# DEEPLogoCIRCLEBoldtextaroundcircleDepartment of Energy & Environmental Protection

**Bureau of Water Protection and Land Reuse  
Remediation Division**

VOLUNTARY REMEDIATION (§22a-133x) VERIFICATION

(Interim)

This verification must be signed by a Connecticut Licensed Environmental Professional and the

Party that certified the Environmental Condition Assessment Form. Print or type unless otherwise

noted. Retain a copy for your records. (DEEP use only)

Ver#:

## Part I: Site Information

|  |
| --- |
| Property now or formerly known as:  Property Address:  City/Town:       State:    Zip Code:  Described in the Tax Assessor’s Office in the Town of:  as lot      , block       on map       Acreage of Property: |

Part II: Verification Information

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| This verification pertains to the Environmental Condition Assessment Form (ECAF) filed with the Department on       and assigned Rem#      .  "I verify in pursuant to Section 22a-133x(b) of the Connecticut General Statutes and in accordance with Section 22a-133v-1(z) of the Regulations of Connecticut State Agencies (RCSA), that an investigation has been performed in accordance with prevailing standards and guidelines at:   |  |  |  |  | | --- | --- | --- | --- | |  | **Parcel** | **Portion of the Parcel:** | **Release Area:** | | **This verification applies to:** (check only one) |  |  |  |   and that**…**   * the Standards for Soil Remediation have been achieved in accordance with the remediation standards(RCSA Sections 22a-133k-1 through 22a-133k-2); and * compliance with the Groundwater Remediation Standards (RCSA Section 22a-133k-3) has not been achieved for some or all releases to groundwater, but a selected remedy for remediation of the groundwater is in operation.”     LEP Seal | |
|  |  |
| Signature of Licensed Environmental Professional License #: |
|  |
|  |
| Name of Licensed Environmental Professional (print or type) |
| **Date of signature/verification**:  Phone Number:        Email: |

**Rem#:**

Part III: Regulatory History

1. **Previous Remedial Program Information**

|  |  |
| --- | --- |
| Property Transfer: | Voluntary Remediation: |
| Form III Rem#: | 22a-133x Rem#: |
| Form IV Rem#: | 22a-133y Rem#: |
| Other: | |

**B. Previous Verification Information**

If this Voluntary Remediation Verification relies on a previous FINAL Verification or Commissioner Approval, complete the box below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of Verification | | Date Verification submitted | Rem# | Ver# | Status |
|  | |  |  |  |  |
|  | |  |  |  |  |
|  | Commissioner Approval of Remediation | |  | Date of approval: | |

|  |  |
| --- | --- |
|  | Conditions or environmental controls presented in any verification or Commissioner Approval of Remediation indicated above (and incorporated into this verification) have not changed since the rendering of such verification/approval. |
| Comments: |

1. Significant Environmental Hazard

|  |  |
| --- | --- |
| Was a significant hazard, as defined in §22a-6u identified? | Yes  No |
| Significant Hazard Notification filed? | Yes  No  N/A |
| What type(s) of hazard(s) were identified? | |
| Date of Commissioner’s Certification for Abatement: | |
| OR | |
| Date of Commissioner’s Memorandum of Resolution: | |

**Rem#:**

**Part IV:** **Standards for Soil Remediation**

*A Voluntary Remediation (§22a-133x) Verification (Interim) indicates that groundwater has been impacted by a release, therefore this Voluntary Remediation (§22a-133x) Verification (Interim) Form does not provide the option to indicate “No Release to Soil”.*

**A. Release Determination and Investigation**

*Check either #1 or #2 below to indicate the final assessment of release determination and investigation completed at the specific section of the property indicated in Part II of this Verification Form.*

1.  **Releases to Soil – No Remediation or other Compliance Measure Required**.

Substances were detected in soil, at the specific section of the property indicated in Part II of this Verification Form, but all detected concentrations of substances in soil were less than criteria before remediation or initiation of other compliance measure.

Releases subsequent to previous verification identified in Part III. A. above.

The nature and distribution of all releases applicable to this verification have been characterized in accordance with prevailing standards and guidelines, including the SCGD (Phase III Investigation) or equal alternative approach.

If #1, in its entirety, is checked, skip to [Part IV. C [Application of Standards for Soil Remediation]](#IVC) below.

**2**.  **Releases to Soil –Remediation or other Compliance Measure Required**

Substances in soil at the specific section of the property indicated in Part II of this Verification Form exceeded criteria and RSR compliance for these substances was not verified. Complete the information in the box below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criterion Exceeded** | | **Category of COC** | | **Compliance Measure** | |
| PMC | |  | Non-chlorinated VOCs |  | Excavation & Removal |
|  | GA |  | Chlorinated VOCs |  | Excavation / On-site Re-use |
|  | GB |  | Metals |  | Engineered control |
| DEC | |  | PAHs |  | ELUR |
|  | Res |  | SVOCs |  | In-situ |
|  | I / C |  | PCBs |  | RSR Exemption |
|  |  |  | Petroleum Hydrocarbons |  | Use of RSR Alternatives |
|  | |  | Pesticides / Herbicides |  | Use of 95% UCL |
|  |  |  | Other |

|  |  |
| --- | --- |
|  | The 133x Interim Verification Report (VR) documents and explains how the Soil Remediation Standards were achieved at each release area. |

**Rem#:**

1. **Compliance Measures**

**1. Excavation**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Remediation excavation of polluted soil was conducted to achieve compliance. | | Applicable Release Area (RA) ID #’s |
| Remedial excavation discussed Section      , page       in the VR | | |
|  | Polluted soil meeting definition of **hazardous waste** per CGS 22a-449(c) was located on site and was treated, stored, disposed, and/or transported in conformance with RCRA section 22a-449(c)-101 through 110. | 22a-133k-2(h)(1) |  |
|  | The Commissioner authorized the disposal of polluted soil as **special waste**, as defined in RCRA section 22a-209-1. | 22a-133k-2(h)(2) |  |
| Approval date(s): | 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | Polluted soil reused on-site | 22a-133k-2(h)(3) |  |
| Total volume excavated soil reused on site: | | |
|  | Polluted soil reused off-site (Commissioner approval)  Approval date(s): | 22a-133k-2(h)(3) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |
| Total volume of excavated soil removed from site: | | |

**2. Engineered Control**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Engineered Control of Polluted Soil (Commissioner approval and ELUR has been recorded) | | | 22a-133k-2(f)(2) | Applicable Release Area (RA) ID #’s |
|  |  | Use of Engineered Control for **DEC** | | …(B)(i)(I) |  |
| Approval date(s): | | 🡪Copy(s) of Approval(s) must be attached to VR | |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | |
|  | Use of Engineered Control for **PMC** | | …(B)(i)(II) |  |
| Approval date(s): | | 🡪Copy(s) of Approval(s) must be attached to VR | |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | 🡪Copy of Certificate of Title page (w/ volume, page, and date recorded) must be attached to VR | | |
|  | Financial Surety (**Required for Commissioner-Approved EC or TI Variance**) | | | |
| Type of Financial Surety Mechanism established: | | | |
| Date Financial Surety Mechanism information submitted to Commissioner: | | | |
|  | 🡪Copy of the Financial Surety Mechanism must be attached to VR | | |
|  | Financial Surety Mechanism was established for an EC covered under a previous verification. | | | | |
|  | If yes, the financial surety mechanism has been confirmed to still be in place and remains valid. | | | |
| Comments: | | | | |

**Rem#:**

**3.** **In-Situ Remediation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | In-Situ remediation of polluted soil was conducted to achieve compliance. | | | Applicable Release Area (RA) ID #’s |
|  | Temporary Authorization | |  |
| Approval date(s): | 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | General Permit | |  |
| Approval date(s): | 🡪Copy(s) of Approval(s) must be attached to VR | |
| Describe measures taken: | | | |

**4. Institutional / Administrative Compliance Measures**

|  |  |
| --- | --- |
|  | The use of any ELUR, RSR Exemption, RSR alternatives, or use of 95% UCL are indicated in the appropriate sections below, and described in detail in the VR. |

**5. Other compliance measures**

|  |  |
| --- | --- |
|  | Describe measures taken: |

|  |  |
| --- | --- |
|  | Public notice of remediation was posted in accordance with the requirements of §22a-133x(i) and Section 22a-133k-1(d) of the RCSA. A copy of the PN, and discussion of any comments received are attached to the Verification Report. |

**C.** **Application of** **Standards for Soil Remediation**

*Complete Sections C. #1 through C. #7 below, as applicable, for this verification.*

|  |  |  |
| --- | --- | --- |
| **1. Background concentration in soil** | | 22a-133k-2(a)(2) |
|  | Notice is required to be submitted to the Commissioner if background conditions are applicable at the project site. Checking this box may be considered such Notice. | |
| Section 22a-133k-2(a)(2) of the RSRs provide prerequisites to demonstrate a background condition exists, and all must apply. | |
| Details related to the use of Background are discussed at Section       page       of the VR. | |

**Rem#:**

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| **2. Direct Exposure Criteria (DEC)** 22a-133k-2(a)1(A) and k-2(b) | | | | Applicable Release Area (RA) ID #’s |
|  | Polluted soils ≤ Residential DEC | | 22a-133k-2(b)(1) |  |
|  | Polluted soils ≤ Industrial/Commercial (I/C) DEC (no PCBs and ELUR recorded) | | 22a-133k-2(b)(2)(A) |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | *🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR* | | |
|  | PCB polluted soil ≤ I/C DEC (electrical substation or other restricted access location and ELUR recorded) | | 22a-133k-2(b)(2)(B) |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | *🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR* | | |
|  | Additional Polluting Substance (Commissioner approval)  Approval date(s): | | 22a-133k-2(b)(5) |  |
| *🡪Copy(s) of Approval(s) must be attached to VR* | |
|  | Alternative DEC (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(2) |  |
| *🡪Copy(s) of Approval(s) must be attached to VR* | |
|  | Alternative DEC for PCBs (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(7) |  |
| *🡪Copy(s) of Approval(s) must be attached to VR* | |
|  | **DEC not applicable** – Inaccessible Soil (per 22a-133k-1(a)(32))  (polluted soil <15 ft bgs and ELUR has been recorded) | | 22a-133k-2(b)(3) |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | *🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR* | | |
|  | PCB polluted soil is inaccessible and remediated to the following: | | 22a-133k-2(b)(3) |  |
|  |  | 10 ppm by weight (industrial criteria) | | |
|  | 25 ppm by weight (if located on parcel which is another restricted access location defined in 40 CFR 761.123) | | |
|  | 25 ppm by weight (if located at electrical substation defined in 40 CFR 761.123) | | |
|  | 50 ppm by weight (if located at electrical substation and area labeled/noticed per 40 CFR Part 761) | | |
|  | **DEC not applicable** – Incidental Sources | | 22a-133k-2(b)(4) |  |
|  |  | Incidental release due to normal operation of motor vehicles | | |
|  | A result of normal paving and maintenance of pavement | | |

**Rem#:**

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| **3. Compliance with DEC**  22a-133k-2(e) | | | | Applicable Release Area (RA) ID #’s |
|  | 95% UCL | | 22a-133k-2(e)(1)(A) |  |
|  | All analyses of samples from RA ≤ DEC | | 22a-133k-2(e)(1)(B) |  |
|  | Matrix interference | | 22a-133k-2(e)(3)(B) |  |
|  | 🡪Detailed summary must be presented in VR | 22a-133k-2(e)(3)(C) | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **4. Pollutant Mobility Criteria (PMC)** 22a-133k-2(a)1(B) and k-2(c) | | | | | | Applicable Release Area (RA) ID #’s |
|  | Mass analyses of COCs other than inorganic or PCBs ≤ PMC | | | | 22a-133k-2(c)(1)(A) |  |
|  | TCLP/SPLP analyses of inorganic COCs or PCBs ≤ PMC | | | | 22a-133k-2(c)(1)(B) |  |
|  | TCLP/SPLP analyses of COCs in polluted soil at or above seasonal low water table ≤GWPC | | | | 22a-133k-2(c)(2)(A) |  |
|  | TCLP/SPLP analysis of VOCs in polluted soil at or above seasonal low water table < 10x GWPC | | | | 22a-133k-2(c)(2)(B)  (GA Area) |  |
| or | | | | |  |
|  | Mass analysis of soils polluted with VOCs in polluted soil at or above seasonal low water table < GA PMC x10 or alternative dilution factor (***All of the following must apply*↓**) | | | |  |
|  |  | No NAPL present in RA, as determined pursuant to 22a-133k-2(c)(E)(3), | | | | |
|  | Water table is ≥15’ above bedrock surface, and | | | | |
|  | Downward vertical flow velocity ≤ horizontal flow velocity; | | | | |
| **AND** either subset (B)(i) or (B)(ii) or (B)(iii) below (in their entirety) | | | | | |
| B)(i) | |  | Public water within 200’ of subject and adjacent parcels and any parcel within the areal extent of the RA plume, (aa) | | |
|  | Groundwater within plume not used for drinking, (bb) | | |
|  | No supply wells exists within 500’ of RA, and (cc) | | |
|  | Not a potential public water supply resource. (dd) | | |
| B)(ii) | |  | Concentration of VOCs < GWPC within 75’ of nearest downgradient property boundary, (aa) | | |
|  | Areal extent of plume and concentrations of VOCs not increasing over any point in time, except for seasonal variations and natural attenuation, and (bb) | | |
|  | Notice has been provided to Commissioner that requirements have been met. (cc) | | |
| 🡪This Verification Form may be considered the Notice. Details must be documented and explained in the VR. | | |
| (B)(iii) | |  | Concentrations of VOCs< GWPC within 25’ downgradient of RA, and (aa) | | |
|  | Notice of such condition has been provided to Commissioner. (bb) | | |
| 🡪This Verification Form may be considered the Notice. Details must be documented and explained in the VR. | | |

**Rem#:**

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| **4. PMC (continued)** 22a-133k-2(a)1(B) and k-2(c) | | | | Applicable Release Area (RA) ID #’s |
|  | TCLP/SPLP analysis of inorganic, semi-volatile, PCBs, or pesticides in polluted soil at or above seasonal low water table < GWPC x10 (or x dilution factor). | | 22a-133k-2(c)(2)(C)  (GA Area) |  |
|  | Mass analysis of inorganic, semi-volatile, PCBs, or pesticide < GA PMC x 10 (***All of the following must apply***) | |  |
|  |  | Release area is ≥ 25’ from downgradient property line, (ii) (aa) | | |
|  | NAPL is not present, and (ii) (bb) | | |
|  | Water table is ≥15’ above the bedrock surface. (ii) (cc) | | |
|  | TCLP/SPLP analysis of substance above seasonal high water table (**no NAPL present**) | | 22a-133k-2(c)(2)(D) |  |
|  |  | ≤ GWPC x10, **or** | (aa) |  |
|  | ≤ GWPC multiplied by ratio of up and downgradient areas, **or** | (bb) |  |
|  |  | ≤ GWPC multiplied by alternative dilution factor | (cc) |  |
|  | Site-specific dilution in GB area | | 22a-133k-2(c)(2)(E) |  |
|  | Notice provided to Commissioner on details of application | | |
| 🡪This Verification Form may be considered the Notice. Details must be documented and explained in the VR.  Or Date notice provided to the Commissioner: | | |
|  | Additional Polluting Substance (Commissioner approval) | | 22a-133k-2(c)(6) |  |
| Approval date(s): | | 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | Alternative GA PMC (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(3) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | Alternative GA Dilution or Dilution Attenuation Factor (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(4) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | Alternative GB PMC (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(5) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |
|  | Alternative GB Dilution or Dilution Attenuation Factor (Commissioner approval)  Approval date(s): | | 22a-133k-2(d)(6) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |

**Rem#:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **4. PMC (continued)** 22a-133k-2(a)1(B) and k-2(c) | | | | | | | Applicable Release Area (RA) ID #’s |
|  | **PMC not applicable** – Incidental Sources | | | | | 22a-133k-2(c)(5) | |
|  |  | Incidental release due to normal operation of motor vehicles | | | | |  |
|  | A result of normal paving and maintenance of pavement | | | | |  |
|  | **PMC not applicable** due to environmentally isolated soils | | | | | 22a-133k-2(c)(4)(A) |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | | | | |
|  | | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | | | |
|  | **PMC not applicable** - polluted fill  (***All of the following must apply***) | | | | | 22a-133k-2(c)(4)(B) |  |
|  |  | Such fill is polluted only with coal ash, wood ash, coal fragments, asphalt fragments, or any combination thereof; | | | | | |
|  | Such fill is not polluted with any VOCs >applicable PMC; | | | | | |
|  | The concentrations of each substance in any such fill is consistent with DEC requirements; | | | | | |
|  | Such substance is not affecting and will not affect the quality of an existing or potential public water supply resource or an existing private drinking water supply; | | | | | |
|  | A public water supply distribution system is available within 200 feet of such parcel and all parcels adjacent thereof; and | | | | | |
|  | The placement of the fill was not prohibited by law at the time of placement. | | | | | |
|  | **PMC not applicable** to substances other than VOCs  ***(The following must apply*)** | | | | | 22a-133k-2(c)(4)(C) | |
|  | 80% of RA subject to infiltration for at least 5 years, or (I) | | | | |  |
|  |  | Concentration of substance and extent of plume will not increase if anthropogenic feature removed, (Commissioner approval) (II) | | | | |  |
| Approval date(s): | | | 🡪Copy(s) of Approval(s) must be attached to VR | | |
| ANDone or more of the following apply (4)(C)(ii): | | | | | | |
|  |  | | GA: The GWPC and the SWPC has been achieved for 4 consecutive quarters. | | | |
|  | | GB with GA concerns (groundwater in an Aquifer Protection Area or used as a source of public drinking supply): The GWPC and SWPC has been achieved for 4 consecutive quarters. | | | |
|  | | GB: The SWPC has been achieved for 4 consecutive quarters. | | | |
| AND **all** of the following must apply: | | | | | | |
|  | The groundwater sampling locations are representative of the plume and the areal extent of the plume that exceeds applicable criteria is not increasing over time, | | | | | |
|  | The concentration of substances is not increasing over time, and | | | | | |
|  | The groundwater samples were collected from locations most likely to have been impacted by the release. | | | | | |

**Rem#:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **5. Compliance with** **Pollutant Mobility Criteria** | | | 22a-133k-2(e)(2) | Applicable Release Area (RA) ID #’s |
|  | 95% UCL | | 22a-133k-2(e)(2)(A) |  |
|  | All analyses of samples from RA ≤ PMC | | 22a-133k-2(e)(2)(B) |  |
|  | Matrix interference | | 22a-133k-2(e)(3)(B) |  |
|  | 🡪Detailed summary must be presented in VR | 22a-133k-2(e)(3)(C) | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **6. Other Provisions** | | | | | | Applicable Release Area (RA) ID #’s |
|  | Remediation of Soils Polluted with Lead to 500 mg/K, **provided**: | | | | 22a-133k-1(g) |  |
|  |  | Prior to 6/27/2013, such remediation had been initiated **or** | | | | |
|  | Date remediation was initiated (documented by date of Public Notice of Remediation): | | | |
|  | RAP had been completed for such release (Date RAP was submitted to DEEP): | | | | |
|  | **AND** | On or before 6/27/2015, remediation for such release has been completed | | | |
|  | Date remediation of such release was completed: | | | |
|  | Widespread Polluted Fill Variance | | | 22a-133k-2(f)(1) | |  |
| Discussed in the VR in Section      , page      . | | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **7.** **Non-Aqueous Phase Liquids (NAPL)** | | | Applicable Release Area (RA) ID #’s |
|  | LNAPL removed to maximum extent practicable | 22a-133k-2(g) |  |
|  | Any other NAPL removed to maximum extent prudent | 22a-133k-2(g) |  |
| Discussed in the VR in Section      , page      . | | | |

**Rem#:**

**Part V. Groundwater Remediation Standards**

1. **Groundwater Remediation**
2. A 133x Interim Verification indicates that groundwater has been impacted by a release and that a selected remedy for remediation of a groundwater plume is in operation. Complete this table for the plume(s) with an ongoing remediation, and the rest of the Verification Form below, as applicable.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Criterion Exceeded** | | | **COC** | | **Selected Remedy** | | |
|  | | Background |  | non-chlorinated VOCs |  | Pump & Treat | |
|  | | GWPC |  | Chlorinated VOCs |  | Air Sparging / Vapor extraction | |
|  | | SWPC |  | Metals |  | Dual-Phase | |
|  | |  |  | PAHs |  | Monitored natural attenuation | |
|  | | |  | SVOCs |  | Other: | |
|  |  | |  | PCBs | Release Area ID #’s or Site-Wide | | |
|  | | |  | Petroleum Hydrocarbons |  | | |
|  |  | |  | Pesticides / Herbicides |  | |  |

* **Note: Groundwater compliance monitoring or an administrative action to achieve compliance is not considered an ongoing groundwater remedy. Therefore, the processing of an ELUR or a request for the Commissioner’s approval of a RSR alternative or exemption does not qualify for an Interim Verification.**

|  |  |
| --- | --- |
| 1. **Characterization** | |
|  | The plume that is being remediated has been investigated in accordance with prevailing standards and guidelines, including the SCGD or equal alternative approach. |
|  | A sufficient quantity and quality of groundwater data has been collected to understand the seasonal and dimensional conditions of the groundwater and the plume. |
| Groundwater investigation / plume characterization are documented in Section      , page       of the VR. | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. **Selected Remedy Requirements** | | | CGS 22a-134(28)(C) | |
|  | There are no current exposure pathways to the groundwater area that have not yet achieved compliance with the remediation standards. | | | |
|  | A dedicated section of the Interim Verification Report must discuss and provide details of the following  (by checking each box, the LEP is acknowledging such requirement): | | | |
|  | The selected groundwater remedy. Discussed in VR in Section      , page | | |
|  | How the selected remedy is an appropriate remedy. Discussed in VR in Section      , page | | |
|  | Ongoing Operation & Maintenance requirements. Discussed in VR in Section      , page | | |
|  | Estimated duration of selected groundwater remedy: | | |
|  | Annual status reports shall be submitted to the Commissioner | | 22a-134a(g)(1)(D) |

**Rem#:**

1. There are no other plume(s) associated with releases applicable to the pertinent date of this verification other than the plume(s) with the selected remedy. If checked, skip to [Part VI. [Receptors]](#partIV) below.
2. There are/were plumes - other than the plume(s) with the selected remedies - associated with releases applicable to the pertinent date of this verification. Complete the rest of the verifiction form.

**B. Groundwater Impact Determination and Plume Investigation**

1. **Other** **Releases to Groundwater –Remediation or other Compliance Measure was not Required**

Substances, applicable to the pertinent date of this verification, were detected in groundwater, but all detected substances in groundwater were less than criteria before remediation or initiation of other compliance measure.

The nature and distribution of all plumes associated with all releases applicable to the pertinent date of this verification have been characterized in accordance with prevailing standards and guidelines, including the SCGD (Phase III Investigation) or equal alternative approach.

If #1 is checked, skip to [Part V. C. [Application of Groundwater Remediation Standards]](#partVB) below.

1. **Other Releases to Groundwater – Remediation or other Compliance Measure was Required**

Substances in groundwater, and associated with a release applicable to the pertinent date of this verification, exceeded criteria at any time.

The nature and distribution of all plumes associated with all releases applicable to the pertinent date of this verification have been characterized in accordance with prevailing standards and guidelines, including the SCGD (Phase III Investigation) or equal alternative approach.

If #2 is checked, complete the information in the box below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criterion Exceeded** | | **Category of COC** | | **Compliance Measure** | |
|  | Background |  | Non-chlorinated VOCs |  | Air Sparging / Vapor Extraction |
|  | GWPC |  | Chlorinated VOCs |  | Dual-Phase |
|  | SWPC |  | Metals |  | Pump & Treat |
|  | VolC |  | PAHs |  | Monitored Natural Attenuation |
|  | |  | SVOCs |  | ELUR |
|  |  |  | PCBs |  | RSR Exemption |
|  | |  | Petroleum Hydrocarbons |  | Use of RSR Alternatives |
|  |  |  | Pesticides / Herbicides |  | Other: |

1. If remedial measures were conducted to address Vapor Intrusion, complete box below:

|  |  |  |
| --- | --- | --- |
| **Vapor Intrusion** | **Remedial Measure** | |
| Sub-slab depressurization | Indoor-air monitoring |
| Vapor barrier | Alternative |

**Rem#:**

**C. Application of Groundwater Remediation Standards**

*In order to validate the application of the Groundwater Remediation Standards,* ***all*** *subsections of C.1 below are expected to be completed.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. **Application of** **Groundwater Remediation Standards** | | | | RCSA 22a-133k-3 | |
|  | All plumes have been investigated in accordance with prevailing standards and guidelines, including the SCGD or equal alternative approach. | | | | |
|  | A sufficient quantity and quality of groundwater data has been collected to understand seasonal and dimensional groundwater conditions. | | | | |
|  | Groundwater monitoring has been completed in accordance with 22a-133k-3(g). | | | | |
|  | Groundwater monitoring was completed to determine the following: (mark all appropriate boxes below) | | | | |
|  |  | The effectiveness of any soil remediation to prevent the pollution of groundwater from RA | | | 3(g)(1)(A) |
|  |  | Not applicable. Remediation of soil was not necessary. | | |
|  | The effectiveness of any measures to render soil environmentally isolated | | | 3(g)(1)(B) |
|  |  | Not applicable. | | |
|  | The effectiveness of any remediation taken to eliminate or minimize risks associated with release, or risks identified in a risk assessment | | | 3(g)(1)(C) |
|  |  | Not applicable. No remediation of environmental media was conducted. | | |
|  | That all substances in groundwater in a GA or aquifer protection area meet Background or GWPC, as applicable | | | 3(g)(1)(D) |
|  |  | Not applicable. Groundwater in a GB area and not in aquifer protection area. | | |
|  | That all substances in groundwater meet SWPC and applicable VolC | | | 3(g)(1)(E) |
|  | If a plume in GB area interferes with any existing uses of groundwater for a drinking water supply or any other existing uses, including but not limited to industrial, commercial or agricultural uses | | | 3(g)(1)(F) |
|  |  | Not applicable. Groundwater is in a GA area. | | |
|  | **The Verification Report documents and explains how the Groundwater Remediation Standards were achieved for each plume.** | | | | |

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| **2. Compliance with Criteria for Groundwater** | | | 22a-133k-3(g)(2)(A) |
|  | Compliance samples were collected after: (i) | | |
|  |  | All remedial actions to achieve compliance with PMC and GWPC were complete, (i) (I) | |
|  | No transient effects on hydraulic head, (i) (II) | |
|  | Any changes to geochemistry have stabilized and equilibrium conditions are established, AND (i) (III) | |
|  | The concentrations of substances at each sampling location that represents the extent and degree of the plume were not increasing over time (except for natural attenuation or seasonal variation). (i) (IV) | |

**Rem#:**

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| **2. Compliance with Criteria for Groundwater (continued)** | | | | | 22a-133k-3(g)(2)(A) |
|  | Compliance samples were collected during 4 sampling events that reflect seasonal variability. (ii) | | | | |
|  |  | Completed in 1 year | | | |
|  | Completed in 2 years | | | |
|  | A substance was detected in any one seasonal quarter > criteria. | | | | |
|  | Explained in VR, Section      , page      . | | | |
|  | Alternative Means to Demonstrate Compliance (Commissioner approval) | | 22a-133k-3(g)(2)(iii) | Release Area (RA) ID #’s or Site-Wide | |
| Approval date(s): | |  | |
| 🡪Copy(s) of Approval(s) must be attached to VR | | |

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| **2a. Groundwater Compliance not applicable – “Incidental Sources”** 22a-133k-3(f) | | | Release Area (RA) ID #’s or Site-Wide |
|  | Trihalomethanes resulting from releases of drinking water from public water supply system, or | |  |
|  | Metals, petroleum hydrocarbons, or semi-volatile substances, provided such pollution is due to: | | |
|  | Incidental release due to normal operation of motor vehicles |  |
|  | A result of normal paving and maintenance of pavement |  |

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| **3. Background Groundwater Quality** | | 22a-133k-3(a)(1)(B) and k-3(a)(2) | | Release Area (RA) ID #’s or Site-Wide |
|  | Groundwater in GA area meets Background Groundwater Quality | | 22a-133k-3(a)(2) |  |
|  | Background Water Quality not required  (see 4a. below) | | 22a-133k-3(d) |  |
|  | Exemption from Background due to Technical Impracticability | | 22a-133k-3(e)(1) |  |

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| **4. Compliance with Background** | | | 22a-133k-3(g)(2)(B) | | Release Area (RA) ID #’s or Site-Wide |
|  | Sampling locations are representative of plume, **and** | | | | |
|  |  | Analytical results ≤ Background concentration for groundwater **OR** | | (i) |  |
|  | 12 consecutive monthly samples from each sampling location are ≤ 95% UCL | | (ii) |  |

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| **4a. Compliance with Background not Required** | | | | 22a-133k-3(d)(1) or (d)(2) | | Release Area (RA) ID #’s or Site-Wide |
|  | GWPC, not Background, is applicable at site.  *(****All of the following must apply.****)* | | | | 22a-133k-3(d)(1) |  |
|  |  | | The background concentration is ≤ GWPC; | | | |
|  | | A public water distribution system is available within 200 feet of the subject parcel, parcels adjacent thereto, and any parcel within the areal extent of the plume; | | | |
|  | | Such plume is not located in an Aquifer Protection Area; **AND** | | | |
|  | | Such plume is not located within the area of influence of any public water supply well. | | | |
|  | Groundwater remediation to Background not required  ***(All of the following must apply.)*** | | | | 22a-133k-3(d)(2) |  |
|  |  | All substances in plume ≤ GWPC prior to remediation; | | | | |
|  | The areal extent of the plume that exceeds applicable criteria is not increasing over time; and | | | | |
|  | The concentration of substances is not increasing over time. | | | | |

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| **5. Groundwater Protection Criteria (GWPC)** | | 22a-133k-3(a)(2)(A) and k-3(d) | | Release Area (RA) ID #’s or Site-Wide |
|  | Groundwater in GA area remediated to GWPC | | 22a-133k-3(d)(1) |  |
|  | Groundwater in GB area remediated to GWPC (groundwater used for drinking or other domestic purposes) | | 22a-133k-3(d)(3) |  |
|  | Additional Polluting Substance (Commissioner approval)  Approval date(s): | | 22a-133k-3(h) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |

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| **6. Compliance with GWPC** | | | 22a-133k-3(g)(2)(B) | | Release Area (RA) ID #’s or Site-Wide |
|  | Sampling locations are representative of plume, **and** | | | | |
|  |  | analytical results ≤ GWPC for groundwater **OR** | | (i) |  |
|  | 95% UCL of arithmetic mean of all samples representing plume for 12 consecutive monthly samples is ≤ applicable criteria | | (ii) |  |

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| **7. Surface Water Protection Criteria (SWPC)** | | 22a-133k-3(a)(1)(A) and k-3(b) | | Release Area (RA) ID #’s or Site-Wide |
|  | Groundwater ≤ SWPC (remediation not required) | | |  |
|  | Groundwater remediated to SWPC, **or** if required: **↓** | | 22a-133k-3(b)(1) |  |
|  | Groundwater remediated to Appendix D of Water Quality Standards | | 22a-133k-3(b)(2) |  |

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| **8. Compliance with SWPC** | | | 22a-133k-3(g)(2)I | | Release Area (RA) ID #’s or Site-Wide | |
|  | Alternative SWPC used  (of substance listed in Appendix D, WQS) | | 22a-133k-3(b)(3)(A) | |  | |
|  | Alternative SWPC (Commissioner approval)  Approval date(s): | | 22a-133k-3(b)(3)(B) | |  | |
| 🡪Copy(s) of Approval(s) must be attached to VR | | | |
|  | Sampling locations are representative of plume, **and ↓** | | | | | |
|  |  | 95% UCL of all samples representing plume is ≤ applicable criteria, **or** | | (i) | |  |
|  | Discharge point of plume ≤ SWPC | | (ii) | |  |

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| **9. Volatilization Criteria (VolC)** 22a-133k-3(a)(1)(A) and k-3(c) | | | | | | | Release Area (RA) ID #’s or Site-Wide |
|  | Groundwater polluted with VOCs ≤ Residential VolC | | | | 22a-133k-3(c)(1) | |  |
|  | Groundwater polluted with VOCs ≤ I/C VolC (ELUR recorded) | | | | 22a-133k-3(c)(2) | |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | | | | |
|  | | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | | | |
|  | Soil Gas Vapor Alternative | | | | 22a-133k-3(c)(3)(A) | |  |
|  |  | Soil vapor ≤ Res VolC , **or** | | | (i) | |  |
|  | Soil vapor ≤ I/C VolC (ELUR recorded) | | | (ii) | |  |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | | | | |
|  | | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | | | |
|  | Site-specific and Alternative VolC (Commissioner approval)  Approval date(s): | | | | 22a-133k-3(c)(4) |  | |
| 🡪Copy(s) of Approval(s) must be attached to VR | | |
|  | **VolC exempt** (**all ↓ sub-requirements are applicable**) | | | | 22a-133k-3(c)(5) | |  |
|  | No buildings, plus best efforts to have all property owners to record ELUR | | | (A)(i) | |  |
|  | Dates of Certificate of Titles for recordation of ELURs submitted to Commissioner: | | | | | |
|  | | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | | |
| **🡪 If all property owners did not consent to ELUR, documentation of Best Efforts must be attached to VR** | | | | | |
| **OR** | | | | | | |
|  | No buildings can reasonably be built over plume or VOCs ≤ VolC within 5 years (Commissioner approval) Approval date(s): | | | (A)(ii) | |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | | |
|  | Building exists, but Indoor Air Monitoring (Commissioner approval) Approval date(s): | | | (B) | |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | | |

**Rem#:**

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| **8. VolC (cont.)** 22a-133k-3(a)(1)(A) and k-3(c) | | | | Release Area (RA) ID #’s or Site-Wide |
|  | **VolC not applicable** (**all ↓ sub-requirements are applicable**) | | 22a-133k-3(c)(3)(B) |  |
|  |  | Measures acceptable to Commissioner have been taken to prevent migration of vapors into any overlying building; | | |
|  | A program is implemented to monitor and maintain all such measures; and | | |
|  | Notice of such measures have been submitted to Commissioner on the prescribed form. | | |
| Date Notice submitted to Commissioner: | | |
|  | **VolC not applicable** | | 22a-133k-3(c)(1) |  |
|  |  | VOCs not detected in groundwater | | |
|  | VOCs detected in groundwater, but seasonally high water table is 15 feet or greater beneath ground surface or building | | |

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| **9. Compliance with VolC** | | | 22a-133k-3(g)(2)(D) | | Release Area (RA) ID #’s or Site-Wide |
|  | Compliance with VolC in Groundwater | | | (i) |  |
|  |  | Sampling locations are representative of plume, **and** | | | |
|  | analytical results ≤ applicable VolC, as determined by 22a-133k-3(c). | | | |
| **OR** | | | | | |
|  | Compliance with VolC in Soil Vapor | | | (ii) |  |
|  |  | Sampling locations and frequency are representative of soil vapor, including seasonal variability, **and** | | | |
|  | analytical results ≤ applicable VolC. | | | |

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| **10. Other Provisions** | | | | Release Area (RA) ID #’s or Site-Wide |
|  | Application of DEEP “Policy on Up-Gradient Contamination” (8/28/97) | | [Policy on Upgradient Contamination](http://www.ct.gov/dep/cwp/view.asp?a=2715&q=324960&depNav_GID=1626) |  |
|  | Variance of groundwater remediation due to Technical Impracticability (Commissioner approval)  Approval date(s): | | 22a-133k-3(e)(2) |  |
| 🡪Copy(s) of Approval(s) must be attached to VR | |
| Date Certificate of Title for recordation of ELUR submitted to Commissioner: | | | |
|  | 🡪Copy of Certificate of Title page (with volume, page, and date recorded) must be attached to VR | | |

**Rem#:**

**Part VI: Receptors**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Groundwater Class: | | | Depth to Water Table: | | Surface Water Class: | | |
| Name of and Distance to nearest downgradient surface water body: | | | | | | | |
| Abutting land uses  (check all that apply): | | Industrial  Commercial Residential Agriculture | | | | | |
| Sensitive receptor land use within 500 feet of site  (check all that apply): | | school  childcare facility  healthcare facility  recreational  residential  Sensitive Water Resource (e.g. shellfish beds, public fishing areas, significant wetland complexes, public water supplies)  other (specify): | | | | | |
| If groundwater impacted, indicate number of water supply wells within 500 feet of site boundaries: | | | | | | | |
| Water Supply Well Receptor Survey completed and submitted to the Commissioner:  Yes  No | | | | | | | |
| Has a groundwater plume that originated on-site migrated off-site?  Yes  No | | | | | | | |
| Number of water supply wells impacted from releases originating from on-site source: | | | | | | | |
| Permanent potable water supply provided by: | | | | Water Main connection | | Date: | |
| Filtration | | Monitoring frequency: | |
| Did any on-site release have the potential to impact an Ecological Receptor | | | | | | | Yes  No |
| If yes, were the potential ecological exposure pathways, where contaminants could affect aquatic and terrestrial life, evaluated | | | | | | | Yes  No |
| If yes, what level of evaluation was completed?  Scoping  Screening Risk Assessment | | | | | | | |
|  | If yes, was the ecological receptor impacted by an on-site release? | | | | | | Yes  No |
|  | | | | Was the impact mitigated? | | | Yes  No |

**Optional (no implication on validity of verification)**

|  |  |
| --- | --- |
| ASTM Standard for Greener Cleanups, E2893-13 (Nov. 2013) | |
|  | Green Remediation Best Management Practices were considered. |
|  | Green Remediation Best Management Practices were used in the course of site investigation and/or remediation. |

**Rem#:**

**Part VII: Certification**

**Environmental Condition Assessment Form (ECAF) Certifying Party**

|  |  |  |
| --- | --- | --- |
| "In accordance with Section 22a-133x(e) of the CGS, I submit this Verification that has been signed and sealed by a licensed environmental professional (LEP), and the attached 133x Interim Verification Report, which has been approved in writing by a LEP, and other applicable documentation."  Check if applicable  Remediation of groundwater is being conducted at the parcel and public notice of remediation was completed in accordance with Section 22a-133x(i) of the CGS. Documentation of the public notice is presented in the 133x Interim Verification Report dated: | | |
|  |  |  |
| Printed Name of Signatory for ECAF Certifying Party |  | Title |
|  |  |  |
| Authorized Signature for ECAF Certifying Party |  | Date |
| Certifying Party:  Address:  City/Town:       State:    Zip Code:  Phone:  e-mail: | | |

This completed form should be submitted to: Remediation Division, 2nd Floor

Bureau of Water Protection and Land Reuse

Department Of Energy & Environmental Protection

79 Elm Street

Hartford, CT 06106-5127