

**CONCEPTUAL APPROACH TO REMOVAL ACTION**  
**PROPOSED APPLICABLE OR RELEVANT AND APPROPRIATE**  
**REQUIREMENTS (ARARS)**

**WAMPUS MILFORD ASSOCIATES SITE**  
**80 WAMPUS LANE, MILFORD, CT**



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# 1 INTRODUCTION

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This document describes a proposed Conceptual Approach (Approach) for a Removal Action responsive to the United States Environmental Protection Agency's (EPA) concerns relative to environmental conditions identified on a portion of the property located at 80 Wampus Lane in Milford, Connecticut (the site). The Approach describes a proposed strategy for addressing imminent human health risks potentially associated with soil and sediment impacts previously detected within a drainage swale located in the northern portion of the subject property. The document was prepared by HRP Associates, Inc. (HRP) on behalf of FCI USA, Inc (FCI). This document is submitted as part of settlement discussions and does not commit FCI to conduct the proposed activities, or any other actions, on the subject property. However, the document does describe the approach that FCI would propose to employ, should FCI reach agreement with the EPA, CT DEP, and Wampus Milford Associates, (WMA) the property owner, to conduct the referenced Removal Action. The presentation of this strategy is provided at this time in order to accomplish the objectives listed below.

1. Be responsive to the March 19, 2007 *Notice of Potential Liability and Invitation to Perform or Finance Proposed Cleanup Activities* issued by the EPA to Framatome USA, Inc.
2. Describe the conceptual plan to address potential imminent human health risks and to achieve source removal/mitigation that FCI will undertake should it implement the Swale Removal Action.
3. Establish a general scope of work, specific limits of the work, and confirm the specific clean-up numeric criteria that would be utilized to evaluate the completeness of the Removal Action. The final resolution of these parameters would then serve as a basis to establish a final Scope of Work.

This document is organized in four sections, as described below.

Section 1 describes the purpose of the document and provides an overview of recent property transfers, including legal certifications and assigned responsibilities for environmental remediation.

Section 2 provides the conceptual model, which is the basis for the proposed Removal Action, including the environmental and ecological setting of the subject swale area.

Section 3 defines the proposed Swale-specific objectives and Applicable or Relevant And Appropriate Requirements (ARARs) for the Removal Action.

Section 4 describes the proposed conceptual approach to the Removal Action, which has been designed to address potential imminent human health risks associated with the identified soil and sediment impacts in the subject drainage swale, and to remove/mitigate the subject source of contamination.

## **1.1 Liability Issues: Property Transfer History and Environmental Certifications**

A summary of past property transactions and related environmental certifications is provided below. This information is presented to provide a distinction between the goals of the proposed Removal Action and the legal requirements already established for a CT Transfer Act based site-wide clean-up.

On December 28, 1999, the subject 24-acre site was transferred from FCI to WMA. The site met the requirements of an "establishment" as defined in the Connecticut Property Transfer Act. A Form III property transfer declaration and Environmental Condition Assessment Form (ECAAF) were filed with the Connecticut Department of Environmental Protection (CT DEP) pursuant to the requirements of the Transfer Act. After conducting pre-property transfer due diligence evaluations, WMA signed these legal documents as the certifying party, accepting responsibility for the environmental investigation and remediation of the property. The Transfer Act filing led to WMA's obligation to perform the investigation and remediation of all site impacts related to the former manufacturing operations in conformance with prevailing guidelines and the Connecticut Remediation Standard Regulation (RSR).

Prior to the 1999 transaction, FCI had performed significant environmental investigations and remediation at the site, including, but not limited to, closure of two metal hydroxide (MOH) sludge lagoons, periodic post-closure groundwater monitoring, excavation and disposal of the major portions of an historic MOH sludge landfill, and comprehensive site-wide investigations, including work conducted under the Voluntary RCRA Corrective Action program. As WMA agreed to perform all of the investigation and remediation of the property, FCI has had no involvement or responsibility associated with the site since 1999. FCI notified both EPA and CT DEP of the transaction and WMA's acceptance of the environmental obligations post-closing.

Since the 1999 property sale, based on our review of the DEP files and documents provided by the EPA, WMA has continued with site environmental investigations and remediation, apparently focusing on the developed portion of the site. However, EPA and CT DEP indicate that little progress has been made towards stabilizing conditions within the drainage swale. In March 2007, EPA recommended a Removal Action to address the environmental impact to the drainage swale due to the lack of progress in this area of the site.

A number of additional Transfer Act filings have been signed since the site was sold to WMA in the 1999 transaction. In 2006, WMA subdivided the property designating as Lot 1 the improved portion of the property and designating as Lot 2 the unimproved portion of the property, which includes the drainage swale. WMA sold Lot 1 to a related party, JMG Realty LLC. Form III certification for the transfer of the site, or portions thereof, were received by CT DEP on February 7, 2006 and May 11, 2006, with the certifying party being Edward Lapidus, representing various Lapidus Family Trusts and/or WMA.

## 2 CONCEPTUAL SITE MODEL

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A conceptual site model (CSM) describing the swale area is provided below. The CSM summarizes the site setting, pertinent contaminant information and provides a description of perceived interactions between identified pollution within the swale and the surrounding environment. The components of the CSM can be utilized to assess potential risks to identified receptors and provide a basis of understanding to identify, evaluate, develop, and implement potential remedies to address environmental impacts. As indicated, the objective of the proposed Removal Action is to address potential imminent hazard associated with the contaminants present within the subject swale, and to remove or otherwise mitigate the materials within the swale channel (and below) which potentially may migrate downstream and act as a continued source of contamination.

### 2.1 Environmental Setting

The site is located in the Western Uplands geographic region of Connecticut within a coastal area between the Wepawaug and Indian Rivers. Figure 1 provides the site location. The property is characterized by low-lying and relatively flat topography, lying at an elevation of approximately 10 feet above mean sea level. Site topography gently slopes to the north and northeast towards Stubby Plain Brook, with little vertical relief.

The parcel is located in the Indian River surface water drainage basin (Basin No. 5306) along the southern bank of Stubby Plain Brook. Stubby Plain Brook flows to the east and discharges to the Indian River, which in turn flows south, ultimately discharging to Gulf Pond and the Gulf portion of Long Island Sound. CT DEP designated the water quality of these watercourses as Class A (Stubby Plain Brook), class SB/SC (Indian River and Gulf Pond), and class SB (The Gulf). The Indian River Drainage Basin is a member of the South Central Coastal Regional Complex that comprises a portion of the South Central Coast Major Basin.

The geologic setting of the Western Uplands region is characterized by the Iapetus (Oceanic) Terrane comprised of marine sediments that have undergone intense metamorphic alteration. Bedrock beneath the property is depicted on the Bedrock Geologic Map of the Milford Quadrangle as the Oronoque Member of the Derby Hill Schist, a slabby to thinly laminated greenish gray albitic paragneiss with phyllitic to schistose partings. The geologic structure of the area is characterized by the Wepawaug syncline, a large complex fold that plunges to the north-northeast.

The site surficial geology consists of post-glacial materials including glacial outwash, swamp deposits, and artificial fill, according to the State Geological and Natural History Survey of Connecticut. Glacial outwash sediments (95% sand and 5% rounded pebbles), deposited during retreat of the continental glacier through the area, are nearly planar, but exhibit foreset laminae that slope gently (8 feet/foot) down valley to the south. Surface water drainages subsequently dissected these valley train deposits, locally depositing swamp deposits along Stubby Plain Brook in the northern portion of the site and along the Indian River to the east. Artificial fill was placed in the southern, developed portions of the site.

The hydrogeology of the region reflects local topography with shallow ground water flowing from higher elevations and discharging into major stream valleys, such as Stubby Plain Brook and the Indian River. In the vicinity of the drainage swale, ground water occurs at depths ranging from

approximately 0.1 feet (ft) to 1.7 ft below grade (bg) and is noted to flow towards stubby Plain Brook. CT DEP has designated the quality of ground water in the area as class GB. A GB quality classification denotes ground water within a historically urbanized area or an area of intense industrial activity where public water supply service is typically available. No areas of contribution to a public water supply well are depicted on the Water Quality Classifications for the Connecticut River and South Central Coastal Basins Map within a mile of the subject site.

## **2.2 Ecological Setting**

On behalf of the Form III certifying party, Environmental Resources Management, Inc. (ERM)<sup>1</sup>, previously characterized ecological habitats as part of prior swale area investigations. The study revealed the 5 habitats listed below.

1. Upland deciduous forest,
2. Palustrine forested wetland,
3. Palustrine emergent wetland,
4. Isolated emergent wetland, and
5. Tidal wetland.

A functions and values assessment indicated that the swale and surrounding wetland perform ecological functions and provide quality habitat. The functions performed by this area potentially included ground water recharge and discharge, flood flow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, shoreline stabilization, and wildlife habitat. These areas were not found to provide educational/scientific value, uniqueness/ heritage value, visual quality/aesthetic value, endangered species habitat or recreational uses. The habits immediately associated with the swale include the upland deciduous forest, palustrine forested wetland, and palustrine emergent wetland, which are described below. Given the prior ERM study establishing the presence of functional, quality wetlands in the subject area, mitigation measures should be designed to minimize disturbance and/or long-term impact to these features.

### *Upland Deciduous Forest*

Approximately 3.3 acres of upland forest was found along the periphery of the forested wetland areas in the northern and eastern portions of the property. Dominated by red maple, the upland deciduous forest was described as moderately densely vegetated with 90% covered by trees. Poison ivy, Virginia creeper, and Bittersweet dominated the herb layer, which also covered about 90% of the area. Two soil types, Udorthents and the Deerfield fine sandy loam, were identified in the area.

### *Palustrine Forested Wetland*

The palustrine forested wetland covered approximately 8.4 acres and was generally unaffected by site activities. Dominant vegetation included Skunk Cabbage, Sensitive Fern, Smooth and Speckled Alder, Poison Ivy, Red Maple, High Bush Blueberry, and Black Gum. The soil type was dominated by the Walpole sandy loam.

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<sup>1</sup> ERM, August 31, 2005, Application for Permit for Regulated Activity in Wetlands, Watercourses and Regulated Areas, 80 Wampus Lane Property, Milford, CT

### Palustrine Emergent Wetland

Approximately 1 acre of land at the confluence of the swale and Stubby Plain Brook comprise the palustrine emergent wetland. Wood Nettle, Reed Canary Grass, and Jewelweed dominate this densely vegetated area. Soil in this area is described as the Walpole sandy loam.

## **2.3 Swale Conditions**

The 240-ft long swale (including a ponding area and weir) is located in the north central portion of the property. The swale received treated plating wastewater discharges between 1965 and 1991. The swale also received and continues to receive stormwater runoff from the developed portions of the property. The swale directs these discharges to Stubby Plain Brook, which is a tributary to the Indian River. Based upon a recent inspection, it appears that the discharge piping historically present at the head of the swale has been removed by WMA, and an additional drainage feature has been excavated to the southwest, an estimated 30 to 40 feet “upstream” of the former discharge pipe. The purpose for this modification is unknown at this time.

### Constituents of Concern

Potential contaminants associated with the historic treated plating wastewater and stormwater include the constituents of concern listed below.

- Metals (beryllium, cadmium, chromium, copper, lead, nickel, silver, tin, zinc)
- Volatile organic compounds (VOCs)
- Cyanide
- Polynuclear aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH)

Comprehensive testing of soil and sediment in this area has been conducted by HRP, ERM, and EPA. In total, more than 190 samples have been collected from the shallow soils and sediments. Figure 2 provides the general location of prior sample locations<sup>2</sup>. Laboratory testing of swale sediments and soil have detected elevated levels of metals (beryllium, cadmium, chromium, copper, lead, nickel, zinc), PAHs, and/or TPH that exceeded RSR industrial/commercial direct exposure criteria (I/C DEC) for one or more compounds at locations within the swale, Stubby Plain Brook, and surrounding soils. The most pervasive compounds that exceeded I/C DEC included beryllium and benzo(a)pyrene. Figure 2 highlights the locations of known exceedances of the I/C DEC.

### Release and Transport Mechanism

The primary sources for the constituents of concern detected within the swale are likely the historical treated plating wastewater discharges, with secondary contributions from stormwater runoff that was (and is) directed to this drainage feature. Contaminants, adhered to particulate matter potentially suspended within the discharges, may have been deposited as sediment within the swale, as the flow velocity of the discharge dissipated along the length of the swale.

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<sup>2</sup> Note that this figure represents a compilation of maps from HRP, ERM, and EPA that were not tied to an equivalent survey. Locations are projected as accurately as possible.



The primary transport mechanism for impacted sediments in the swale is affected by the longitudinal slope and cross-sectional profile of the swale drainage. It appears that stormwater flow through the swale normally occurs in a relatively narrow, incised water-bearing channel, which is typically on the order of 2 feet in width. Over the majority of the swale's length, this channel is located at the base of a wider man-made drainage feature, which in some locations is more than 15 feet wide<sup>3</sup> and is roughly 1 to 3 feet deep. Downstream, the wider man-made drainage feature disappears as the swale emerges from the woodlands and extends the last 25 feet through low lying, reed bearing wetlands to the confluence with Stubby Plain Brook.

The dynamics of flow in the swale system creates various areas for potential erosion and deposition. Contaminated sediment, exposed along the base of the 2-foot wide channel, could be mobilized as bedload during certain flow events that scour or erode the narrow water bearing channel, especially for the portion of the channel within the larger man-made drainage structure (which confines lateral dispersion of flow). Deposition may occur in the bottom of the man-made drainage bordering the narrow channel during periods of rain when the swale bottom is flooded, but flow velocities remain low.

Without the confines of the manmade drainage, the potential for channel erosion is much lower because the water flow can spread out laterally. As a result, the potential for deposition along the flanks of the channel may be greater in the last 25 feet of the swale, as the flow emerges from the woodland and enters the flat low lying area at the confluence of the swale and Stubby Plain Brook.

## 2.4 EPA Criteria Supporting Removal Action

In October 2006, the RCRA Corrective Action Section of EPA recommended preliminary assessment and site investigation (PA/SI) of the drainage swale due to the lack of progress by WMA to investigate and remediate the area. Based upon the results of the PA/SI, the Emergency Response and Removal Section II conducted a Removal Site Evaluation in March 2007. In accordance with § 300.415 of the National Contingency Plan (NCP), EPA determined that a Removal Action was necessary on the basis of the criteria tabulated below.

EPA Site Evaluation Criteria Warranting Removal Action	EPA Explanation of Site Condition
<i>Actual or potential exposure to nearby human populations, animals, or food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)]</i>	Access to site is unrestricted, with nearby residential properties (<500 feet) and a school (<1,000 feet)
<i>Actual or potential contamination of drinking water supplies or sensitive ecosystem [§300.415(b)(2)(ii)]</i>	Fluid flow through the swale system may potentially expose downstream receptors and wildlife to contaminants in the drainage swale
<i>High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)]</i>	Soils in the drainage swale are exposed and sparsely vegetated, increasing the threat due to migration
<i>Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)]</i>	Fluid flow through the swale system may act as a pathway for contaminants to migrate off-site

<sup>3</sup> Measured "top of bank" to "top of bank"



In summary, the Removal Action was approved on the basis of two basic conditions.

1. The potential for the migration of exposed contaminants due to erosion within the swale channel, and
2. The presence of a potential source of significant contact exposure to human and wildlife receptors, due to exposed contaminants and unrestricted access to the site.

The proposed Removal Action objectives are designed to address imminent hazard risks associated with these conditions and to remove/mitigate the source contamination materials present within and up to 4 feet below the base of the swale channel.

## 3 PROPOSED OBJECTIVES/ARARs

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The success of the proposed Removal Action will be gauged by a combination of site-specific objectives and “applicable or relevant and appropriate requirements” (ARARs). Incorporating these goals into the Approach will help to ensure an effective resolution, which satisfies the immediate concerns of EPA, CT DEP and FCI. Additional benefits include timely resolution of imminent human health hazards, removal/mitigation of the contaminant source materials, implementation of a cost-effective alternative to expenditure of available EPA funds, minimal disruption to wetland areas, and maintaining focus on the objectives and ARARs throughout the Removal Action process.

### 3.1 Site-Specific Removal Action Objectives

FCI has identified the following site-specific objectives concerning the proposed Removal Action for the subject swale. These objectives have been developed in consideration of (1) the EPA criteria utilized to support the proposed Removal Action, (2) previous sampling results obtained throughout the swale area, (3) EPA requests as stated in the previously referenced March 19, 2007 EPA correspondence to FCI, and (4) transfer agreements executed between WMA and FCI at the time of the 1999 property sales transaction, as well as numerous Form III Transfer Act filing certifications made to CT DEP by WMA and/or their officers/representatives. The objectives are stated as follows:

1. Remove or otherwise mitigate the contaminant source materials within and up to 4 feet below the swale channel, which could potentially be transported to downstream receptors,
2. Eliminate imminent hazards to human health and the environment consistent with the intent of the Removal Action,
3. Minimize disturbance to wetland and tidal wetland areas, and
4. Stabilize the condition of the swale channel and restore the area.

### 3.2 EPA Removal Action Criteria

Satisfying the requirements of the Removal Action will require mitigation of the criteria and conditions that create an imminent hazard to human health and the environment. These conditions, described in Section 2.4 of the Approach, can be generally summarized and re-stated in context with the following objectives for the proposed Removal Action.

1. Removal of contaminants exposed within the swale channel sediments and immediately adjacent soils that may migrate due to erosion, sparsely vegetated conditions, or weather events, and
2. Removal of exposed contaminants or restriction of access to the affected area.

### 3.3 Applicable or Relevant and Appropriate Requirements (ARARs)

Ms. Melanie Morash, EPA submitted April 4, 2007 correspondence to Mr. Gennady Shteynberg and Ms. Kristen Bellantuano of CT DEP to identify ARARs associated with the recommended

Removal Action for the drainage swale. Responses from CT DEP staff are provided in Appendix A, including potential OLISP requirements provided by Ms. Bellantuano and general ARARs provided by Mr. Shteynberg. Review of the correspondences confirmed two important areas of ARARs: Permitting and Applicable Removal Action Clean-up Standards.

### Permits

Correspondence received from CT DEP "Office of Long Island Sound Programs" (OLISP), prepared in response to EPA's April 4, 2007 request indicated two specific permits that could be required under certain conditions, subject to further review of an actual work plan, if the work is to be conducted by the property owner. In addition, Town Wetland permits and CT DEP remediation wastewater discharge permits were also identified in the list of ARARs provided by CT DEP (Appendix A). Permits potentially required from OLISP, CTDEP, and local municipalities are tabulated below. The Army Corps of Engineers would also be contacted for potential permit requirements prior to project initiation.

Although these potential permits are provided for full documentation purposes, it is HRP's understanding from legal counsel retained by FCI that these permits are not required if FCI conducts the work pursuant to an EPA order.

Permits Potentially Required	Condition
<b><i>OLISP Permits</i></b>	
Structures, Dredging and Fill and Tidal Wetlands Permit (CGS § 22a-361 and 220-32)	Actions undertaken waterward of the high tide line in tidal, coastal or navigable waters of the State and/or within the bounds of tidal wetlands requires OLISP authorization
Water Quality Certificate (§ 401, Federal Clean Water Act)	Proposed activities subject to requirements of federal consistency, 15 CFR Part 930 Subpart C, as determined by OLISP
<b><i>Additional CTDEP Permits</i></b>	
General Permit for Discharge of Remediation Wastewater Directly to Surface Water (DEP-PERD-GP-020)	Applies to discharges of groundwater remediation wastewater generated during the process of investigating and remediating groundwater and soil, and other related wastewaters, directly to a surface water (CGS §22a-430)
General Permit for Diversion of Remediation Groundwater (DEP-IWRD-GP-009)	Any diversion of remediation groundwater greater than 50,000 gallons during any 24 hour period that is diverted or withdrawn to prevent/intercept suspected contamination plume, or well point de-watering as part of soil remediation activities, <b>provided</b> that a site with a discharge from the diversion of remediation groundwater has a valid permit in effect pursuant to Section 22a-430 or 22a-430b of the Connecticut General Statutes (CGS), or a temporary or emergency authorization issued pursuant to CGS Section 22a-6k.
<b><i>City of Milford Permits</i></b>	
Permit for Regulated Activity in Wetlands, Watercourses and Regulated Areas	Activity in wetland regulated by City of Milford

### Applicable Removal Action Clean-up Standards

Removal Actions are taken in response to a release or threat of release of a hazardous substance, pollutant, or contaminant that may present an imminent and substantial danger to the public health or welfare. Two sets of potential clean-up standards applicable to Removal Action are included in the ARARs provided by CT DEP and are listed below.

1. Connecticut Remediation Standard Regulation (RCSA §22a-133k-1 through 3)
2. Reporting of Certain Environmental Hazards regulation (CGS § 22a-6u)

The Connecticut Remediation Standard Regulation (CT RSR) was adopted in 1996 and established remediation standards that are applied to soil, ground water, and soil vapor. Neither the CT RSR nor the CT Transfer Act provides any statutory requirements for establishing compliance with the RSR in any particular timeframe. Site closure and full completion of remediation is only achieved through long term CT RSR conformance. The RSR standards represent “final remedy” remediation standards and the goals go well beyond the mitigation of an imminent threat.

The Reporting of Certain Environmental Hazards regulation (CGS § 22a-6u), adopted in October 1998, requires the reporting and mitigation of imminent and substantial hazards similar to that required by EPA Removal Actions. The regulation (Appendix B) specifies seven significant environmental hazard conditions that represent potential acute threats to human health and the environment, including shallow soil contamination. Determination of a significant environmental hazard (SEH) condition, except for an explosion hazard, is based upon comparison of analytical data to *Significant Environmental Hazard Condition Notification Threshold Concentrations* (Notification Threshold). The SEH condition potentially applicable to swale system soils is shallow soil contamination within 2 feet of the surface that is impacted with substances (other than total petroleum hydrocarbons) at a concentration exceeding the applicable notification threshold appropriate for the current land use (CGS § 22a-6u(d)).

Both the Notification Thresholds and CT RSR standards (Industrial/Commercial Direct Exposure Criteria [I/C DEC]) are proposed as applicable clean-up standards to gauge the completeness of the Removal Action, as described below. The discussions of these criteria apply only to the aspect of the Removal Action that pertains to surrounding and underlying soils. The current plan proposes that all of the sediments and soils within and beneath the base of the referenced swale channel (to a depth of 4 feet) be completely removed and disposed off-site.

The I/C DEC will be applied at the base of the excavated swale channel to evaluate RSR compliance. Based upon the proposed 4-foot excavation depth, and the expectation that the excavation will be below the local water table, it is not anticipated that any further soil removal below the excavated swale channel would be required in order to achieve RSR compliance.<sup>4</sup> It is HRP's expectation that WMA (or other Transfer Act certifying parties) will be required by appropriate regulatory authorities to attain sitewide compliance with the RSR at some point in the future as required by the Transfer Act. The current proposed Approach calls for removing and replacing soils beneath the swale channel to a depth of 4 feet, which is more than necessary for elimination of imminent human health threats. This depth has been selected in order to prevent the possible need for future disturbance of the backfilled and restored area (to potentially access

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<sup>4</sup> With an Environmental Land Use Restriction, the DEC does not apply to soils covered with 4 feet of fill, and the Pollutant Mobility Criteria will not apply as the material is below the water table.

underlying material) by those parties ultimately responsible for sitewide compliance with CT Transfer Act and associated RSR requirements.

The Notification Thresholds are proposed as the primary standard to be applied over a larger area surrounding the swale channel, in order to assure the mitigation of imminent exposure risk. Specifically, sidewall samples from the proposed excavation will be compared to the SEH notification thresholds to ensure that potential residual imminent hazards associated with the lateral limits of the excavation are appropriately abated. If exceedances of the Notification Thresholds are identified, additional excavation of surrounding soil will be performed as part of the proposed plan.

The Removal Action will be determined to be complete when it can be demonstrated through confirmation sampling that all constituents of concern detected in the excavation sidewall samples (representing soils surrounding the swale) are below SEH Notification Thresholds, and any I/C DEC exceedances identified in the bottom of the excavation have been backfilled with a minimum 4 foot cover of clean material (to render the material inaccessible). Constituents of concern previously detected above RSR standards in the swale, which will be included in the confirmation sampling program, are listed below.

- Metals (beryllium, cadmium, chromium, copper, lead, nickel, silver, tin, zinc)
- Polynuclear aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH)

The *Significant Environmental Hazard Condition Notification Threshold Concentrations* are identified in the tables provided in Appendix C. The industrial/commercial DEC are also provided in this appendix.

### **Rationale for Applying Notification Threshold Concentrations**

The environmental hazard reporting regulation established specific conditions that represent short-term threats to human health and the environment and require notification to CTDEP. These conditions include shallow soil contamination within 2 feet of the ground surface that exceed regulatory Notification Thresholds (CGS § 22a-6u(d)). Site-specific actions to eliminate the potential exposure pathway are typically required by CT DEP as part of the post-notification process. CT DEP public information entitled Reporting of Certain Environmental Hazards, **An Environmental Program Fact Sheet**, Information for Property Owners (Appendix B) state the following:

***“Completion of hazard abatement actions do not necessarily result in the complete remediation of a parcel. Hazard abatement actions are typically interim responses dealing only with the immediate hazard, and sites may require further action to meet long term remediation requirements. Hazard notification thresholds are based on, but higher than, Remediation Standard Regulation criteria (except for drinking water). For other substances the reporting criteria are typically 30 times the remediation standards.”***

Information presented in an additional CT DEP Fact Sheet relating to Frequently Asked Questions (FAQs) also presents relevant information pertinent to environmental hazards (Appendix B). In discussions concerning specific actions that may be undertaken to address environmental hazard conditions, DEP states:

*“Areas with pollution below the hazard reporting threshold would not trigger any hazard abatement action, but such areas would still be polluted.”*

Based upon these statements and the content of the regulation, it is clear that these reporting requirements provide the following intent:

1. Identification of imminent environmental hazards that may endanger human health and welfare and warrant immediate mitigation,
2. Establishment of regulatory concentration limits, below which pollution does not represent a substantial and imminent endangerment warranting immediate abatement action, and
3. Development of a regulatory framework by which CT DEP notification and subsequent hazard abatement actions will reduce the pollution to levels below notification thresholds. The regulation acknowledges that additional contamination may remain following hazard abatement actions, which exceeds the criteria established in the CT Remediation Standard Regulation (RCSA § 22a-133k-1 through 3).

HRP and FCI believe that the proposed Notification Thresholds are appropriate clean-up standards to evaluate the lateral limits of the proposed Removal Action, since the Reporting of Certain Environmental Hazards regulation (CGS § 22a-6u) pertains to imminent and substantial contaminant exposures in a manner, which is consistent with EPA Removal Action criteria. Once again, these criteria are proposed for comparison only to the sidewall samples collected to represent surrounding area soils. The swale channel, sediment, and underlying soils will be completely removed to 4 feet below the channel under the current proposal.

#### Additional Secondary ARARs

Additional potential ARARs applicable to the Removal Action and identified in the list provided by CT DEP include the following items, which will be complied with appropriately.

- Hazardous waste management, transportation, and disposal requirements
- Mark out of buried public utilities (Call Before You Dig)
- Connecticut Guidelines for Soil Erosion and Sediment Controls



## 4 CONCEPTUAL APPROACH TO REMOVAL ACTION

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Available data indicate soil and sediment impacts within and around the subject drainage swale system by metals, PAHs, and TPH at levels in excess of applicable Industrial/Commercial Direct Exposure Criteria. As discussed earlier, WMA through its Form III certifications to CT DEP has committed to mitigate these impacts and bring the entire site into compliance with the RSRs. In the meantime, a Removal Action has been recommended by EPA on a time-critical basis in order to immediately mitigate migration (erosion) and exposure risks associated with the subject swale. At this time, excavation and off-site disposal is proposed as the most appropriate approach to lessen identified impact to an acceptable level. Should FCI conduct the proposed removal in coordination with EPA, the work can be completed in the 2007 construction season, provided all necessary approvals are obtained and excessive/wet weather conditions do not preclude access to the subject materials.

### 4.1 Strategy for Completion of Removal Action

The basic approach for the Removal Action addresses impacts within and immediately surrounding the swale channel and includes the following elements.

- Excavation and off-site disposal of soil and sediment within the distinct swale drainage channel to a minimum cross-sectional profile of 4 feet wide by 4 feet deep, including a minimum 1 foot wide zone of immediately adjacent soil on either side of the channel.
- Excavation and off-site disposal of soil and sediment from the low lying region in the confluence area of the drainage swale and Stubby Plain Brook to a minimum cross-sectional profile of 10 to 15 feet wide (described below) by 4 feet deep.
- Collection and analysis of post-excavation confirmatory soil samples and subsequent lateral excavation of any materials exceeding the SEH Notification Thresholds to a depth of 2 feet.
- Backfill and restoration of the affected areas.

A summary report will be prepared describing the removal results, following completion of the Removal Action.

### 4.2 Removal Action Activities

The primary objective of the Removal Action will be to achieve the site-specific objectives and ARARs as identified and discussed in Section 3 of this report. Tasks associated with this approach to the Removal Action are anticipated to include:

1. Preparation of Remedial Action Plan, associated QAPP, Health and Safety Plan, and Bid Specifications
2. Documentation of the technical requirements for normally required permits from the various agencies and municipalities, and conformance with such requirements
3. Bid solicitation, bid review and selection of an experienced and qualified contractor

4. Clearing of on-site vegetation
5. Installation of erosion controls and haul road to access drainage swale
6. Construction and operation of excavation dewatering system, as necessary
7. Temporary diversion of the existing stormwater discharge currently routed to the swale
8. Implementation of dust monitoring and suppression system during construction/removal activities
9. Excavation, consolidation of contaminated sediment and soil
10. Collection and analysis of post-excavation confirmatory soil samples
11. Backfilling and compaction of excavated areas, including reconstruction of the drainage swale
12. Characterization, transportation, and disposal of contaminated soil at a licensed off-site facility
13. Restoration of impacted wetland areas

Construction related items are described below.

#### Area Preparation

Prior to the soil removal, the area will be prepared for excavation. This is anticipated to include installation of temporary fencing to restrict access, clearing of trees and brush, construction of a haul road and an excavator work platform on the south-southeastern edge of the swale, and redirection of the existing stormwater outfall in the swale. Sedimentation and erosion controls will also be installed around the work area and between the swale and Stubby Plain Brook prior to the onset of site work.

#### Limits of Excavation

The conceptual approach to Removal Action can be viewed as two stages of contaminated soil excavation and disposal:

- Excavation of the distinct drainage swale channel and immediately surrounding soils within the larger, man-made drainage feature
- Excavation of the distinct drainage swale channel and immediately adjacent contaminated soil in the swale/Stubby Plain Brook confluence area.

Due to the shallow depth of ground water, and despite the fact that every attempt will be made to conduct the proposed action during drier months, dewatering will likely be performed during the excavation process. The dewatering waters will be sampled, treated as necessary, and discharged to Stubby Plain Brook in accordance with normal permit requirements.

Note that the previously reported length of the swale subject to the proposed Removal Action as described in ERM and EPA correspondence is 210 feet. HRP believes that this length does not include the ponding area upstream to the concrete weir, which is an area of known impact. The

proposed approach described in this document includes removal of the ponding area, resulting in a projected total excavation length of 240 feet. However, as a matter of clarification, FCI does not propose to excavate any portion of the expanded swale area, which was constructed by WMA upstream to the historic concrete pipe discharge location. This newly created swale was not subject to any industrial discharges prior to the 1999 sale. Nevertheless, any exceedances of the SEH Notification Threshold criteria identified in the sidewalls proximal to this newly created swale extension will be pursued with additional excavation, as necessary.

### **Swale Drainage Channel**

The distinct swale channel will be excavated to a depth of 4 feet below the base of the channel. Laterally, the excavation will be extended to approximately 1 foot on either side of the distinct channel, to a depth of 4 feet below grade. The width of the channel excavation is anticipated to range from approximately 4 to 10 feet, and will vary locally depending upon the width of the channel. In no case will the excavation width be less than 4 feet.

### **Confluence of Swale and Stubby Plain Brook**

As the channel extends towards Stubby Plain Brook and the channel leaves the wooded area, the larger drainage feature is no longer present. In this confluence area, the excavation will also be 4 feet deep, but will be enlarged an additional 4 feet on either side of the channel excavation, at the point of woodland emergence (for an expected total width of 10 feet). At the point of intersection between the swale channel and the brook, the excavation will be expanded 6½ feet on either side of the channel, for a total minimum width of 15 feet.

In both areas (the main swale channel and the swale/Stubby Plain Brook confluence area), the final width of the excavation will be enlarged if necessary until sidewall compliance with SEH Notification Thresholds can be demonstrated.

### **Soil Staging, Transportation and Disposal**

A soil staging area will be constructed in an area south of the swale. The construction will allow for gravity draining and collection of any residual free liquids derived from the excavated soil. The collected liquids will be discharged into the dewatering treatment system for processing and discharge to Stubby Plain Brook under permit.

Samples of staged soil will be collected and characterized to enable profiling of the waste for disposal purposes. The soil will be disposed at a licensed facility in accordance with state and federal regulations.

### **Excavation Backfill and Reconstruction of Swale**

Following excavation, the area will be backfilled to original grade with clean fill and compacted. The swale channel will be reconstructed as a distinct channel from the former location of stormwater outfall to Stubby Plain Brook. The open drainage feature recently excavated by WMA in place of the former discharge pipe will not be excavated or modified by the proposed action.

### **Area Restoration**

Restoration of the excavation and work areas will be performed in the wetland areas. Restoration within the wetlands will include removal of haul roads, staging areas and work platforms. The area will be re-graded to minimize erosion, covered with topsoil, and re-seeded using New

England wet mix (or equivalent). Appropriate tree sapling and shrubs (red maple and other appropriate wetland species) will also be planted in the forested wetland area affected by the removal action.

### **4.3 Methods to Comply with EPA Criteria**

A combination of the tasks described above will be implemented to mitigate the specific criteria, which led to the previously referenced Removal Action recommendation by the EPA. The actions to be undertaken to address these criteria are provided in Table 1.

### **4.4 Demonstration of Compliance with Proposed ARARs**

The Removal Action will comply with the proposed ARARs presented in Section 3 and further detailed in Section 4. ARARs identified by the State include both permit and regulatory clean-up standards.

#### Permits

A series of OLISP, CT DEP General Permits and Municipal permits were identified in Section 3. EPA has indicated these permits will be waived if FCI conducts the work under an Administrative Order. The technical requirements of the typical permitting process will be appropriately followed and documented.

#### Removal Clean-up Standards

The conceptual approach to Removal Action consists of two stages of contaminated soil excavation and disposal:

- Excavation of the distinct swale drainage channel and immediately adjacent soils to a minimum cross-sectional profile at 4 feet by 4 feet, including a minimum 1 foot wide zone on either side of the channel, and
- Excavation of contaminated sediment and surrounding soil in the swale/Stubby Plain Brook confluence area to a minimum cross-sectional profile of 10 to 15 feet by 4 feet.

Post-excavation confirmation soil samples will be collected from the sidewalls and bottom of the excavation. The samples will be collected at 20-foot intervals along the length of the trench. The soil samples will be analyzed for all the constituents of concern identified in Section 3. After duly considering the ARARs provided by Mr. Gennady Shteynberg of CT DEP, the Reporting of Certain Environmental Hazards Regulation, and the prior Form III Transfer Act certifications and property sale agreements with WMA, two sets of clean-up standards are proposed to be applied to the Removal Action, as described below.

Samples collected from the bottom of the trench will be compared to the appropriate Industrial/Commercial Direct Exposure Criteria (Appendix C). The underlying materials will have been rendered inaccessible per the RSR via placement of an overlying sequence of 4 feet of clean materials. The analytical results will be used to determine if an Environmental Land Use Restriction (ELUR) would be appropriate at a later date to preclude future disturbance of any remaining inaccessible contaminated materials and the overlying 4 foot zone of clean backfill material, and to comply with the Connecticut Remediation Standard Regulation (RSR).

Excavation below 4 feet is not proposed and placement of an ELUR (if necessary) will be the responsibility of WMA or other certifying party or property owner.

Sidewall samples collected from the trench excavation will be compared to the appropriate regulatory Notification Thresholds (Appendix C). If necessary, due to an exceedance of the Notification Threshold, excavation will continue laterally around the distinct channel to a depth of 2 feet until additional sidewall samples are at or below Notification Thresholds.

#### **4.5 Additional Comments Regarding Current Proposed Plan**

HRP and FCI understand that the remediation plan previously proposed by ERM in 2005 was generally acceptable to EPA. The proposed approach described in this document includes a number of items, which were not included in the prior plan.

- Extension of the excavation length from 210 to 240 feet
- Collection of not only bottom excavation samples, but also sidewalls samples
- Excavation of a significantly expanded (widened) downgradient portion of the swale at the confluence of the swale and Stubby Plain Brook to address depositional aspects of the CSM

The Approach is responsive to the requirements of the Removal Action specified in EPA's March 19, 2007 Notification of Potential Liability and Invitation to Perform or Finance Proposed Clean-up Activities. The proposed plan (1) removes the drainage channel, immediately adjacent and underlying soils as a source of potential contaminant migration, and (2) addresses the potential for imminent and substantial endangerment to public health in accordance with CT SEH regulations.

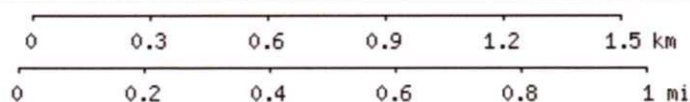
#### **4.6 Additional Recent Findings Impacting Remediation Alternatives**

The preceding sections of this document indicate that all soil and sediments in the distinct swale channel will be removed or mitigated, and then goes on to describe the current proposed plan of removing the material for off-site disposal. However, at the time of HRP's recent inspection, we were informed that an on site pump station is now in use to discharge at least some portion of on-site stormwater to the municipal sewer system. This information, if accurate, suggests the possibility that the stormwater currently directed to the subject swale could potentially be diverted elsewhere on a permanent basis. If this is the case, the continued functional use of the swale as a stormwater conveyance feature would no longer be required, and the overall approach to swale remediation would be re-evaluated. If continued use of an incised fluvial channel is no longer required, and if the swale materials are no longer subject to erosion, an alternative approach of rendering significant portions of these impacted materials inaccessible via placement of 4 feet of overlying clean fill, with considerably reduced excavation requirements, would also be considered. At this time, FCI is attempting to obtain additional pertinent information regarding stormwater conveyance at the subject site.

**TABLE 1: Methods to Comply with EPA Criteria**

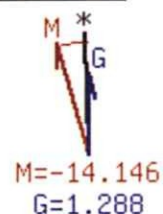
EPA Site Evaluation Criteria Warranting Removal Action	EPA Explanation of Site Condition	Proposed Method to Mitigate Condition
<i>Actual or potential exposure to nearby human populations, animals, or food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)]</i>	Access to site is unrestricted with nearby residential properties (<500 feet) and a school (<1,000 feet)	<ul style="list-style-type: none"> <li>• Installation of fencing to temporarily restrict access during all project work</li> <li>• Excavation/disposal of contaminated soil from swale channel to depth of 4 ft below channel</li> <li>• Excavation of minimum 1 foot buffer on both sides of channel to 4 feet below grade</li> <li>• Excavation/disposal of contaminated soil in excess of Notification Thresholds outside swale channel to depth of 2 feet</li> </ul>
<i>Actual or potential contamination of drinking water supplies or sensitive ecosystem [§300.415(b)(2)(ii)]</i>	Fluid flow through the swale system may potentially expose downstream receptors and wildlife to contaminants in the drainage swale	<ul style="list-style-type: none"> <li>• Excavation/disposal of contaminated soil from swale channel to depth of 4 ft below channel</li> <li>• Excavation of minimum 1 foot buffer on both sides of channel to 4 feet below grade</li> <li>• Excavation/disposal of contaminated soil in excess of Notification Thresholds outside swale channel to depth of 2 feet</li> </ul>
<i>High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)]</i>	Soils in the drainage swale are exposed and sparsely vegetated, increasing the threat due to migration	<ul style="list-style-type: none"> <li>• Excavation/disposal of contaminated soil from and beneath swale channel to depth of 4 ft</li> </ul>
<i>Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)]</i>	Fluid flow through the swale system may act as a pathway for contaminants to migrate off-site	<ul style="list-style-type: none"> <li>• Excavation/disposal of contaminated soil from and beneath swale channel to depth of 4 ft</li> </ul>





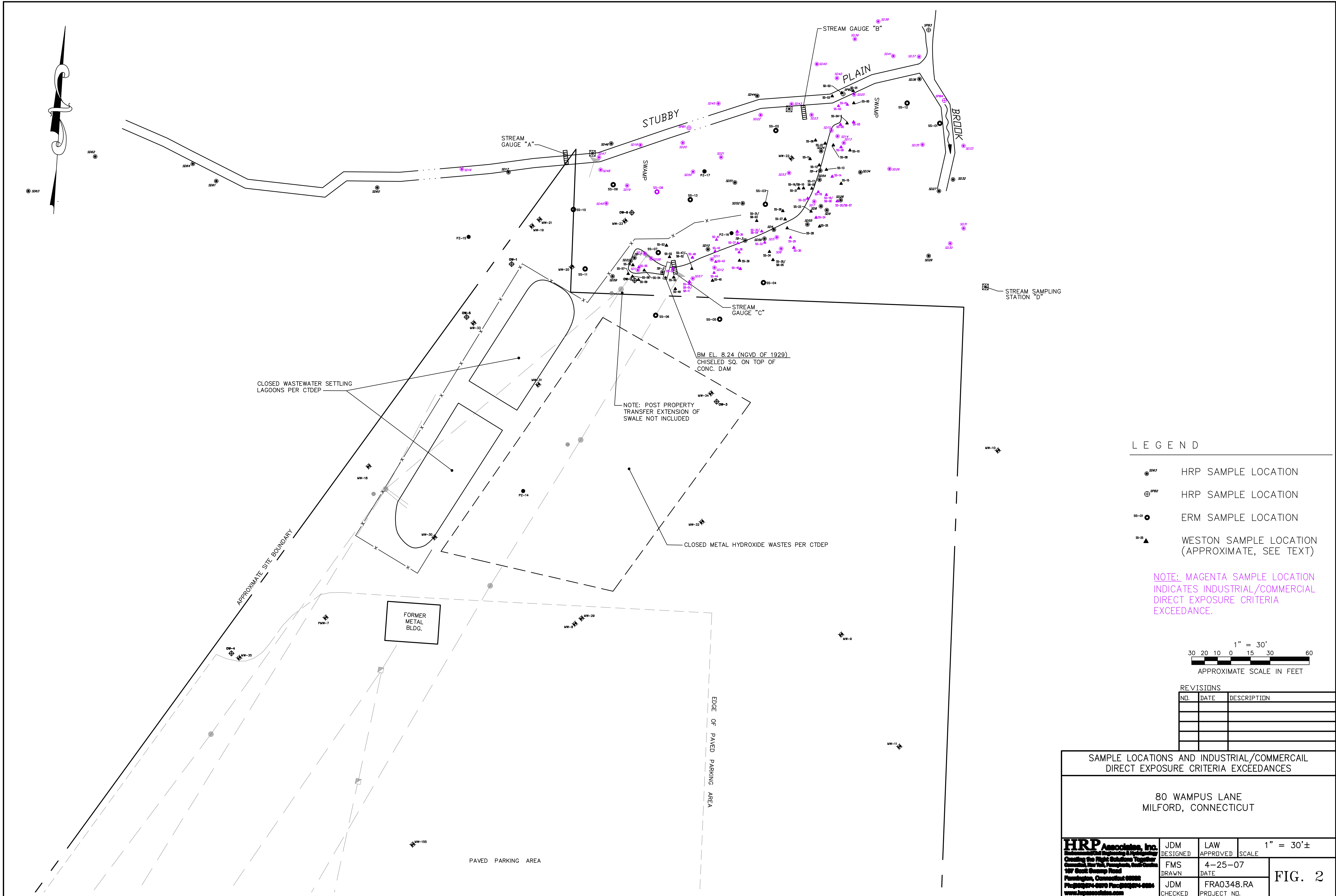
UTM 18 663767E 4565410N (NAD27)  
**USGS Milford (CT) Quadrangle**  
 Projection is UTM Zone 18 NAD83 Datum

**FIGURE 1**  
**SITE LOCATION**  
 80 WAMPUS LANE  
 MILFORD, CONNECTICUT  
 HRP # FRA0348.RA



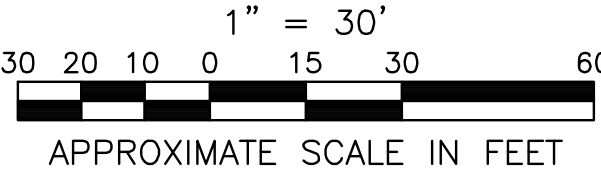


U:\F\PRM - FCI USA, INC\80 WAMPUS LANE, MILFORD, CT\FRA0348RA\CAD\CDEC EXCEEDANCES AND PROPOSED SWALE EXCAVATION - REVISED.dwg, 4/25/2007 4:20:02 PM, DWG TO PDF.pc3



LEGEND			
	SDK3	HRP SAMPLE LOCATION	
	SDK2	HRP SAMPLE LOCATION	
	SS-01	ERM SAMPLE LOCATION	
	SS-05	WESTON SAMPLE LOCATION (APPROXIMATE, SEE TEXT)	

NOTE: MAGENTA SAMPLE LOCATION INDICATES INDUSTRIAL/COMMERCIAL DIRECT EXPOSURE CRITERIA EXCEEDANCE.



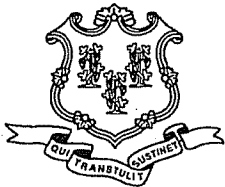
REVISIONS		
NO.	DATE	DESCRIPTION

SAMPLE LOCATIONS AND INDUSTRIAL/COMMERCIAL DIRECT EXPOSURE CRITERIA EXCEEDANCES

80 WAMPUS LANE  
MILFORD, CONNECTICUT

<b>HRP Associates, Inc.</b> <small>Environmental Engineering &amp; Technology</small> <b>Creating the Right Solutions Together</b> Consulting, Design, Remediation, Construction 187 Scott Swamp Road Farmington, Connecticut 06030 Phone: 860-674-0070 Fax: 860-674-0084 www.hrpassociates.com	JDM DESIGNED	LAW APPROVED	1" = 30'± SCALE
	FMS DRAWN	4-25-07 DATE	<b>FIG. 2</b>
	JDM CHECKED	FRA0348.RA PROJECT NO.	

**APPENDIX A**  
CT DEP Correspondence - ARARs



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



April 12, 2007

Ms. Melanie Morash  
U.S. EPA, Region 1  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

**Subject: Wampus Milford Associates Site, 80 Wampus Lane**  
**Permitting Requirements**  
**Town: Milford**

Dear Ms. Morash:

I am writing in response to your April 4, 2007 letter to Kristen Bellantuono of my staff requesting that the Office of Long Island Sound Programs ("OLISP") provide EPA with "applicable or relevant and appropriate requirements" ("ARAR's") so that EPA can incorporate such authorizations or permit requirements into EPA's Administrative Order on Consent in regard to the above-mentioned site. Based on the information submitted to date, it appears that EPA is negotiating with the Potentially Responsible Parties ("PRP's") Wampus Milford Associates, LLC and Framatome Connectors USA, Inc. to conduct remedial actions on-site. Furthermore, you state that should the parties not willingly negotiate with EPA to conduct the required response actions, EPA will initiate a fund-lead removal action to address the hazardous substances present at this site.

Based on information contained within your April 4, 2007 letter, specifically on page 9 of 12, Part V., Proposed Actions and Estimated Costs, it appears that some, if not all, of the remediation of soil and sediment contamination work proposed within the approximately 12' wide x 210' long drainage swale that directs drainage to Stubby Plain Brook which ultimately discharges into Long Island Sound, will require authorization from this Office. Please be aware that any work undertaken waterward of the high tide line in tidal, coastal or navigable waters of the State and/or within the bounds of tidal wetlands requires prior authorization by the Department of Environmental Protection pursuant to the Connecticut General Statutes (C.G.S.) sections 22a-361 and 22a-32, respectively.

If the activities proposed to remediate this site are undertaken by the property owner, then this individual will be required to submit to OLISP a Structures, Dredging and Fill and Tidal Wetlands Permit pursuant to Connecticut General Statutes (C.G.S.) sections 22a-361 and 22a-32, respectively. I have enclosed a complete application package including an informational folder, transmittal form, Structures, Dredging and Fill and Tidal Wetlands application form, thorough instructions and applicable guideline and policy documents. Substantively, these materials provide a clear guide to the information required by Connecticut's statutes, and if adhered to will significantly decrease the likelihood of the application being returned or delayed for lack of information. The applicant should be advised to follow the instructions carefully to help ensure efficient and timely processing of their application.

Please note that should the activities proposed to remediate this site be undertaken by EPA or another federal agency, then the proposed activities identified will be subject to the requirements of federal consistency pursuant to 45 CFR Part 930 Subpart C and will require a Water Quality Certificate (WQC) from OLISP pursuant to section 401 of the Federal Clean Water Act.

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Ms. Melanie Morash

2

April 12, 2007

Considering the unique circumstances at this site, I strongly encourage you to conduct a pre-application meeting with Ms. Bellantuono of my staff before the submission of any application so that the Department can discuss the remediation work in light of the specific applicable regulatory standards. In addition, if you have any questions regarding the state's coastal permitting process or the Connecticut General Statutes, do not hesitate to contact Ms. Bellantuono at 860-424-3034 or via email at [kristen.bellantuono@po.state.ct.us](mailto:kristen.bellantuono@po.state.ct.us).

Sincerely,



Brian P. Thompson, Director  
Office of Long Island Sound Programs  
Bureau of Water Protection and Land Reuse

BT/KB

Enclosures

cc: Pre-App File-Wampus Lane, Milford  
John Gaucher, DEP/OLISP  
Denise Ruczika, DEP/TWRD  
Gennady Shteynberg, DEP/Remediation Division  
Doug Hoskins, DEP/TWRD  
Diane Duva, DEP/Engineering and Enforcement  
Doug Zimmerman, DEP/Remediation Division  
Don Gonyea, DEP/Water Permitting and Enforcement  
Christine Essick, ERM  
Stephanie Carr, EPA  
John Moss, HRP Associates

April 17, 2007

Ms. Melanie Morash  
U.S. EPA, Region I  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

RE: **Anticipated Superfund Removal Action at 80 Wampus Lane, Milford, CT**  
Wampus Milford Associates / Framatome Connectors USA Site

Dear Ms. Morash:

This letter is in response of the United State Environmental Protection Agency (EPA) letter dated April 4, 2007 concerning an anticipated Superfund Removal Action at above-referenced site. Specifically, the letter requested that the Connecticut Department of Environmental Protection (CTDEP) provide EPA with a list of "applicable or relevant and appropriate requirements (ARARs)" that are based on the State of Connecticut environmental laws, regulations, and/or guidance documents and to be considered for implementation of the removal action by EPA or any potentially responsible party (PRP).

The CTDEP, Remediation Division's staff has maintained the List of Potential State Applicable or Relevant and Appropriate Requirements (ARARs) for Superfund Removal Actions in Connecticut. In consideration of the site-specific conditions and tasks for the anticipated removal action at the Wampus Milford Association site, I have abridged the ARARs list to have it easier to evaluate and implement.

Please incorporate to the extent practical the enclosed site-specific ARARs list for the anticipated removal action by EPA or the potentially responsible parties at the subject site

Sincerely,

Gennady Shteynberg, Environmental Analyst 3  
Remediation Division, Bureau of Water Protection and Land Reuse

Enclosure

cc: Stephanie Carr, US EPA, 1 Congress St., Suite 1100-HBT, Boston, MA 02114-2023, US EPA  
Kristen Bellantuono, Office of Long Island Sound, DEP  
Doug Zimmerman, Remediation Division, DEP

Districts/Central/Shteynberg/Wampus





# **List of Potential State Applicable or Relevant and Appropriate Requirements (ARARs) For Superfund Removal Actions in Connecticut March 7, 2005**

(Please note that this list, a revision of the List of ARARs ... maintained by DEP Remediation Division's staff, is prepared specially for an anticipated removal action at the Wampus Milford Association, Milford, CT site. Prepared by G. Shiteynberg on 4/17/2007)

<b>Action Specific ARARs for Removal Actions</b>			
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status *</b>	<b>Synopsis of Requirement</b>
Remediation Standard Regulations	RCSA . 22a-133k 1- to 3	Relevant and Appropriate	These regulations were adopted on January 30, 1996, under the statutory authority provided by CGS §22a-133k. They provide specific numeric cleanup criteria for a wide variety of contaminants in soil, ground water, surface water and soil vapor. Copies of the regulation and associated documents are available from DEP's website at <a href="http://www.dep.state.ct.us/wtr/regs/remediationregs.htm">http://www.dep.state.ct.us/wtr/regs/remediationregs.htm</a>
Water Quality Standards	CGS . 22a-426	Applicable	Connecticut's Water Quality Standards were adopted under this statute. They establish specific numeric criteria, designated uses, and anti degradation policies for groundwater and surface water. Statute available at <a href="http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-426.htm">http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-426.htm</a> . WQS available at <a href="http://www.dep.state.ct.us/wtr/wq/wqs.pdf">http://www.dep.state.ct.us/wtr/wq/wqs.pdf</a> . A summary of the WQS is available from DEP's website at <a href="http://www.dep.state.ct.us/wtr/wq/wqsinfo.htm">http://www.dep.state.ct.us/wtr/wq/wqsinfo.htm</a> . Most recent revisions effective 12-17-02.
Reporting of Certain Significant Environmental Hazards by Owners of Contaminated Real Property	CGS §22a-6u	Applicable	After October 1, 1998, when certain conditions described in the regulation are encountered by a technical environmental professional collecting soil, water, vapor or air samples for the purposes of investigating or remediating sources of pollution to the waters of the State, certain notifications to the property owner, the client, the Commissioner, and in some cases, the local fire department are required. After 10-01-04, owner may have to post the notice onsite if certain activities are undertaken onsite. Fact sheets are available at <a href="http://www.dep.state.ct.us/wst/remediation/haznotif/pa98-134.htm">http://www.dep.state.ct.us/wst/remediation/haznotif/pa98-134.htm</a> and <a href="http://www.dep.state.ct.us/wst/remediation/haznotif/fag98-134.pdf">http://www.dep.state.ct.us/wst/remediation/haznotif/fag98-134.pdf</a> . Statute is available at <a href="http://www.cga.ct.gov/2005/pub/Chap439.htm#Sec22a-6u.htm">http://www.cga.ct.gov/2005/pub/Chap439.htm#Sec22a-6u.htm</a> .
Report of Discharge, Spill, Loss, Seepage, or Filtration	CGS 22a-450	Applicable	Requires reporting of spills to DEP . See <a href="http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-450.htm">http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-450.htm</a>
Hazardous Waste Management	CGS 22a-449(c)		This statute authorizes the adoption of regulations for the management of hazardous wastes. See <a href="http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-449.htm">http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-449.htm</a> . Regulations last revised September 2002. See summary at <a href="http://www.dep.state.ct.us/wst/hw/hwregs.htm">http://www.dep.state.ct.us/wst/hw/hwregs.htm</a> and regulations at <a href="http://www.dep.state.ct.us/wst/hw/hwregs.pdf">http://www.dep.state.ct.us/wst/hw/hwregs.pdf</a>

**List of Potential State Applicable or Relevant and Appropriate Requirements (ARARs)  
For Superfund Removal Actions in Connecticut  
March 7, 2005**

<b>Action Specific ARARs for Removal Actions</b>		
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status *</b>
Hazardous Waste Management: Transporter Permits	RCSA 22a-449(c)-11	<b>Synopsis of Requirement</b> This regulation establishes permit requirements for transporters of Hazardous Waste. Regulations available at <a href="http://www.dep.state.ct.us/wst/hw/hwtransp.pdf">http://www.dep.state.ct.us/wst/hw/hwtransp.pdf</a>
Hazardous Waste Management: Transporter Standards	RCSA 22a-449(c)103	This section establishes standards for hazardous waste transporters. The standards of 40 CFR §263 are incorporated by reference. See <a href="http://www.dep.state.ct.us/wst/hw/hwregs.htm">http://www.dep.state.ct.us/wst/hw/hwregs.htm</a> and <a href="http://www.dep.state.ct.us/wst/hw/hwregs.pdf">http://www.dep.state.ct.us/wst/hw/hwregs.pdf</a> .
Hazardous Waste Management: Land Disposal Restrictions	RCSA 22a-449(c)108	This section incorporates by reference the Federal Land Disposal Restrictions given at 40 CFR 268. See <a href="http://www.dep.state.ct.us/wst/hw/hwregs.htm">http://www.dep.state.ct.us/wst/hw/hwregs.htm</a> and <a href="http://www.dep.state.ct.us/wst/hw/hwregs.pdf">http://www.dep.state.ct.us/wst/hw/hwregs.pdf</a> .
Hazardous Waste Management: Permit Requirements	RCSA 22a-449(c)110	This section incorporates by reference the Federal hazardous waste permitting requirements given at 40 CFR 270 & 124. See <a href="http://www.dep.state.ct.us/wst/hw/hwregs.htm">http://www.dep.state.ct.us/wst/hw/hwregs.htm</a> and <a href="http://www.dep.state.ct.us/wst/hw/hwregs.pdf">http://www.dep.state.ct.us/wst/hw/hwregs.pdf</a> .
Water Pollution Control	CGS 22a-430	This statute prohibits discharge to the waters of the State without a permit. See <a href="http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-430.htm">http://www.cga.ct.gov/2005/pub/Chap446k.htm#Sec22a-430.htm</a>
Connecticut Water Diversion Policy Act	CGS 22a-365 to 378	These statutes regulate many diversions of the waters of the State. Several broad categories are exempt, including any diversion of less than 50,000 gallons per day and any discharge permitted under CGS §22a-430. See Statutes beginning at <a href="http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-365.htm">http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-365.htm</a>
Underground Utility One Call System (Call Before You Dig)	CGS §§16-345 through 357, RCSA §§16-345-1 to 345-9	If any excavation by powered or mechanized equipment is to take place, the operator must request utility markouts through the Call Before You Dig clearinghouse at least two full working days prior to starting excavation. Information is available from <a href="http://www.cbyd.com/index.htm">http://www.cbyd.com/index.htm</a> . Statutes can be found at <a href="http://www.cga.ct.gov/2005/pub/Chap293.htm">http://www.cga.ct.gov/2005/pub/Chap293.htm</a> and Regulations can be found at <a href="http://www.dpuc.state.ct.us/DPUCinfo.nsf/DPUC%20Regulations?OpenView&amp;Start=1.29&amp;Count=30&amp;Expand=1#1">http://www.dpuc.state.ct.us/DPUCinfo.nsf/DPUC%20Regulations?OpenView&amp;Start=1.29&amp;Count=30&amp;Expand=1#1</a> , through the CT Department of Public Utility Control (DPUC) website at <a href="http://www.state.ct.us/dpuc/">http://www.state.ct.us/dpuc/</a>

**List of Potential State Applicable or Relevant and Appropriate Requirements (ARARs)  
For Superfund Removal Actions in Connecticut  
March 7, 2005**

<b>Action Specific ARARs for Removal Actions</b>			
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status *</b>	<b>Synopsis of Requirement</b>
CT Guidelines for Soil Erosion and Sediment Control (May 2002)	adopted pursuant to CGS 22a-328		The Guidelines provide technical and administrative guidance for the development, adoption and implementation of erosion and sediment control program. Revised document issued May 2002, also identified as DEP Bulletin 34. For the Statute that authorizes this document, see <a href="http://www.cga.ct.gov/2005/pub/Chap446h.htm#Sec22a-328.htm">http://www.cga.ct.gov/2005/pub/Chap446h.htm#Sec22a-328.htm</a> . The actual Guidelines are not available electronically.

<b>Location Specific ARARs for Removal Actions</b>			
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status*</b>	<b>Synopsis of Requirement</b>
Stream Channel Encroachment	CGS 22a-342 through 350		These statutes prohibit the establishment of any obstruction or encroachment, without a permit from DEP, within designated stream channel encroachment lines. See <a href="http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-342.htm">http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-342.htm</a>
Regulation of Dredging and Erection of Structures and Placement of Fill in Tidal, Coastal, or Navigable Waters	CGS 22a-359 through 363f		These statutes regulate dredging, the erection of structures and placement of fill in tidal, coastal or navigable waters waterward of the high tide line. See <a href="http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-359.htm">http://www.cga.ct.gov/2005/pub/Chap446i.htm#Sec22a-359.htm</a>
Coastal Management Act	CGS 22a-90 through 112		This statute establishes Connecticut's enforceable coastal zone policies in accordance with the federal Coastal Zone Management Act. See <a href="http://www.cga.ct.gov/2005/pub/Chap444.htm#Sec22a-90.htm">http://www.cga.ct.gov/2005/pub/Chap444.htm#Sec22a-90.htm</a> .
Tidal Wetlands Act	CGS 22a-28 through 35		These statutes regulate activities within tidal wetlands. See <a href="http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-28.htm">http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-28.htm</a>
Tidal Wetlands regulations	RCSA 22a-30-1 through 30-17		These regulations apply to activities within tidal wetlands
Inland Wetland and Watercourses Act	CGS 22a-36 through 45		These statutes regulate any operation in or affecting a wetland or watercourse involving removal or deposition of material or any obstruction, construction, alteration or pollution of such wetlands. See <a href="http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-36.htm">http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-36.htm</a>
Surface Water and Wetlands- Inland Wetlands and Watercourses Regulations	RCSA 22a-39-1 to 15		These regulations apply to activities within or affecting inland wetlands. Except for major Department of Transportation projects, regulation and enforcement is delegated to local wetlands agencies.

**List of Potential State Applicable or Relevant and Appropriate Requirements (ARARs)  
For Superfund Removal Actions in Connecticut  
March 7, 2005**

<b>Location Specific ARARs for Removal Actions</b>		
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status*</b>
Surface Water and Wetlands- Inland Wetlands and Watercourses Act-General Permit Requirements	CGS, 22a-45a	
		<b>Synopsis of Requirement</b> This statute authorizes the Commissioner to adopt a general permit for various minor activities including installation of water quality monitoring equipment, excavation of test pits and core sampling. See <a href="http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-45a.htm">http://www.cga.ct.gov/2005/pub/Chap440.htm#Sec22a-45a.htm</a>

<b>Requirements To Be Considered (TBC) for Removal Actions</b>		
<b>Requirement</b>	<b>Citation</b>	<b>Typical Status*</b>
CT DEP Draft Site Characterization Guidance Document, June 12, 2000		
Proposed Revisions - Connecticut's Remediation Standard Regulations Volatilization Criteria, March 2003	Proposed Revisions to portions of 22a-133k-1 through 3	Will be applicable (as part of the RSRs ) when adopted
		<b>Synopsis of Requirement</b> This guidance document and accompanying guidance on specific issues has been produced to provide guidance to persons preparing environmental site assessments of potentially contaminated properties. The guidance advocates the use of a conceptual site model and phased investigations. The draft guidance document is available at <a href="http://www.epoc.org/scgd.htm">http://www.epoc.org/scgd.htm</a> Revises how volatilization criteria are calculated, incorporated revised transport models and updated risk information, and volatilization criteria are applied. See <a href="http://www.dep.state.ct.us/wtr/regs/RvVolCri.pdf">http://www.dep.state.ct.us/wtr/regs/RvVolCri.pdf</a>

\*The Status of a particular requirement will depend on the removal action being considered for a particular site. The decision on whether a requirement is applicable, relevant and appropriate, to be considered (TBC) or not applicable at all must be made on a case by case basis for each removal alternative under consideration.

**Document path and filename:** S/Federal Remediation program/Arars/3-7-05 Potential ARAR listing-Removal Actions

rev. 11-25-02 (changed reference to web location of RSRs & updated reference to HW regs, including Corrective Action  
rev. 12-13-02 (updated links to HW regs)  
rev. 2-10-03 (updated reference to WQS ,revision date 12-17-02, provided links to documents on DEP website)  
rev. 1-20-04 updated links to 2003 CGS, updated links to Public Health Code and Proposed Aquifer Protection Regs., added reference and link to proposed changes to Volatilization Criteria in the RSRs  
rev. 4/7/04 to reflect Aquifer Protection Area Regulations adopted & effective 2/2/04  
rev. 12/01/04 to update links, and incorporate amendments to 22a-6u effective 10/01/04  
rev. 3/07/05 updating links to CGS revised thru 1/01/05  
rev. 3/18/05 revised Synopsis of Requirement text for Air Pollution Control-Control of Organic Compound Emissions, RCSA 22a-174  
printed 4/23/2007

## **APPENDIX B**

### **Reporting of Certain Environmental Hazards (CGS § 22a-6u)**

**Sec. 22a-6u. Reporting of certain significant environmental hazards required.** (a) For the purposes of this section:

(1) "Commissioner" means the Commissioner of Environmental Protection, or his designee;

(2) "Parcel" means a piece, tract or lot of land, together with buildings and other improvements situated thereon, a legal description of which piece, parcel, tract or lot is contained in a deed or other instrument of conveyance and which piece, tract or lot is not the subject of an order or consent order of the commissioner which involves requirements for investigation or reporting regarding environmental contamination;

(3) "Person" means person, as defined in section 22a-2;

(4) "Pollution" means pollution, as defined in section 22a-423;

(5) "Release" means any discharge, uncontrolled loss, seepage, filtration, leakage, injection, escape, dumping, pumping, pouring, emitting, emptying or disposal of oil or petroleum or chemical liquids or solids, liquid or gaseous products or hazardous wastes;

(6) "Residential activity" means any activity related to (A) a residence or dwelling, including, but not limited to, a house, apartment, or condominium, or (B) a school, hospital, day care center, playground or outdoor recreational area;

(7) "Substance" means an element, compound or material which, when added to air, water, soil or sediment, may alter the physical, chemical, biological or other characteristics of such air, water, soil or sediment;

(8) "Upgradient direction" means in the direction of an increase in hydraulic head; and

(9) "Technical environmental professional" means an individual, including, but not limited to, an environmental professional licensed pursuant to section 22a-133v, who collects soil, water, vapor or air samples for purposes of investigating and remediating sources of pollution to soil or waters of the state and who may be directly employed by, or retained as a consultant by, a public or private employer.

(b) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused contamination of a public or private drinking water well with a substance for which the Commissioner of Environmental Protection has established a ground water protection criterion in regulations adopted pursuant to section 22a-133k at a concentration above the ground water protection criterion for such substance, such professional shall notify his client and the owner of the parcel, if the owner can reasonably be identified, not later than twenty-four hours after determining that the contamination exists. If, seven days after such determination, the owner of the subject parcel has not notified the commissioner, the client of the professional shall notify the commissioner. If the owner notifies the commissioner, the owner shall provide documentation to the client of the professional which verifies that the owner has notified the commissioner.

(2) The owner of a parcel on which exists a source of contamination to soil or waters of the state shall notify the commissioner if such owner becomes aware that such pollution is causing or has caused contamination of a private or public drinking water well with a substance for which the commissioner has established a ground water protection criterion in regulations adopted pursuant to section 22a-133k



at a concentration at or above the ground water protection criterion for such substance. Notice under this section shall be given to the commissioner (A) orally, not later than one business day after such person becomes aware that the contamination exists, and (B) in writing, not later than five days after such oral notice.

(c) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused contamination of a public or private drinking water well with: (A) A substance for which the commissioner has established a ground water protection criterion in regulations adopted pursuant to section 22a-133k at a concentration less than such ground water protection criterion for such substance; or (B) any other substance resulting from the release which is the subject of the investigation or remediation, such professional shall notify his client and the owner of the parcel, if the owner can reasonably be identified, not later than seven days after determining that the contamination exists.

(2) The owner of a parcel on which exists a source of pollution to soil or the waters of the state shall notify the commissioner if such owner becomes aware that such pollution is causing or has caused contamination of a private or public drinking water well with: (A) A substance for which the commissioner has established a ground water protection criterion in regulations adopted pursuant to section 22a-133k at a concentration less than such ground water protection criterion for such substance; or (B) any other substance which was part of the release which caused such pollution. Notice under this subdivision shall be given in writing not later than seven days after the time such person becomes aware that the contamination exists.

(d) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution of soil within two feet of the ground surface contains a substance, except for total petroleum hydrocarbon, at a concentration at or above thirty times the industrial/commercial direct exposure criterion for such substance if the parcel is in industrial or commercial use, or the residential direct exposure criterion if the parcel is in residential use, which criteria are specified in regulations adopted pursuant to section 22a-133k, such professional shall notify his client and the owner of the parcel, if such owner is reasonably identified, not later than seven days after determining that the contamination exists, except that notice will not be required if the land-use of such parcel is not residential activity and the substance is one of the following: Acetone, 2-butanone, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,1-dichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, ethylbenzene, methyl-tert-butyl-ether, methyl isobutyl ketone, styrene, toluene, 1,1,1-trichloroethane, xylenes, acenaphthylene, anthracene, butyl benzyl phthalate, 2-chlorophenol, di-n-butyl phthalate, di-n-octyl phthalate, 2,4-dichlorophenol, fluoranthene, fluorene, naphthalene, phenanthrene, phenol and pyrene.

(2) The owner of the subject parcel, shall notify the commissioner in writing not later than ninety days after the time such owner becomes aware that the contamination exists except that notification will not be required if not later than ninety days: (A) The contaminated soil is remediated in accordance with regulations adopted pursuant to section 22a-133k; (B) the contaminated soil is inaccessible soil as that term is defined in regulations adopted pursuant to section 22a-133k; or (C) the contaminated soil which exceeds thirty times such criterion is treated or disposed of in accordance with all applicable laws and regulations.

(e) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused ground water within fifteen feet beneath an industrial or commercial building to be contaminated with a volatile organic substance at a concentration at or above thirty times

the industrial/commercial volatilization criterion for ground water for such substance or, if such contamination is beneath a residential building, at a concentration at or above thirty times the residential volatilization criterion, which criteria are specified in regulations adopted pursuant to section 22a-133k, such professional shall, not later than seven days after determining that the contamination exists, notify his client and the owner of the subject parcel, if such owner can reasonably be identified.

(2) The owner of such parcel shall notify the commissioner in writing not later than thirty days after such person becomes aware that the contamination exists except that notification is not required if: (A) The concentration of such substance in the soil vapor beneath such building is at or below thirty times the soil vapor volatilization criterion, appropriate for the land-use for the parcel, for such substance as specified in regulations adopted pursuant to section 22a-133k; (B) the concentration of such substance in groundwater is below thirty times a site-specific volatilization criterion for ground water for such substance calculated in accordance with regulations adopted pursuant to section 22a-133k; (C) ground water volatilization criterion, appropriate for the land-use of the parcel, for such substance specified in regulations adopted pursuant to section 22a-133k is fifty thousand parts per billion; or (D) not later than thirty days after the time such person becomes aware that the contamination exists, an indoor air monitoring program is initiated in accordance with subdivision (3) of this subsection.

(3) An indoor air quality monitoring program for the purposes of this subsection shall consist of sampling of indoor air once every two months for a duration of not less than one year, sampling of indoor air immediately overlying such contaminated ground water, and analysis of air samples for any volatile organic substance which exceeded thirty times the volatilization criterion as specified in or calculated in accordance with regulations adopted pursuant to section 22a-133k. The owner of the subject parcel shall notify the commissioner if: (A) The concentration in any indoor air sample exceeds thirty times the target indoor air concentration, appropriate for the land-use of the parcel, as specified in regulations adopted pursuant to section 22a-133k; or (B) the indoor air monitoring program is not conducted in accordance with this subdivision. Notice shall be given to the commissioner in writing not later than seven days after the time such person becomes aware that such a condition exists.

(f) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused contamination of ground water which is discharging to surface water and such ground water is contaminated with a substance for which an acute aquatic life criterion is listed in appendix D of the most recent water quality standards adopted by the commissioner at a concentration which exceeds ten times (A) such criterion for such substance in said appendix D, or (B) such criterion for such substance times a site specific dilution factor calculated in accordance with regulations adopted pursuant to section 22a-133k, such professional shall notify his client and the owner of such parcel, if such owner can reasonably be identified, not later than seven days after determining that the contamination exists.

(2) The owner of such parcel shall notify the commissioner in writing not later than seven days after the time such person becomes aware that the contamination exists except that notice shall not be required if such person knows that the polluted discharge at that concentration has been reported to the commissioner in writing within the preceding year.

(g) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused contamination of ground water within five hundred feet in an upgradient direction of a private or public drinking water well which ground water is contaminated with a substance resulting from a release for which the commissioner has established a ground water protection criterion in regulations adopted pursuant to section 22a-133k at a concentration at or above

the ground water protection criterion for such substance, such technical environmental professional shall notify his client and the owner of the subject parcel, if such owner can reasonably be identified, not later than seven days after determining that the contamination exists.

(2) The owner of the subject parcel shall notify the commissioner in writing not later than seven days after the time such owner becomes aware that the contamination exists.

(h) (1) If a technical environmental professional determines in the course of investigating or remediating pollution after October 1, 1998, which pollution is on or emanating from a parcel, that such pollution is causing or has caused polluted vapors emanating from polluted soil, groundwater or free product which vapors are migrating into structures or utility conduits and which vapors pose an explosion hazard, such technical environmental professional shall immediately notify his client and the owner of the subject parcel, if such owner can reasonably be identified, not later than twenty-four hours after determining that the vapor condition exists. If the owner of such parcel fails to notify the commissioner in accordance with this subsection, such client shall notify the commissioner. If the owner notifies the commissioner, the owner shall provide documentation to the client of the professional which verifies that the owner has notified the commissioner.

(2) The owner of such parcel shall orally notify the commissioner and the local fire department immediately and under all circumstances not later than two hours after the time a technical environmental professional notifies the owner that the vapor condition exists, and shall notify the commissioner in writing not later than five days after such oral notice.

(i) All notices, oral or written, provided under this section shall include the nature of the contamination or condition, the address of the property where the contamination or condition is located, the location of such contamination or condition, any property known to be affected by such contamination or condition, any steps being taken to abate, remediate or monitor such contamination or condition, and the name and address of the person making such notification. Written notification shall be clearly marked as notification required by this section and shall be either personally delivered to the Water Management Bureau of the Department of Environmental Protection or sent certified mail, return receipt requested, to the Water Management Bureau of the Department of Environmental Protection.

(j) The commissioner shall provide written acknowledgment of receipt of a written notice pursuant to this section not later than ten days of receipt of such notice. Such acknowledgment shall be accompanied by (1) a statement that the owner of the parcel has up to ninety days within which to submit to the commissioner a plan to remediate or abate the contamination or condition. If such plan is not submitted or is not approved by the commissioner, the commissioner shall prescribe the action to be taken, or (2) a directive as to action required to remediate or abate the contamination or condition. If a plan is submitted which details actions to be taken, or a report is submitted which details actions taken, to mitigate the contamination or conditions such that notice under this section would not be required, and such plan or report is acceptable to the commissioner, the commissioner shall approve such plan or report in writing. When actions implementing an approved plan are completed, the commissioner shall issue a certificate of compliance.

(k) An owner who has submitted written notice pursuant to this section shall, not later than five days after the commencement of an activity by any person that increases the likelihood of human exposure to known contaminants, including, but not limited to, construction, demolition, significant soil disruption or the installation of utilities, post such notice in a conspicuous place on such property and, in the case of a place of business, in a conspicuous place inside the place of business. An owner who violates this subsection shall pay a civil penalty of one hundred dollars for each offense. Each violation shall be a separate and distinct offense and, in the case of a continuing violation, each day's continuance thereof

shall be deemed to be a separate and distinct offense. The Attorney General, upon complaint of the commissioner, shall institute an action in the superior court for the judicial district of Hartford to recover such penalty.

(l) Not later than ten days after receipt of any written notice received under this section, the commissioner shall: (1) Forward a copy of such notice to the chief elected official of the municipality in which the subject pollution was discovered by the technical environmental professional, (2) forward a copy of such notice to the state senator and state representative representing the area in which the subject pollution was discovered by the technical environmental professional, and (3) maintain a list on the department's Internet website of all the notices received under this section.

(m) Nothing in this section and no action taken by any person pursuant to this section shall affect the commissioner's authority under any other statute or regulation.

(n) Nothing in this section shall excuse a person from complying with the requirements of any statute or regulation except the commissioner may waive the requirements of the regulations adopted under section 22a-133k if he determines that it is necessary to ensure that timely and appropriate action is taken to mitigate or minimize any of the conditions described in subsections (b) to (h), inclusive, of this section.

(P.A. 98-134, S. 1; P.A. 04-134, S. 1.)

History: P.A. 04-134 designated existing Subsec. (k) as Subsec. (m) and existing Subsec. (l) as Subsec. (n), added new Subsec. (k) re posting of notice and penalties for failure to do so, and added new Subsec. (l) re forwarding of notice and maintenance of list of notices on department website.

## Connecticut Department of Environmental Protection

**Reporting of Certain Environmental Hazards  
An Environmental Program Fact Sheet****Information for Property Owners**

***This fact sheet contains information for property owners about the requirement to report certain significant environmental hazards pursuant to Section 22a-6u of the Connecticut General Statutes.***

**Overview**

Significant environmental hazards are defined by the presence of contamination that may affect:

- a public or private drinking water supply well;
- soil within two feet of the surface, with potential to pose a direct contact risk;
- ground water under a building, with potential to affect indoor air quality;
- ground water discharging to surface water, with potential to affect aquatic life;
- ground water within 500 feet of a drinking water well, with potential to cause pollution of the well; or
- vapors in soil or water, with potential to result in an explosion threat.

The owner of property that is the source of pollution causing a significant environmental hazard must notify the Department of Environmental Protection (DEP) once aware of the hazard, even if the hazard is on another parcel.

A technical environmental professional (TEP) who determines, while investigating or remediating pollution, that pollution is causing an environmental hazard to exist must notify the owner of the property that is the source of this pollution, and also the TEP's client, if different than the owner.

In some circumstances, if a property owner does not notify DEP, an individual who is the TEP's client but is not the owner must report the hazard to DEP.

DEP may require a property owner to take action to abate the significant environmental hazard and thus limit the short term risk to people or the environment. In some circumstances, DEP may first require further evaluation of the actual risk posed by the reported condition.

**Authorizing Statute**

Section 22a-6u of the Connecticut General Statutes (CGS), effective October 1, 1998, as amended, effective October 1, 2004.

**Responsibilities**

Several different parties have responsibility under CGS § 22a-6u, as amended. As of October 1, 2004, property owners have new obligations.

**Technical  
Environmental  
Professional**

A Technical Environmental Professional (TEP) is anyone who collects samples to investigate and remediate pollution of soil or water, and who may be directly employed or retained as a consultant.

A TEP must notify a property owner of any significant environmental hazards caused by pollution on or migrating from the owner's property, even if the owner is not the TEP's client. This notification usually must be within seven days of determination that a hazard exists, except that explosive conditions must be reported immediately, and water supply wells polluted above acceptable standards must be reported in 24 hours.

If the property owner is not the TEP's client, the client must also be notified of any environmental hazard.

**Property  
Owner**

The owner of a property on which there is a source of pollution must notify DEP within specified time limits (see table below) upon becoming aware, if informed by a TEP or otherwise, that the pollution is causing or has caused contamination which is an environmental hazard as listed in CGS § 22a-6u.

Note that CGS § 22a-6u does not contain any provision to delegate the owner's notification responsibility to a third party, although such a third party may assist in preparing the notification.

For some conditions, notification to DEP is not required if, before the reporting deadline, the owner either further evaluates the contamination, and finds it is not a hazard, or abates the environmental hazard condition.

For explosive conditions or water supply wells polluted above acceptable standards, a property owner who is not the TEP's client must verify to the TEP's client that DEP has been notified.

As of October 1, 2004, if any person is undertaking activities (i.e. construction, demolition, significant soil disruption or installation of utilities) on the parcel that may increase the likelihood of human exposure to known contaminants, a copy of the notice to DEP of a significant environmental hazard must be posted in a conspicuous location on such property and, in the case of a place of business, in a conspicuous place inside the place of business, not later than 5 days after the start of such activities. Posting of such notice is the responsibility of the property owner. The owner may be subject to civil penalties for failure to comply with this requirement.

**TEP Client**

If a TEP's client is not advised by an owner that DEP has been notified of explosive conditions or water supply wells polluted

above acceptable standards, the client must notify DEP of these conditions.

**Reportable Hazard Conditions**

and

**Notification Time Frames**

Significant environmental hazards (as defined in CGS § 22a-6u) that must be reported to DEP are summarized in the following table, along with the statutory timeframe for reporting such conditions to DEP.

SUMMARY OF REPORTABLE HAZARD CONDITIONS AND NOTIFICATION TIMEFRAMES			
STATUTORY CITATION CGS§22a- 6u	HAZARD CONDITION or REQUIRED ACTION	DESCRIPTION	TIMEFRAME FOR OWNER TO PROVIDE NOTICE TO DEP
Subsection (b)	Water supply well is contaminated above criteria	A public or private drinking water supply well is contaminated and concentrations exceed DEP's groundwater protection criteria.	Orally in one business day, and in writing within 5 days of oral notification. <b>Also verify notice to TEP client.</b>
Subsection (c)	Water supply well has contamination present	Contamination is detected in a public or private drinking water supply well, but does not exceed DEP's criteria.	In writing within 7 days.
Subsection (d)	Surface soil contamination	Soil within the uppermost two feet is contaminated at a level that may pose a risk as a result of direct contact.	In writing within 90 days, <b>unless</b> hazard condition is abated.
		Note that a TEP is not required to notify a property owner of an environmental hazard condition if the property land use is not residential and only TPH or certain other listed substances are present.	
Subsection (e)	Volatile organic compounds beneath a building	Ground water within 15 feet beneath a building is contaminated with a volatile organic substance at a level that could affect indoor air quality.	In writing within 30 days. *
		* Notification to DEP by owner is not required if soil vapor evaluation or site-specific evaluation indicate no hazard, the reference criterion used is 50,000 parts per billion, or an indoor air monitoring program in accordance with CGS § 22a-6u is implemented.	
Subsection	Surface water	Ground water discharging	In writing within 7 days, <b>unless</b>

(f)	threatened	to surface water or wetlands is contaminated at a level that may threaten aquatic life.	same condition reported in writing within preceding year.
Subsection (g)	Water supply well: threatened	Ground water contaminated above DEP's ground water protection criteria could threaten a public or private drinking water supply well.	In writing within 7 days.
Subsection (h)	Explosion hazard	Vapors migrating into structures or utility conduits could pose an explosion hazard.	Orally immediately, and in writing within 5 days of oral notification. <b>Also immediately notify local fire department.</b> <b>Also verify notice to TEP client.</b>
Subsection (k)	Posting of notice	As of October 1, 2004, if any person is undertaking activities (i.e. construction, demolition, significant soil disruption or installation of utilities) on the parcel that may increase the likelihood of human exposure to known contaminants, a copy of the notice to DEP of a significant environmental hazard must be posted in a conspicuous location on such property and, in the case of a place of business, in a conspicuous place inside the place of business not later than 5 days after the start of such activities.	

**How to notify DEP****By Phone****Explosion hazard:**

call the Oil and Chemical Spill Response Division

24 Hour: 860-424-3338

8:30 to 4:30 860-424-3377

**Drinking water supply well polluted above acceptable standards:**

Call the Remediation Section of the Bureau of Waste Management

8:30 to 4:30 860-424-3705

**In Writing**Mark as "**Hazard Notification**" and either personally deliver or send by certified mail, return receipt requested, to:

Significant Environmental Hazard Reports  
Remediation Division  
Bureau Of Water Protection and Land Reuse  
Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Include all information required by the statute.

**Form and**

The Significant Environmental Hazard Report (DEP-EHR-FRM-



**Instructions for Reporting Hazards**

100) form should be used to report environmental hazards. Instructions for completing the form are in the document titled Significant Environmental Hazard Report: Instructions for Completion (DEP-EHR-INS-100). Both are downloadable from DEP's internet web site:

[Word Form 236K](#); [Word Instructions, 128K](#)  
[PDF Form 54K](#); [PDF Instructions 179K](#)

**How DEP will respond****Acknowledgment**

DEP will acknowledge receipt of a written notice of significant environmental hazard within 10 days.

**Directives**

The acknowledgment may include a directive specifying actions needed or a request for an action plan to abate the hazard.

**Notification to Others**

As required by CGS § 22a-6u subsection (I), DEP will provide copies of the written hazard notification and DEP's acknowledgment letter to:

The chief elected official of the municipality in which the pollution was discovered, and

The state representative and state senator representing the area in which the subject pollution was discovered.

DEP will also add information about the notice to the List of Significant Environmental Hazards Reported to the DEP which is on DEP's Internet web site, as required by law.

Although it is not mandated, DEP also provides copies of the written notice and acknowledgment letter to the local Health Director

**Approval**

An acceptable plan to eliminate the hazard condition will be approved.

**Certification**

When the approved actions are completed and the hazard is eliminated a certificate will be issued.

**Special Considerations****Reservation of rights**

Neither these provisions nor any other action taken under these provisions affect the Commissioner's authority under any other law. In addition, compliance with the requirements of this law does not relieve an owner of obligations under any other laws or regulations, including the obligation to report spills pursuant to Section 450 of the Connecticut General Statutes.

**Site under order**

Sites under DEP order to investigate and remediate a source of pollution do not need to notify DEP about environmental hazards which are discovered. DEP recommends that, if a significant hazard condition is found, the DEP site lead staff be informed of the condition in a timely manner.

**File search information**

File search information reviewed in the course of investigation of pollution is subject to the TEP notification to owner requirement, unless it is further evaluated in a timely manner to determine

that the hazard does not currently exist.

## Coordination With Other Programs

### Public Safety

**The fire department must be notified of an explosion hazard.** Also, if there is an explosion hazard, this notification requirement should not delay taking appropriate actions under any site safety plan, permit condition or operating procedure which may be in force. Public safety should be held paramount.

### Spill/Release Reporting

**Hazard notification does not replace spill notification or other notification requirements.** If the release being investigated is subject to the reporting requirements of Section 22a-450 of the Connecticut General Statutes, the Oil and Chemical Spill Response Division must also be notified. Any Federal reporting requirements also separately apply, as do all other reporting requirements in DEP regulations or permit conditions.

### Remediation Standard Regulations (RSRs) RCSA§22a-113k-1 to k-3

**Completion of hazard abatement actions do not necessarily result in complete remediation of a parcel.** Hazard abatement actions are typically interim responses dealing only with the immediate hazard, and sites may require further action to meet long term remediation requirements. Hazard notification thresholds are based on, but higher than, Remediation Standard Regulation criteria (except for drinking water). For other than substances in drinking water, the reporting criteria are typically 30 times the remediation standards.

### Property Transfer

Certificates of Hazard Abatement which are issued under the provisions of CGS § 22a-6u, are not sufficient basis for a Form II or Form IV filing under the Property Transfer Program.

### Fees

There are no fees associated with notification under this statute.

### Other Information Sources

Additional information is available in the following documents available from the DEP internet web site:

- *Fact Sheet: Reporting of Environmental Hazards: Information for Environmental Professionals (DEP-EHR-FS-100) with attached Reference Tables A, B, and C*
- *Fact Sheet: Frequently Asked Questions About the Reporting of Significant Environmental Hazards*
- *Significant Environmental Hazard Report: Instructions for Completion (DEP-EHR-INS-100)*
- *List of Significant Environmental Hazards Reported to the DEP*

### Contact For Additional Information

For further information contact the Remediation Division of the Bureau of Water Protection and Land Reuse  
79 Elm Street, 2nd floor (860) 424-3705 (voice)  
Hartford, CT 06106-5127 (860) 424-4057 (fax)

The information contained in this fact sheet is intended only to acquaint you with issues regarding requirements for notification of certain significant environmental hazards and does not constitute the department's interpretation of the applicable laws. You should refer to the statute, as it may be amended, for the specific language. It is your responsibility to comply with all applicable laws.

Content Last Updated: December 2005

Reporting Certain Significant Environmental Hazards | Remediation Programs and Information



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

## ***Environmental Program Fact Sheet***

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### **Reporting of Significant Environmental Hazards**

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***This fact sheet contains frequently asked questions (FAQs) about the requirement to report significant environmental hazards to the Department of Environmental Protection, in accordance with Section 22a-6u of the CT General Statutes.***

**Q1: *What are significant environmental hazards?***

**A1:** Significant environmental hazards are specific conditions defined by law (Section 22a-6u of the Connecticut General Statutes, as amended) that a property owner has to report to DEP when such conditions are encountered during an environmental site investigation or remediation of his property.

**Q2: *What are the types of environmental hazards that must be reported to DEP?***

**A2:** The significant environmental hazard conditions that must be reported to DEP when encountered during investigation or remediation of a parcel are defined in the statute, and are listed below:

- Public or private drinking water wells in which pollution is detected above an acceptable standard,
- Public or private drinking water wells in which pollution is detected below an acceptable standard
- Polluted groundwater within 500 feet of a drinking water well (pollution may threaten drinking water wells),
- Polluted groundwater beneath an occupied building (pollution may pose a risk to indoor air quality),
- Polluted groundwater that discharges to a surface water body (pollution may pose a risk to aquatic life),
- Polluted soil within two feet of the surface (pollution in soil may pose a direct contact risk to humans), and
- The presence of vapors from polluted soil, groundwater or residual free product at levels posing a potential explosion hazard and imminent threat to human health, public safety and the environment.

**Q3: *Once identified, when do the significant environmental hazard conditions listed above have to be reported to DEP?***

**A3:** The specific timeframes for reporting can be found in CGS 22a-6u, as amended. The timeframes for reporting each type of condition are based on the nature and severity of the potential risk posed by the condition.

- **Conditions posing a potential explosion hazard must be immediately reported (orally) to the Oil and Chemical Spill Response Division of DEP at (860) 424-3338, and to the local Fire Department, followed by written notice to DEP within 5 days of the oral notice.**
- Drinking water wells polluted above an acceptable standard must be reported orally to DEP within 1 business day, followed by written notice to DEP within 5 days of the oral notice.

The timeframe for providing written notice to DEP for the other types of reportable hazard conditions ranges from 7 to 90 days, depending on the type of condition.

**Q4: *How significant are the hazard conditions being reported?***

**A4:** All the types of environmental conditions reported pose a potential risk to public health that should be investigated in the short term. DEP may require the owner to undertake actions to mitigate such risk. Only one type of hazard condition, the presence of vapors posing a potential explosion hazard, is an emergency condition.

**Q5: *Who is required to report significant environmental hazards, and how is this done?***

**A5:** As spelled out in the statute, (CGS 22a-6u, as amended), **the owner of the parcel on which a source of pollution is being investigated or remediated is required to report significant environmental hazards to DEP, even if the hazard is detected on another parcel.** The technical environmental professional (TEP) conducting the investigation or remediation that identified the pollution is required to report the conditions listed above to the property owner and to his client (if the client is not the property owner). The client may have to provide notice to DEP if the property owner fails to do so.

A form (with instructions) for reporting the significant environmental hazard condition in writing to DEP is available from the DEP web site. For other than conditions posing an explosion hazard, as identified in the last bullet under **Answer A2** above, owners can call (860) 424-3705 to report the significant environmental hazard conditions that must be reported orally to DEP within 24 hours.

**Q6: *What happens after DEP receives a hazard notification?***

**A6:** Within 10 days of receipt of a written hazard notification, DEP will review the hazard notification and any supporting information submitted with it, and will acknowledge, in writing, receipt of the hazard notification. DEP staff may contact the person submitting the hazard notification prior to issuing the acknowledgment letter, if clarification or additional information is needed. In the acknowledgment letter, DEP may direct the property owner to:

- submit (within 90 days or less) a plan proposing hazard abatement actions,

- undertake certain specific actions,
- undertake actions already proposed, or
- continue with actions already underway.

DEP may also indicate, if appropriate, that no additional action is required to abate the hazard condition identified in the notification.

**Q7: *What are some of the specific actions DEP may require to be taken to address the environmental hazard condition?***

**A7:** The actions that DEP may direct an owner to take are based on the type of hazard condition and the unique characteristics of each site. The following are examples of the types of actions DEP may direct an owner to take when certain types of hazard conditions are reported:

**pollution in a drinking water well:**

- resample the drinking water well to confirm the test results
- If pollution above standards is confirmed, provide bottle water followed by a filter system and/or connection to public water (if public water is available), if pollution below standards is confirmed, implement a regular monitoring program.

**polluted groundwater within 500 feet of a drinking water well**

- Sample the identified well (if appropriate), determine if any other drinking water wells in the vicinity could be at risk and sample those other wells as appropriate.

**polluted soil posing a risk for human contact**

- post warning signs and fence the polluted area (or otherwise limit access to the polluted soil) or remove the soil.

It should be noted that actions the owner of a parcel takes to abate a hazard condition may not address all areas of pollution on a parcel. Areas with pollution below the hazard reporting threshold would not trigger any hazard abatement action, but such areas would still be polluted.

**Q8: *Who else is made aware of the significant environmental hazard condition?***

**A8:** As of October 1, 2004, DEP provides the local elected official of the municipality and the state representative and state senator serving the area in which the pollution was discovered with copies of the hazard notification and DEP's acknowledgment letter. The local director of health also receives copies of the hazard notification and DEP's acknowledgment letter. Information about hazard notifications can be found on the List of Significant Environmental Hazards Reported to the DEP that is available on the DEP web site at <http://www.dep.state.ct.us/wst/remediation/haznotif/haznotification.htm>.

**Q9: Does the owner of the parcel have any other obligations after reporting a significant environmental hazard?**

**A9:** Yes, in the following situations:

1. If DEP directs the property owner to submit a plan to abate the hazard condition, take specific actions, or continue actions already undertaken to abate the hazard condition, the property owner is obligated to perform such actions, and
2. As of **October 1, 2004**, if any person is undertaking activities (i.e. construction, demolition, significant soil disruption or installation of utilities) on the parcel that may increase the likelihood of human exposure to known contaminants, the notice must be posted in a conspicuous location on such property, and, in the case of a place of business, in a conspicuous place inside the place of business not later than 5 days after the start of such activities. Posting of such notice is the responsibility of the property owner and the owner may be subject to civil penalties for failure to comply with this requirement.

If an owner completes the actions required to abate the hazard condition(s) to the DEP's satisfaction, a notice of compliance will be issued.

**Q10: Where can I find the list of sites for which hazard notifications have been submitted to DEP?**

**A10:** DEP maintains a list of Significant Environmental Hazard Notifications on the DEP website. The list will be updated monthly. You can access it at <http://www.dep.state.ct.us/wst/remediation/haznotif/haznotification.htm>

**Q11: Where can I get a copy of the law (CGS Section 22a-6u, as amended)?**

**A11:** A copy of the statute with the amendments effective on October 1, 2004 is available at <http://www.cga.ct.gov/2005/pub/Chap439.htm> - [Sec22a-6u.htm](#)

## **APPENDIX C**

Applicable Standards:

Notification Thresholds and I/C DEC



## Connecticut Department of Environmental Protection

## Significant Environmental Hazard Condition Notification Threshold Concentrations Reference Table A - Volatile Organic Substances

DEP-EHR-FS-100  REFERENCE TABLE A  Volatile Organic Substances  (Refer to Remediation Standard Regulations for source of numbers reported or used in calculation for numbers in this table.)	Significant Environmental Hazard Condition Notification Threshold Concentrations						
	Drinking Water Well  Ground-water Protection Criteria (ug/l)	Surface Soil Contamination 30 x Direct Exposure Criteria (mg/kg)		Volatile Organic Compounds Beneath a Building 30 x Volatilization Criteria <sup>3</sup>			
				Groundwater (ug/l)		Soil Vapor (ppm)	
		Residential Land Use	Industrial or Commercial Land Use	Residential Land Use	Industrial or Commercial Land Use	Residential Land Use	Industrial or Commercial Land Use
Acetone	700	15000	n/a (note 1)	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Acrylonitrile	0.5	33	330	n/a no RSR criteria listed			
Benzene	1	630	6000	6450	15900	30	3390
Bromoform	4	2340	21600	27600	114000	45	180
2-Butanone(MEK)	400	15000	n/a (note 1)	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Carbon tetrachloride	5	141	1320	480	1200	30	81
Chlorobenzene	100	15000	n/a (note 1)	54000	184500	930	3180
Chloroform	6	3000	28200	8610	21300	135	312
Dibromochloromethane	0.5	219	2040	n/a no RSR criteria listed			
1,2-Dichlorobenzene	600	15000	n/a (note 1)	915000	n/a (note 2)	7200	n/a (note 2)
1,3-Dichlorobenzene	600	15000	n/a (note 1)	726000	n/a (note 2)	7200	n/a (note 2)
1,4-Dichlorobenzene	75	780	7200	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
1,1-Dichloroethane	70	15000	n/a (note 1)	1038000	n/a (note 2)	25500	n/a (note 2)
1,2-Dichloroethane	1	201	1890	630	2700	30	30
1,1-Dichloroethylene	7	30	285	30	180	30	30
cis-1,2-Dichloroethylene	70	15000	n/a (note 1)	n/a no RSR criteria listed			
trans-1,2-	100	15000	n/a (note 1)	n/a no RSR criteria listed			

Dichloroethylene			1)				
1,2-Dichloropropane	5	270	2520	420	1800	30	30
1,3-Dichloropropene	0.5	102	960	180	750	30	30
Ethylbenzene	700	15000	n/a (note 1)	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Ethylene dibromide (EDB)	0.05	0.21	2.01	120	480	30	30
Methyl-tert-butyl-ether	100	15000	n/a (note 1)	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Methyl isobutyl ketone	350	15000	n/a (note 1)	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Methylene chloride	5	2460	22800	n/a (note 2)	n/a (note 2)	n/a (note 2)	n/a (note 2)
Styrene	100	15000	n/a (note 1)	17400	61950	240	840
1,1,1,2-Tetrachloroethane	1	720	6600	360	1500	30	45
1,1,2,2-Tetrachloroethane	0.5	93	870	690	3000	30	30
Tetrachloroethylene	5	360	3300	45000	114600	330	810
Toluene	1000	15000	n/a (note 1)	705000	n/a (note 2)	22800	n/a (note 2)
1,1,1-Trichloroethane	200	15000	n/a (note 1)	612000	n/a (note 2)	39300	n/a (note 2)
1,1,2-Trichloroethane	5	330	3000	240000	588000	1200	2790
Trichloroethylene	5	1680	15600	6570	16200	210	480
Vinyl chloride	2	9.6	90	60	60	30	30
Xylenes	530	15000	n/a (note 1)	639000	n/a (note 2)	15000	n/a (note 2)

Notes: There are no established acute aquatic toxicity criteria for volatile organic substances, thus there is no applicable threshold value to trigger notification for a threat to surface water. In the event that free petroleum product is entering surface waters contact DEP's Oil and Chemical Spill Response Division.

Note 1 - Notification to owner by TEP not required by statutory exception.

Note 2 - Notification to DEP by owner not required when criterion equals 50000 ppb, as in this case.

Note 3 - Adopted Remediation Standard Regulation values for volatilization criteria must be used to determine the hazard notification threshold value per the statutory requirement. DEP takes into consideration proposed changes to these criteria in evaluation of the response necessary to abate an environmental hazard.

*Information in this table is provided for convenience; it is the users responsibility to verify that the tabulated values are correct. In the case of errors in this table, the calculated values according to the provisions of CGS Section 22a-6u govern.*

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## Connecticut Department of Environmental Protection

**Significant Environmental Hazard Condition Notification**  
**Threshold Concentrations**  
**Reference Table B - Semi-volatile Organic Substances**

DEP-EHR-FS-100  REFERENCE TABLE B  Semi-volatile Organic Substances  (Refer to Remediation Standard Regulations and Water Quality Criteria for source of numbers reported or used in calculation for numbers in this table.)	Significant Environmental Hazard Condition Notification Threshold Concentrations				
	Drinking Water Well Ground-water Protection Criteria (ug/l)	Surface Soil Contamination 30 x Direct Exposure Criteria (mg/kg)		Surface Water 10 x Acute Toxicity <sup>3</sup> (ug/l)	
		Residential Land Use	Industrial or Commercial Land Use	Fresh-water	Salt-water
Semivolatile Organic Substances					
Acenaphthylene	420	30000	n/a (note 1)	note 2	note 2
Anthracene	2000	30000	n/a (note 1)	note 2	note 2
Benzo(a)anthracene	0.06	30	234	note 2	note 2
Benzo(b)fluoranthene	0.08	30	234	note 2	note 2
Benzo(k)fluoranthene	0.5	252	2340	note 2	note 2
Benzo(a)pyrene	0.2	30	30	note 2	note 2
Bis(2-chloroethyl)ether	12	30	156	note 2	note 2
Bis(2-chloroisopropyl) ether	12	264	2460	note 2	note 2
Bis(2-ethyl hexyl) phthalate	2	1320	12300	note 2	note 2
Butyl benzl phthalate	1000	30000	n/a (note 1)	note 2	note 2
2-chlorophenol	36	10200	n/a (note 1)	note 2	note 2
Di-n-butyl phthalate	700	30000	n/a (note 1)	note 2	note 2
Di-n-octyl phthalate	100	30000	n/a (note 1)	note 2	note 2
2,4-Dichlorophenol	20	6000	n/a (note 1)	note 2	note 2
Fluoranthene	280	30000	n/a (note 1)	note 2	note 2
Fluorene	280	30000	n/a (note 1)	note 2	note 2
Hexachloroethane	3	1320	12300	note 2	note 2
Hexachlorobenzene	1	30	108	note 2	note 2
Isophorone	note 5	n/a no RSR criteria		note2	note 2
Naphthalene	280	30000	n/a (note 1)	note 2	note 2

Pentachlorophenol	1	153	1440	190	130
Phenanthrene	200	30000	n/a (note 1)	note 2	note 2
Phenol	4000	30000	n/a (note 1)	note 2	note 2
Pyrene	200	30000	n/a (note 1)	note 2	note 2
PCBs	0.5	30	30, <sup>4</sup>	note 2	note 2
TPH (Method 418.1)	500	n/a (note 1)		note 2	
TPH (CTETPH Method)	100	n/a (note 1)		note 2	
<b>Pesticides</b>					
Alachlor	2	231	2160	note 2	note 2
Aldicarb	3	420	12300	note 2	note 2
Aldrin	note 5	n/a no RSR criteria		15	6.5
Atrazine	3	84	780	note 2	note 2
Chlordane	0.3	14.7	66	12	.45
DDT	note 5	n/a no RSR criteria		5.5	.65
Dieldrin	0.002	1.14	10.8	2.4	3.55
Endosulfan (alpha or beta)	note 5	n/a no RSR criteria		1.1	.17
Endrin	note 5	600	18300	.86	.185
2-4 D	70	20400	600000	note 2	note 2
Heptachlor epoxide	0.2	2.01	18.9	2.6	.265
Heptachlor	0.4	4.2	39	2.6	.265
Lindane	0.2	600	18300	9.5	.8
Methoxychlor	40	10200	300000	note 2	note 2
Simazine	4	n/a no RSR criteria		note 2	note 2
Toxaphene	3	16.8	156	7.3	2.1

Note: There are no established target indoor air concentrations for semi-volatile organic substances, thus there are no applicable threshold values to trigger notification for a volatilization hazard. In the event that high levels of the more volatile chemicals in this list may be present in close proximity to structures, contact the DEP's Remediation Section.

Note 1 - Notification to owner by TEP not required by statutory exception.

Note 2 - No acute toxicity criterion published in Water Quality Criteria.

Note 3 - Ten times Acute Aquatic Toxicity value in 1997 Water Quality Criteria; dissolved values unless otherwise noted. *NOTE: some numbers updated from earlier published tables.*

Note 4 - Calculated Industrial or Commercial value (300 mg/kg) only applies for site/area satisfying 40 CFR 761.123.

Note 5 - If detected and associated with release being investigated, notification required under CGS 22a-6u (c)(1)(B).

*Information in this table is provided for convenience; it is the users responsibility to verify that the tabulated values are correct. In the case of errors in this table, the calculated values according to the provisions of CGS Section 22a-6u govern.*

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## Connecticut Department of Environmental Protection

**Significant Environmental Hazard Condition Notification**  
**Threshold Concentrations**  
**Reference Table C - Inorganic Substances**

DEP-EHR-FS-100  REFERENCE TABLE C  Inorganic Substances  (Refer to Remediation Standard Regulations or Water Quality Criteria for source of numbers reported or used in calculation for numbers in this table.)	Significant Environmental Hazard Condition Notification Threshold Concentrations				
	Drinking Water Well Ground-water Protection Criteria (ug/l)	Surface Soil Contamination 30 x Direct Exposure Criteria (mg/kg)		Surface Water 10 x Acute Toxicity <sup>3</sup> (ug/l)	
		Residential Land Use	Industrial or Commercial Land Use	Fresh-water	Salt-water
Metals					
Antimony	6	810	246000	note 2	note 2
Arsenic	50	300	300	n/a	n/a
Arsenic, trivalent	n/a	n/a	n/a	3400	690
Barium	1000	141000	n/a (note 1)	note 2	note 2
Beryllium	4	60	60	note 2	note 2
Cadmium	5	1020	30000	20.2	420
Chromium, trivalent	n/a	117000	n/a (note 1)	3230	note 2
Chromium, hexavalent	n/a	3000	3000	160	11000
Chromium, total	50	n/a	n/a	n/a	n/a
Copper	1300	75000	n/a (note 1)	143 <sup>4</sup>	48
Lead	15	15000	30000	300	2100
Mercury	2	600	18300	14	18
Nickel	100	42000	225000	2605	740
Selenium	50	10200	300000	200, <sup>5</sup>	2900
Silver	36	10200	300000	10.2	19.6
Thallium	5	162	4800	note 2	note 2
Vanadium	50	14100	420000	note 2	note 2
Zinc	5000	600000	n/a (note 1)	650	900
Other					

Substances					
Ammonia	note 7	n/a no RSR criteria		99. <sup>6</sup>	35. <sup>6</sup>
Chlorine	note 7	n/a no RSR criteria		190	130
Cyanide	200	42000	n/a (note 1)	n/a	n/a
Cyanide (HCN and CN <sup>-</sup> )	n/a	n/a	n/a	220	10
Asbestos	7(mfl)	n/a no RSR criteria		note 2	

Note: There are no established target indoor air concentrations for the tabulated inorganic substances, thus there are no applicable threshold values to trigger notification for a volatilization hazard. In the event that high levels of mercury are present in close proximity to structures, contact DEP's Remediation Section. Contact DEP's Oil and Chemical Spills Division if high levels of ammonia or cyanide threaten air quality.

Note 1 - Calculated value greater than unity, no hazard notification required.

Note 2 - No acute toxicity criterion published in Water Quality Criteria to form the basis for a value.

Note 3 - Ten times Acute Aquatic Toxicity value in 2002 Water Quality Criteria; dissolved values unless otherwise noted. *NOTE: some numbers updated from earlier published tables.*

Note 4 - Site specific criterion (10x=257 ug/l) applies to certain river segments specified in Water Quality Criteria.

Note 5 - Total rather than dissolved.

Note 6 - Varies with temperature, higher for colder waters.

Note 7 - If detected and associated with release being investigated, notification required under CGS 22a-6u (c)(1)(B).

*Information in this table is provided for convenience; it is the users responsibility to verify that the tabulated values are correct. In the case of errors in this table, the calculated values according to the provisions of CGS Section 22a-6u govern.*

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Appendix A to  
 Sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies  
 Direct Exposure Criteria for Soil

Substance	Residential Criteria in mg/kg (ppm)	Industrial/ Commercial Criteria in mg/kg (ppm)
<b>Volatile Organic Substances</b>		
Acetone	500	1000
Acrylonitrile	1.1	11
Benzene	21	200
Bromoform	78	720
2-Butanone(MEK)	500	1000
Carbon tetrachloride	4.7	44
Chlorobenzene	500	1000
Chloroform	100	940
Dibromochloromethane	7.3	68
1,2-Dichlorobenzene	500	1000
1,3-Dichlorobenzene	500	1000
1,4-Dichlorobenzene	26	240
1,1-Dichloroethane	500	1000
1,2-Dichloroethane	6.7	63
1,1-Dichloroethylene	1	9.5
cis-1,2-Dichloroethylene	500	1000
trans-1,2-Dichloroethylene	500	1000
1,2-Dichloropropane	9	84
1,3-Dichloropropene	3.4	32
Ethylbenzene	500	1000

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Substance	Residential Criteria in mg/kg (ppm)	Industrial/ Commercial Criteria in mg/kg (ppm)
Ethylene dibromide (EDB)	0.007	0.067
Methyl-tert-butyl-ether	500	1000
Methyl isobutyl ketone	500	1000
Methylene chloride	82	760
Styrene	500	1000
1,1,1,2-Tetrachloroethane	24	220
1,1,2,2-Tetrachloroethane	3.1	29
Tetrachloroethylene	12	110
Toluene	500	1000
1,1,1-Trichloroethane	500	1000
1,1,2-Trichloroethane	11	100
Trichloroethylene	56	520
Vinyl chloride	0.32	3
Xylenes	500	1000
<b>Semivolatile Substances</b>		
Acenaphthylene	1000	2500
Anthracene	1000	2500
Benzo(a)anthracene	1	7.8
Benzo(b)fluoranthene	1	7.8
Benzo(k)fluoranthene	8.4	78
Benzo(a)pyrene	1	1

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Substance	Residential Criteria in mg/kg (ppm)	Industrial/ Commercial Criteria in mg/kg (ppm)
Bis(2-chloroethyl)ether	1	5.2
Bis(2-chloroisopropyl) ether	8.8	82
Bis(2-ethyl hexyl) phthalate	44	410
Butyl benzl phthalate	1000	2500
2-chlorophenol	340	2500
Di-n-butyl phthalate	1000	2500
Di-n-octyl phthalate	1000	2500
2,4-Dichlorophenol	200	2500
Fluoranthene	1000	2500
Fluorene	1000	2500
Hexachloroethane	44	410
Hexachlorobenzene	1	3.6
Naphthalene	1000	2500
Pentachlorophenol	5.1	48
Phenanthrene	1000	2500
Phenol	1000	2500
Pyrene	1000	2500
<b>Inorganic Substances</b>		
Antimony	27	8200
Arsenic	10	10
Barium	4700	140000

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Substance	Residential Criteria in mg/kg (ppm)	Industrial/ Commercial in mg/kg (ppm)
Beryllium	2	2
Cadmium	34	1000
Chromium, trivalent	3900	51000
Chromium, hexavalent	100	100
Copper	2500	76000
Cyanide	1400	41000
Lead	500	1000
Mercury	20	610
Nickel	1400	7500
Selenium	340	10000
Silver	340	10000
Thallium	5.4	160
Vanadium	470	14000
Zinc	20000	610000
<b>Pesticides, PCB's, and Total Petroleum Hydrocarbons (TPH)</b>		
Alachlor	7.7	72
Aldicarb	14	410
Atrazine	2.8	26
Chlordane	0.49	2.2
Dieldrin	0.038	0.36
Endrin	20	610
2-4 D	680	20000

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Substance	Residential Criteria in mg/kg (ppm)	Industrial/ Commercial in mg/kg (ppm)
Heptachlor epoxide	0.067	0.63
Heptachlor	0.14	1.3
Lindane	20	610
Methoxychlor	340	10000
Toxaphene	0.56	5.2
PCB's	1	10
TPH	500	2500