of RAM Plans, which would trigger the need for the submission of a modified RAM Plan, and possibly restart a 21-day review/presumptive approval time clock. While it is not possible to precisely define this term in a manner that would apply at all sites, certain guidelines and rules-of-thumb are offered below. Unless otherwise communicated by the Department on a site-specific basis, these guidelines and rules-of-thumb would also apply to IRAs.

Modifications that are considered significant

- ♦ With respect to the nature of site contamination, the discovery of new or different contaminants that significantly change the degree of risks posed at or by the site, and/or that necessitates the use of significantly different handling, treatment, reuse, and/or disposal options would constitute a significant modification. Examples in this regard could include: discovering high levels of volatile organic compounds at a site contaminated with PAHs (new exposure pathway), discovering reportable levels of chromium at a petroleum contaminated site, or encountering coal-tar wastes at an urban construction site. Conversely, the discovery of contaminants such as petroleum hydrocarbons, lead, and PAHs at industrial/developed locations at levels typical of urban fill would not be considered a significant modification, unless the concentrations of such contaminants could pose a significant risk to workers or surrounding populations, or significantly change material handling or disposal procedures.

- ♦ With respect to the nature and type of remedial actions being conducted at the Disposal Site, any deviation that would involve the use of different recovery and/or treatment systems or technologies would constitute a significant modification. Examples in this regard include: changing from a soil excavation and off-site recycling approach to an in-situ soil vapor extraction system, switching from off-site reuse/disposal to on-site reuse/disposal, or changing from a groundwater pump and treat approach to a groundwater sparging technology - unless such changes were specifically presented and adequately discussed and documented as a contingency in the RAM Plan.

- ♦ With respect to the off-site management of Remediation Waste, changes in the nature or manner of treatment, reuse, recycling, or disposal would constitute a significant modification. Examples in this regard include: switching from treatment or reuse to disposal, or changing treatment or reuse technologies - unless such changes were specifically presented and adequately discussed and documented as a contingency in the RAM Plan.

Modifications that are not considered significant

- With respect to the generation and handling of Remediation Waste, exceeding an estimated or "not to exceed" volume by a factor of less than 20 percent would not be considered a significant modification.

- With respect to the scope of remedial operations, reasonable "iterative" changes in areas and degrees of recovery and treatment operations would not be considered a significant modification. Examples in this regard include: installation and activation of new soil gas extraction and/or groundwater sparging points in a contiguous area-of-contamination, or changes in extraction or sparging volumes or rates. All such changes, however, must be documented and discussed in Status Reports submitted for the site.

(3) Sites with IRA Conditions

Under the provisions of 310 CMR 40.0441(3), a RAM may not be conducted at a Disposal Site or portions of a Disposal Site where an IRA is required, unless specific written approval is obtained from DEP. Two considerations are worth noting in this regard:

- This provision would not apply to ongoing or proposed RAM activities on a portion of a Disposal Site which is not the subject of the IRA, provided that the RAM would not impact IRA operations. For example, soil excavation could be conducted in the vadose zone at a disposal site where a NAPL/groundwater pump and treat system is being operated as an IRA.

- In cases where IRA conditions are first encountered during implementation of a RAM, further remedial actions concerning and/or in the vicinity of the encountered condition must be undertaken as an IRA. However, it will usually be permissible to continue needed construction activities as part of the IRA, provided that risk and site issues are appropriately addressed. Since IRAs are typically approved orally, there should not be significant delays in agency action at most sites where these issues exist.

(4) Constructing a Building over a Contaminated Area

In many cases, a RAM is used to enable the construction of a permanent building over contaminated soil. This practice raises concerns about the risks to future building occupants and concerns that future remedial options will be limited or precluded because of the presence of the building (e.g., it will not be feasible or even possible to remove additional volumes of contaminated soils from beneath or adjacent to the footprint of the proposed structure). Such concerns are addressed in the MCP at 310 CMR 40.0442 , which specifically states that RAMs:

- *shall not be implemented without a level of understanding of the disposal site conditions and surrounding receptors sufficient to support the actions taken [40.0442(1)(a)];*

- *shall not be conducted in a manner that is likely to result in the exposure of surrounding human or ecological receptors to levels of oil and/or hazardous material that could pose a significant risk…. [40.0442(1)(b)];*

- *shall not prevent or impede the implementation of likely future response actions [40.0442(1)(c)]; and*

- *shall not be conducted in a manner inconsistent with the Response Action Performance Standard described in 310 CMR 40.0191 [40.0442(1)(e)].*

Therefore, in order to be in compliance with the provisions of 310 CMR 40.0442, the following must be included in RAM activities conducted prior to and/or concurrent with the construction of a permanent building over soil and/or groundwater which contains reportable levels of oil and/or hazardous material:

- a focused site characterization must be conducted within and adjacent to the footprint of the proposed building and associated subsurface structures, to adequately define the nature and degree of contamination;

- a focused risk assessment must be conducted within and adjacent to the footprint of the proposed building and associated subsurface structures, to adequately characterize the nature of risks to construction workers, surrounding populations, and future occupants of the building, and to ensure that such risks are within limits permitted by the MCP;

- a focused remedial program must be conducted, as necessary, to eliminate unacceptable risks to construction workers, surrounding populations, and/or future building or site occupants; and

- a focused feasibility study must be conducted within and adjacent to the footprint of the proposed building to determine if it is feasible to reduce soil contaminant levels to concentrations that achieve or approach a background condition, and if so, to ensure that such remediation is conducted before or during construction of the overlying portions of the building. At sites where "urban fill" is present, special emphasis must be placed on the identification and remediation of contaminant hot spots. At those sites where placement of the building structure will preclude further investigative or remedial efforts, sufficient data must be obtained to demonstrate compliance with RAO performance standards relating to source control within and adjacent to the footprint of the building structure.

These assessment and remedial actions may be undertaken as part of RAM activities, and may be documented in applicable RAM submittals. Although these studies should incorporate, as appropriate, the concepts and standards specified in the MCP at 40.0800, they need not be formal Phase II and Phase III reports – with the exception of sites where the Exposure Point Concentration of soil contaminants beneath a proposed building will be greater than applicable Upper Concentration Limits (UCL) specified at 40.0996(7). In the latter case, in accordance with the requirements specified at 40.0860(4), a formal Phase III evaluation of remedial alternatives must be conducted on at least the portion of the site within and adjacent to the footprint of the proposed building. Though not required, it may also be advisable and cost-effective at some sites to expand the area of investigation beyond the building footprint, because eventually it will be necessary for the entire Disposal Site to achieve closure via the filing of a Response Action Outcome. Timely completion of these studies will help Responsible Parties and Other Persons undertaking Response Actions to meet the MCP's requirement to submit a Response Action Outcome within five years of Tier Classification.

Focused feasibility assessments and remedial activities for groundwater and NAPL contamination should also be undertaken as RAM activities prior to or during building

construction, unless the type, nature, and extent of dissolved-phase and/or NAPL contamination is such that likely remedial options would not be precluded or impeded by construction of the building.

Focused risk and/or feasibility assessments need not be conducted at those sites where such concerns have already been adequately addressed by inclusion in a Phase II and/or Phase III report previously submitted to DEP.

(5) Dewatering Activities

It is often necessary to conduct construction activities beneath the groundwater table "in the dry", necessitating pumping and discharging of groundwater. Under the provisions of the MCP, dewatering operations of this nature involving Contaminated Media (i.e., groundwater contaminated by oil and/or hazardous material at or above Reportable Concentrations) are considered remedial actions, and therefore must be conducted under one of the five regulatory vehicles provided by the MCP (e.g., RAM, URAM). It should be noted, however, that considerable flexibility is provided by the MCP at 40.0040 in this respect.

(6) Health and Safety Procedures

Requirements to adequately protect workers undertaking response actions at disposal sites – including construction activities conducted as a RAM – are detailed in the MCP at 310 CMR 40.0018. It should be noted that this section also specifies the need to adequately monitor, control, and minimize exposures to surrounding populations.

(7) Buildings and Caps

For the purposes of maintaining compliance with the provisions of 310 CMR 40.0442(3), which requires a formal Phase III study at sites where a cap is constructed as part of a RAM, a building is not considered a cap if it is erected for the primary purpose of providing a needed structure. A formal Phase III study is required, however, at sites where a proposed building structure will be considered part of an engineered barrier, as specified in 40.0996(4).

FOR QUESTIONS AND FURTHER INFORMATION

DEP BWSC Help Line: (617) 338-2255
DEP on the World Wide Web: http://www.state.ma.us/dep